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A report to the
Nature Conservancy Council
from the
Field Studies Council Oil Pollution Research Unit
Orielton, Pembroke, Dyfed. SA71 5EZ.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

PLYMOUTH AREA INCLUDING THE YEALM

VOLUME 3a

Intertidal Field Data

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Intertidal (April 22 to 28, May 21 to 27)

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December 1986

FSC/OPRU/36/86

Sites surveyed and survey staff.

INTERTIDAL SITES

Site No.	Site Name	OS Grid Ref. SX:	Algae	Animals	Sediment	Habitat	Date surveyed
1	St. Germans Quay	364572	SH	KH	KH	-	23.4.86
2	Black Rock	398561	SH	KH	KH	notes	23.4.86
3	Wilderness Point	456532	SH	KH	KH	-	23.4.86
4	Cremyll Bay	455533	-	-	JM	JM, MH KC	23.4.86
5	Cawsands Bay (North)	434502	-	-	MH	MH, KC	24.4.86
6	Cawsands Bay (South)	435501	SH	SH	MH	MH, KC	24.4.86
7	Cawsands Bay (Cave)	434501	SH	SH	SH	-	24.4.86
8	Cremyll West	451535	SH	MH	KH	MH, KC	24.4.86
9	Penlee Point	444487	SH	KH	KH	-	25.4.86
10	Hooe Lake Point	450513	SH	KH	KH	-	25.4.86
11	Drakes Island North Bay	467529	MH	MH	JM	JM, MH TL	25.4.86
12	St. Johns Lake Mussel Bed	436542	-	-	MH	JM,MH, TL	25.4.86
13	St. Johns Lake Upper Reaches	422541	-	-	JM	JM, MH	25.4.86
14	St. Johns Lake Landing Pier	432545	-	-	JM	-	25.4.86
15	West of Passage Point	418572	MH	MH	MH	JM	26.4.86
16	Mussel bed south of Beggars Island	424571	-	JM	JM	-	26.4.86
17	Mudflat adjacent to Site 16	424571	-	-	JM, MH	MH, JM TL	26.4.86
18	Mussel bed near Jupiter Point	413569	-	JM	JM	-	26.4.86
19	Mudflat opposite Black Rock	395558	-	-	JM, MH	MH, JM, TL	26.4.86
20	Sand bank near Wacker Lake Buoy	392557	-	-	JM, MH,	MH, JM, TL	26.4.86
21	Opposite Redshank Point	385552	-	-	JM, MH	MH, JM, TL	26.4.86
22	Redshank Point	385554	-	-	JM, MH	MH, JM, TL	26.4.86
23	Opposite Erth hill	380556	-	-	JM, MH	MH, JM, TL	26.4.86
24	South of Pentillie Quay	412644	-	-	MH	MH, KC	27.4.86
25	Neil Point West Shore	436613	-	-	JM	JM, MH, KC, TL	27.4.86
26	W. Shore below Tamar Bridges	433588	SH	MH KH	KH MH	MH, KC	27.4.86
27	Weir Point	438618	SH	KH	KH	-	27.4.86
28	Cargreen Quay	436626	SH	KH	KH	-	27.4.86
29	Opposite South Hooe	423652	-	-	JM	JM, MH, KC, TL	27.4.86
30	South Hooe	421643	SH	KH	KH	-	27.4.86
31	North of Tinnel	421643	SH	KH	KH	-	27.4.86
32	North Hooe	425661	SH	KH	KH	-	27.4.86

Site No.	Site Name	OS Grid Ref. SX:	Algae	Animals	Sediment	Habitat	Date surveyed
33	Torpoint	437545 to 441546	SH	KH	KH	-	27.4.86
34	Cockle Bank	497536	-	-	JM , KC,DR	JM	22.5.86
35	Sandbank opposite Blagdons Boatyard	503545	-	-	JM, KC,DR	JM	22.5.86
36	Sandbank near Blue Circle Sluice	504545	-	-	JM, KC,DR	JM	22.5.86
37	Point Quay	504552	-	-	JM, KC,DR	JM	22.5.86
38	Saltram Wood	511557	-	-	JM, KC,DR	JM	22.5.86
39	N. Saltram Wood	515558	-	-	JM, KC,DR	JM	22.5.86
40	E. Tinside (Mens Bathing area)	479537-480537	AEL	KH	-	KH	22.5.86
41	West Hoe (Millbay Pier to RWYC)	471536-473536	AEL	KH	-	KH	22.5.86
42	Bovisand Bay Beach	492505	-	-	JM,KC	JM	23.5.86
43	Bovisand Bay South	491505	JE	DR	-	DR	23.5.86
44	Clovelly Bay Slip	489532	-	-	JM,KC	JM	23.5.86
45	W. of Clovelly Bay Slip	489533	JE	DR	-	DR	23.5.86
46	Jennycliff Bay	491522-491522	AEL	KH	-	KH	23.5.86
47	Oreston Spit	498533	AEL	KH	-	KH	23.5.86
48	Breakwater N. Side W. end	467505	DR	JM	-	JM, DR	24.5.86
49	Opposite Empacombe Quay	444532	-	-	JM,DR	JM	24.5.86
50	Southdown Quay Wall	438527	DR	DR,JM		JM	24.5.86
51	Millbrook Lake	438524	-	-	DR,JM	JM	24.5.86
52	E. of Foss Point	434521	-	-	DR,JM	JM	24.5.86
53	South Drakes Island	468527	AEL	KH	-	KH	24.5.86
54	Devils Point	460533	AEL	KH	-	KH	24.5.86
55	Cellar Beach	530476-531476	AEL	KH	-	KH	25.5.86
56	Warren Point West	535478	DR	JM,DR	-	JM	25.5.86
57	Warren Point	538478-439478	AEL	KH	JM,DR	JM	25.5.86
58	S. of Madge Point	539482	-	-	DR,KC JM,SK	JM	25.5.86
59	Madge Point	539484	AEL	KH	-	KH	25.5.86
60	Steer Point Slip	544499-545499	DR	DR	JM,KC DR	DR, JM	26.5.86
61	Steer Point East	546499-545497	DR	DR	-	DR	26.5.86
62	Crawl Wood Beacons	546495	AEL	KH	-	KH	26.5.86
63	Tinside Swimming Pool	478536	AEL	KH	-	-	26.5.86
64	Staddon Point	486507	AEL	-	-	-	26.5.86

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86

RECORD NO.:

SITE NAME: St Germans Quay SITE NO.:

SURVEY AREA: Plymouth SEA AREA:

NGR GRID REF.: E - W N - S E - W N - S

5 X 3 6 4 5 7 2 TO

RECORDER: K. Hiscock / S. Hiscock DATE: D 2 3 M 0 4 Y 8 6 and station 3 26/04/86

SITUATION (TICK ONE ONLY)	
OPEN SEA (1 km offshore)	1
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5 ✓
INTERTIDAL EXTENT (m)	6 20
COASTAL TYPE (TICK)	
HEADLAND	7
"LINEAR COAST"	8
LARGE BAY (> 2 km)	9
SMALL BAY	10
SPIT/BAR	11
OFFSHORE SMALL ISLAND	12
AMONGST ROCKS/ISLETS	13
SOUND/NARROWS	14
SHALLOW RAPIDS	15
SEA LOCH	16
ESTUARY/MARINE INLET	17 ✓
LINEAR BEACH	18
POCKET BEACH	19
SALTMARSH	20
COASTAL LAGOON	21
HARBOUR	22
SEA CAVE	23
WRECK	24
OTHER (tick and note below)	25
ASPECT (TICK)	
NORTH	26
NORTHEAST	27
EAST	28 ✓
SOUTHEAST	29
SOUTH	30
SOUTHWEST	31
WEST	32
NORTHWEST	33
TOPOGRAPHY (TICK)	
CLIFF	34
ESTUARY	35 ✓
[illegible]	36
OTHER (tick and note below)	37

COASTAL BACKING (TICK)	
SAND DUNES	38
LOW CLIFF	39
MODERATE CLIFF	40
HIGH CLIFF	41
SALTMARSH	42
MACHAIR	43
DUNE/MACHAIR	44
SEA WALL	45
SHINGLE RIDGE	46
GRASSLAND	47
OTHER (tick and note below)	48 ✓
Buildings	
OFFSHORE FEATURES (TICK)	
ISLANDS	49
REEFS	50
BREAKWATER	51
SANDBANKS	52
SHOAL	53
WAVE EXPOSURE (TICK)	
VERY EXPOSED (prevailing wind and swell)	54
EXPOSED (prevailing wind)	55
SEMI-EXPOSED (strong wind frequent)	56
SHELTERED (strong wind rare)	57
VERY SHELTERED (fetch 20 km)	58
EXTREMELY SHELTERED (fetch 3 km)	59 ✓
MAX. FLOW STREAM STRENGTH (TICK)	
VERY STRONG (> 6 k)	60
STRONG (3-6 k)	61
MOD. STRONG (1-3 k)	62 ✓
WEAK (< 1 k)	63
VERY WEAK (negligible)	64
SALINITY REGIME (TICK)	
NORMAL (around 30°/oo)	65
VARIABLE (30°/oo-)	66
LOW (< 30°/oo)	67 ✓
FRESHWATER STREAM	68
SALINITY DISTURBED	69
[illegible]	70
ROCK TYPE (TICK)	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	✓

FRIABLE SLATE/SHALES	76
NOT KNOWN	77
OTHER (tick and note below)	78
SITE INFORMATION (TICK)	
HABITAT VARIETY	79
SPECIES ABUNDANT	80
SPECIES ABSENT	81 ✓
SPECIES AT OR NEAR LIMIT	82
SPECIES RICHNESS (od. av, poor)	83
PREVIOUS STUDY AREA	84
ORNITH. INTEREST (type?)	85
SEAL HAUL OUT/ BREEDING AREA	86
POLLUTED (type?)	87
VERY CLEAN	88
FRAGILE	89
THREATENED	90
NNR, NNR-LNR, SSSI, MEAS?	91
SEWAGE/INDUSTRIAL OUTFALL NEAR	92
OTHER SOURCES OF DISTURBANCE (tick and note below)	93 ✓
Landing/Mooring	
SHORE USAGE (TICK)	
FIELD STUDY	94
RECREATION	95
BEACH FISHING	96
BAIT DIGGING	97
SHELLFISH COLLECTION	98
MARICULTURE	99
MOORING	100 ✓
WATERSPORT	101
OTHER (tick and note below)	102
AMENITY (TICK)	
ATTRACTIVE BEACH	103
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SPECIMENS COLLECTED	111 ✓
FAUNAL CHECKLIST	112 ✓
[illegible]	113 ✓
OTHER (tick and	
[illegible]	114

INTERTIDAL HABITAT RECORD

SITE NAME St Germans Quay SITE NO. 1

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116	✓					
UPPER MIDSHORE	117	✓					
MIDSHORE	118		✓	✓			
LOWER MIDSHORE	119		✓	✓			
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126		1	1			
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134			2			
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142			2			
MUD	143		3	3			
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
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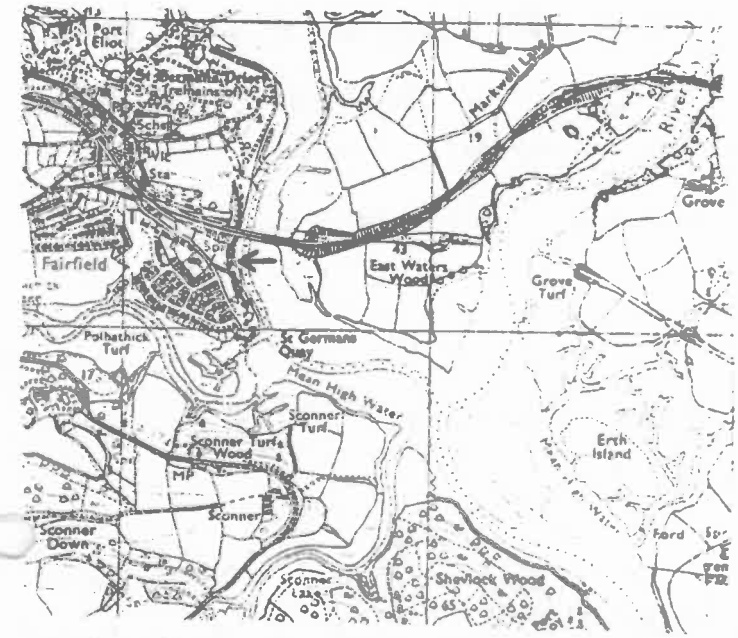
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (~~tick~~ & note/ score below) stone wall	153	3					
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154	3					
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						

		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162	✓					
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165		✓	✓			
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192		✓	3			
SMOOTH	193		✓	1			
WORKED	194			2			
RIPPLED	195						
MOUNDS	196						
BURROWS	197			2			
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

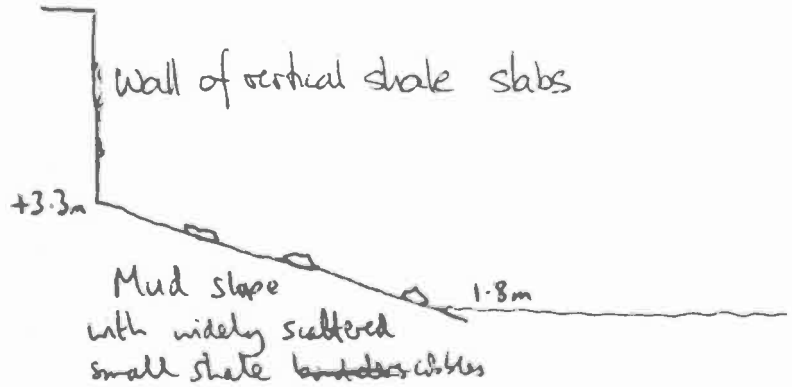
SITE NO.: 1

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)





SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 1

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

1. Near-vertical wall of shale slabs (like dyke wall) set on end, many holes between. Heavy fucoid cover, nearly all F. vesiculosus, no F. spiralis or Pelvetia at top. Only Elminius modestus frequent - other animals were single records of Carcinus maenas, Anurida maritima and a spider.

2. Mud slope with occasional slate stones with fucoids attached and large gammarids present

(26.4.86)
3. Mud Slope with occasional large Slater. Surface mud on shingle / gravel. Sub-surface polychaete presence indicated by numerous hole (probably Nereis diversicolor). Sample taken - 0.04 m² surface skim / 0.5mm sieve.

INTERTIDAL RECORDING SHEET

This check list is based on the [illegible] in the Publicatal Habitat Record Sheet developed in 1985 and replaces the [illegible] shore [illegible] developed by the STBA/MHA Intertidal Survey Unit and used in 1985. The categories in these [illegible] similar headings except [illegible] community present [illegible] the [illegible] the form [illegible] in the [illegible] [illegible] time [illegible] numbers [illegible] habitat record sheet.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: ~~SPIT~~ ST GERMANS QUAY (1) GRID REFERENCE: _____

DATE: 23.4.86 NAME OF RECORDER: S Hiscock

KEY TO HABITAT COLUMNS:

1. US QUAYWALL at +3.3 to 4.3m
2. _____
3. _____
4. _____
5. _____
6. _____

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.	O					
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.						
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa						
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum						
Ceramium shuttleworthianum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dumontia incrassata						
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum						
Gigartina acicularis						
Gigartina stellata						
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						

	1	2	3	4	5	6
Hildenbrandia sp.						
Hypoglossum woodwardii						
Laurencia hybrida						
Laurencia pinnatifida						
Lomentaria articulata						
Lomentaria clavellosa						
Membranoptera alata						
Mesophyllum lichenoides						
Palmaria palmata						
Plumaria elegans						
Polyides rotundus						
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa						
Polysiphonia nigrescens						
Polysiphonia urceolata						
Polysiphonia sp.						
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)						
Rhodophyta indet. (pink)						
Scytosiphon lomentaria						
Porphyra sp.						
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
PHAEOPHYTA						
Ascophyllum nodosum	F					
Bifurcaria bifurcata						
Cladostephus spongiosus						
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoides indet.						

	1	2	3	4	5	6	
Fucus serratus							
Fucus spiralis							
Fucus vesiculosus	S						Right to top - no sprids
Halidrys siliquosa							
Halopteris scoparia							
Himanthalia elongata							
Laminaria digitata							
Laminaria hyperborea							
Laminaria ochrolenca							
Laminaria saccharina							
Laminaria sp. (sporlings)							
Pelvetia canaliculata							
Phaeophyta indet. (filam.)							
Pilayella littoralis							
Saccorhiza polyschides							
Sargassum muticum							
Fucus spiralis	F						
Fucus spiralis	R						
CHLOROPHYTA							
Bryopsis hypnoides							
Bryopsis plumosa							
Chaetomorpha melagonium							
Chlorophyta indet. (filam.)							
Cladophora pellucida							
Cladophora sp.							
Cladostephus spongiosus							
Codium fragile tomentosoides							
Codium tomentosum							
Enteromorpha sp. (p)							
Ulva sp. (p)							
Green fug?	O						
ANGIOSPERMAE							
Zostera noltii							
Zostera augustifolia							
Zostera marina							
LICHENS							
Calloplaca marina							
Calloplaca thallincola							
Grey lichens							
Lecanora atra							
Lichina confinis							
Lichina pygmaea							
Ochrolechia parella							
Verrucaria maura							
Verrucaria mucosa							
Xanthoria parietina							

Levelled at

1.8 – above CD

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS – ANIMALS
(Not including species sampled from sediments)

SITE NAME: St Germans Quay (1) GRID REFERENCE: SX 364 572

DATE: 23.4.86 + 26.4.86 NAME OF RECORDER: K. Hiscock

KEY TO HABITAT COLUMNS:

1. Upper Shore Quay wall by slip at +3.3 - 4.3m
2. Mud slope at +1.5 - 3.3 m
3. Mud slope at +2.5 - 3.0m ~~(26 4 86)~~
4.
5.
6.

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
Scypha compressa						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Ophlitaspongia seriata						
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila						
Laomedea flexuosa						
Tubularia larynx						
COELENTERATA:ACTINIAE						
Actinia equina						
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina						
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Cirratulus cirratus						
Eulalia viridis						

	1	2	3	4	5	6
Lanice conchilega						
Pomatoceros sp. (p)						
Sabella pavonina						
Spirorbinidae – on 'lithothamnia'						
Spirorbinidae – on Gigartina/Chondrus						
Spirorbinidae – on fucoids						
Spirorbinidae – on rock						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus						
Chthamalus montagui						
Chthamalus stellatus						
Elminius modestus	F					
Semibalanus balanoides						
Verruca stroemia						
CRUSTACEA:ISOPODA						
Idotea sp. (p)						
CRUSTACEA:AMPHIPODA						
Amphipoda indet.						
Gammarus sp.		F				
Hyale nilsoni						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas	x)					
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						

	1	2	3	4	5	6
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
INSECTA						
Anurida maritima	x					
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria						
Gibbula umbilicalis						
Hydrobia ulvae						
Littorina 'saxatilis'						
Littorina littorea						
Littorina mariae						
Littorina neglecta						
Littorina neritoides						
Littorina obtusata						
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata						
Nucella lapillus						
Patella aspera						
Patella depressa						
Patella vulgata						
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Bowerbankia imbricata						
Cerastoderma edule						
Hiatella arctica						
Mytilus edulis						
Ostrea edulis						
BRYOZOA						
Alcyonidium gelatinosum						
Alcyonidium hirsutum						
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida						
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						

	1	2	3	4	5	6
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botryllus schlosseri						
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						
Gobiidae	x					
Chaetopterus variopedatus		P	P			
Nereis diversicolor		C	C			

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: Black Rock SITE NO.: 2

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 398 561 TO

RECORDER: K. Hiscock / S. Hiscock DATE: 23 D 04 M 86 Y

SITUATION (TICK ONE ONLY)		
OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓
INTERTIDAL EXTENT (m)	6	50

COASTAL TYPE (TICK)		
HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)		
NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	✓
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)		
HIGH	34	
MODERATE	35	
LOW	36	✓
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)		
SAND DUNES	38	
LOW CLIFF	39	✓
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	✓
MACHAIR	43	
DUNE/MACHAIR	44	
SEA WALL	45	
SHINGLE RIDGE	46	
GRASSLAND	47	✓
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)		
ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)		
VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)		
NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	
LOW (<30°/oo)	67	✓
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)		
IGNEOUS	71	
LIMESTONES	72	
HARD SAND/GRITSTONES	73	
SOFT SAND/GRITSTONES	74	
HARD CLAYS/SHALES	75	

FRIABLE SLATE/SHALES	76	✓
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)		
HABITAT VARIETY	79	
SPECIES ABUNDANT	80	
SPECIES ABSENT	81	✓
SPECIES AT OR NEAR LIMIT	82	
SPECIES RICHNESS (gd, av, poor)	83	poor
PREVIOUS STUDY AREA	84	
ORNITH. INTEREST (type?)	85	
SEAL HAUL OUT/ BREEDING AREA	86	
POLLUTED (type?)	87	
VERY CLEAN	88	
FRAGILE	89	
THREATENED	90	
MNR,NNR,LNR, SSSI NEARBY	91	
SEWAGE/INDUSTRIAL OUTFALL NEAR	92	
OTHER SOURCES OF DISTURBANCE (tick and note below)	93	✓

Slightly malay

SHORE USAGE (TICK)		
FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)		
ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED		
PHOTOGRAPHS: W-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

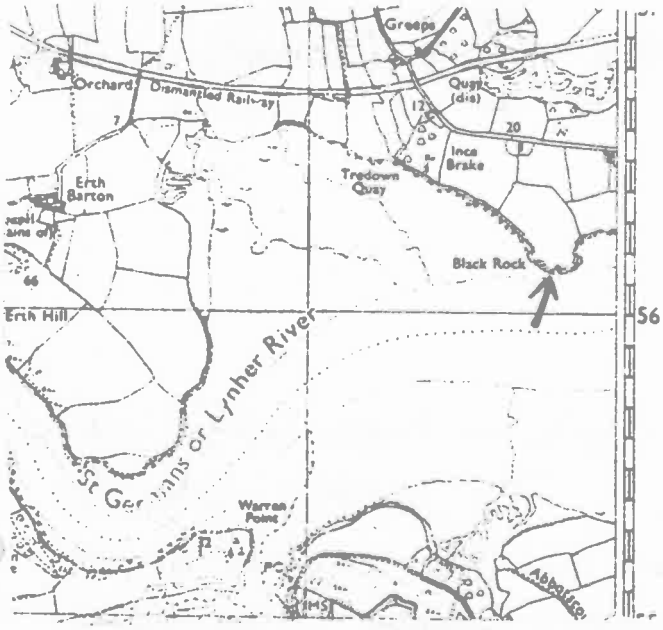
SITE NAME BLACK ROCK — SITE NO. 2

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115	✓					
UPPER SHORE	116		✓				
UPPER MIDSHORE	117			✓			✓
MIDSHORE	118				✓		✓
LOWER MIDSHORE	119				✓	✓	✓
LOWER SHORE	120					✓	
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3	3	3	3		
LG. BOULDERS (500 mm+)	123						1
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						2
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						2
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						3
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151					3	
WOOD	152					2	
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154		3	3	3		2
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156	1					
ALGAL TURF	157						

		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158						
~~FAUNAL TURF~~ LICHEN	159	3					
FAUNAL BED	160					3	
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165	✓	✓	✓	✓	✓	✓
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169	3	3	3	3		
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKMILLS	180						
TURNABLE BOULDERS	181						2
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188		1	1	1		
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192						3
SMOOTH	193						2
WORKED	194						1
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						1
UNATTACHED ALGAE	203						
FAUNAL BED	204						

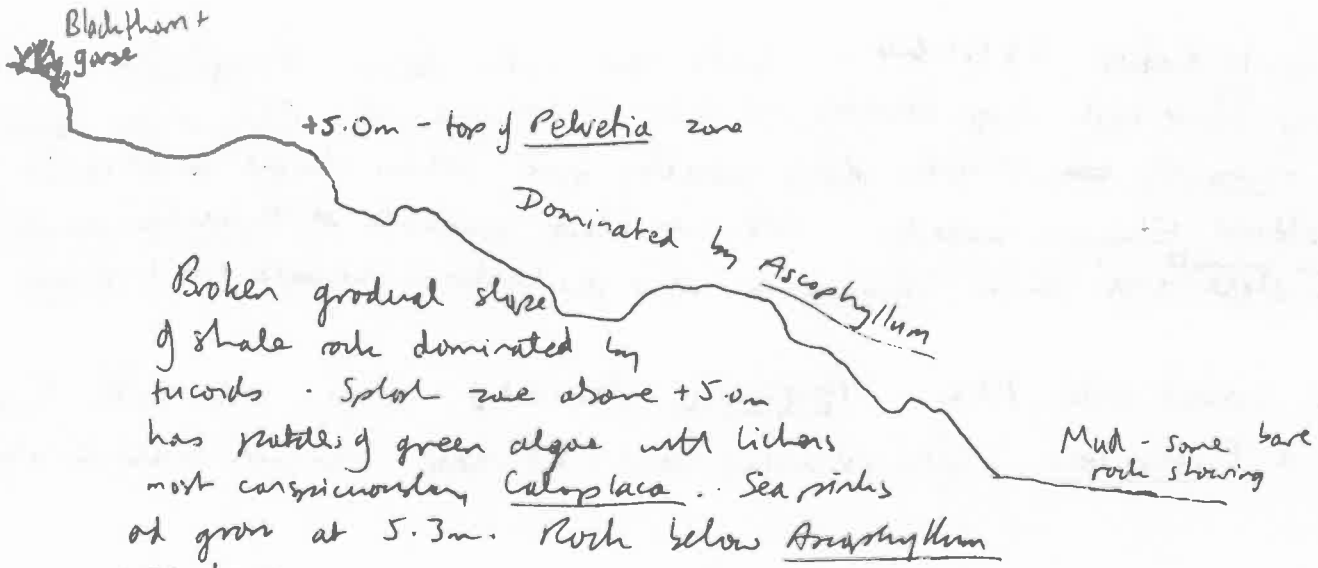
SITE NO.: 2

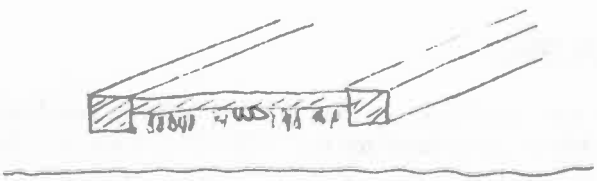
SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)





SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).





SITE NO.: 2

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

1. Splash Zone 5.2 m + Short zone (1-1½ m vertically) of steep bedrock with patches of saltmarsh + bare muddy shingle. Some Enteromorpha on shingle in pools, + amongst saltmarsh plants. The usual lichen zonation, well developed.

2. Upper Shore at 4.4 - 5.0 m : 1. Dense Pelvetia on broken bedrock, not as steep as station 1. ~~Rocks~~ Pelvetia ca. 50 cm vertically, below this ca. 30 cm zone of Fucus spiralis, but zone wide horizontally as rock flatter. Few other algae except Bostrychia + Catenella. Many Hyale nilssoni and few widely separated Elminius modestus

3. Mid shore, 3.3 m to 4.4 m. Wide zone with dense Ascophyllum cover. Large Plants with large bladders, at least 7-10 years old. Only a few sporelings + Audouinella ~~[illegible]~~ beneath rock generally bare below fucoid cover except for scattered Elminius modestus. Frequent Clava squamata ~~and~~ Dynamena pumila and verbankia imbricata on algae with Common Gammarus sp. and a few Littorina obtusata + L. mariae

4. Lowest rocks 1.2 m. Ascophyllum dominated, a few rocks with F. serratus + F. vesiculosus, + few encrusting brown + red algae. Animals similar to above

5. Underside of wooden and concrete jetty festooned with Laminaria flexuosa and patches + Metridium senile, Bowerbankia imbricata and small patches of large mussels. c 1.0 - 2.0 m

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/NCA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover [illegible] been defined for each habitat and is to be described in the blank section at the end of the form. [illegible] which would normally be included in the [illegible] of a [illegible] area including prevailing wind, time [illegible] tidal range and annual [illegible] are not [illegible] on the form. Numbers for each category do not [illegible] with those on the sublittoral habitat record sheet.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: SITE 2 BLACK ROCK GRID REFERENCE: SX 398 561

DATE: 23.4.86 NAME OF RECORDER: S. H.

KEY TO HABITAT COLUMNS:

1. SPLASH ZONE 4M +
2. VS 3.2 - 3.7M (PELVETIA)
3. MID SHORE 2.0 - 3.0 M (ASCOPHYLLUM)
4. ~~ASCO~~ LOWEST ROCK (0M)
5. Underside of slipway
6. Upper mid to lower mid shore on East side Black rock (incomplete list)

See animal sheet for correct descriptions

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.			O	F		
Bonnemaisonia hamifera						
Bostrychia scorpioides		F*				
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.						
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa		F-C*				
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum						
Ceramium shuttleworthianum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dumontia incrassata						
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum						
Gigartina acicularis						
Gigartina stellata						
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						

	1	2	3	4	5	6
Hildenbrandia sp.						
Hypoglossum woodwardii						
Laurencia hybrida						
Laurencia pinnatifida						
Lomentaria articulata						
Lomentaria clavellosa						
Membranoptera alata						
Mesophyllum lichenoides						
Palmaria palmata						
Plumaria elegans						
Polyides rotundus						
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa			F			
Polysiphonia nigrescens						
Polysiphonia urceolata						
Polysiphonia sp.						
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)				F		
Rhodophyta indet. (pink)						
Scytosiphon lomentaria						
Porphyra sp.						
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
PHAEOPHYTA						
Ascophyllum nodosum			Sx+	Sx+		C
Bifurcaria bifurcata						
Cladostephus spongiosus						
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.						

* Under Pelvetia

+ patches of bare mud + shingle between

	1	2	3	4	5	6	
Fucus serratus				F-C			
Fucus spiralis		Ex					
Fucus vesiculosus				O-F		O	
Halidrys siliquosa							
Halopteris scoparia							
Himanthalia elongata							
Laminaria digitata							
Laminaria hyperborea							
Laminaria ochrolenca							
Laminaria saccharina							
Laminaria sp. (sporlings)							
Pelvetia canaliculata		Ex					
Phaeophyta indet. (filam.)							
Pilayella littoralis							
Saccorhiza polyschides							
Sargassum muticum							
Fucoid sporelings		C*	O				* Under Pelvetia + F spiralis
Fucus sporelings			F				
?encrusting brown				F			
CHLOROPHYTA							
Bryopsis hypnoides							
Bryopsis plumosa							
Chaetomorpha melagonium							
Chlorophyta indet. (filam.)							
Cladophora pellucida							
Cladophora sp.							
Cladostephus spongiosus							
Codium fragile tomentosoides							
Codium tomentosum							
Enteromorpha sp. (p)		C+				R	* On F. spiralis + rock ridges.
Ulva sp. (p)							
ANGIOSPERMAE							
Zostera noltii							
Zostera auqustifolia							
Zostera marina							
Armeria maritima	F						
Grasses	F						
Saltmarsh plant (collected)	Le. A	R					
LICHENS							
Calloplaca marina	C						
Calloplaca thallincola	A						
Grey lichens	A						
Lecanora atra							
Lichina confinis							
Lichina pygmaea							
Ochrolechia parella							
Verrucaria maura	~~S~~						
Verrucaria mucosa							
Xanthoria parietina	S						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Black Rock (2) GRID REFERENCE: SX 398 561

DATE: 23 4 86 NAME OF RECORDER: K Hiscock

KEY TO HABITAT COLUMNS:

1. Splash (lichen) zone at +5.2m and above
2. ~~US (Pelvetia)~~ US Steeply sloping rock ~~[illegible]~~ (Pelvetia) at +4.4 - 5.0m
3. UMS Broken gently sloping rock ~~at [illegible] UMS~~ (Ascophyllum) at +3.3 to 4.4m
4. Lower rock at +1.2m
5. Underside of concrete and wood slipway at +1 to 2m
6. „UMS [illegible] on east side of Black Rock. (incomplete list) ← not in hab. desc.

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
Scypha compressa						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki					?x1	
Halichondria panicea						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Ophlitaspongia seriata						
COELENTERATA:HYDROZOA						
Clava squamata			F	F	C	
Dynamena pumila			F	C		
Laomedea flexuosa					A	
Tubularia larynx						
COELENTERATA:ACTINIAE						
Actinia equina			O	O		R
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina						
Metridium senile					C	
ANNELIDA:POLYCHAETA						
Arenicola marina						O
Branchiomma vesiculosum						
Cirratulus cirratus			?O			
Eulalia viridis						

	1	2	3	4	5	6
Lanice conchilega						
Pomatoceros sp. (p)						
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids						
Spirorbinidae - on rock						
Terebellidae indet.					6	
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus						
Chthamalus montagui						
Chthamalus stellatus						
Elminius modestus		O	F	C		
Semibalanus balanoides						
Verruca stroemia						
CRUSTACEA:ISOPODA						
Idotea sp. (p)						
Jaera albifrons						P
CRUSTACEA:AMPHIPODA						
Amphipoda indet.						
Gammarus sp.						
Hyale nilsoni		C	O			C
Chaetogammarus marinus			C			F
Melita palmata						P
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas		O	O			O
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						

	1	2	3	4	5	6
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
INSECTA						
Anurida maritima		O				
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria						
Gibbula umbilicalis						
Hydrobia ulvae						
Littorina 'saxatilis'		O				
Littorina littorea						
Littorina mariae			O			
Littorina neglecta						
Littorina neritoides						
Littorina obtusata			F			
Littorina obt./mariae			2gs			
Lepidochitona cinereus						
Monodonta lineata						
Nucella lapillus						
Patella aspera						
Patella depressa						
Patella vulgata						
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
~~Bowerbankia imbricata~~						
Cerastoderma edule						
Hiatella arctica						
Mytilus edulis				R	C	
Ostrea edulis						
BRYOZOA						
Alcyonidium gelatinosum						
Alcyonidium hirsutum			P			
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida						
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						
Bowerbankia imbricata			F		F/o	

	1	2	3	4	5	6
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botryllus schlosseri						
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						

Animal species not fully recorded on the lower shore.

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: Wilderness Point SITE NO.: 3

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 456 532 TO

RECORDER: K. Hiscock/S. Hiscock DATE: 23 D 04 M 86 Y

SITUATION (TICK ONE ONLY)		
OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	
INTERTIDAL EXTENT (m)	6	50

COASTAL TYPE (TICK)		
HEADLAND	7	✓
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
[illegible]ET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)		
NORTH	26	
NORTHEAST	27	✓
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)		
HIGH	34	✓
MEDIUM	35	
LOW	36	
[illegible]		
[illegible] below)	3	

COASTAL BACKING (TICK)		
SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
DUNE/MACHAIR	44	
SEA WALL	45	
SHINGLE RIDGE	46	
GRASSLAND	47	
OTHER (tick and note below)	48	✓
Fort		

OFFSHORE FEATURES (TICK)		
ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)		
VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch<20 km)	58	✓
EXTREMELY SHELTERED (fetch< 3 km)	59	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)		
NORMAL (around 34°/oo)	65	✓
VARIABLE (30°/oo+)	66	✓
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)		
IGNEOUS	71	
LIMESTONES	72	✓
HARD SAND/GRITSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)		
HABITAT VARIETY	79	✓
SPECIES ABUNDANT	80	
SPECIES ABSENT	81	
SPECIES AT OR NEAR LIMIT.	82	
SPECIES RICHNESS (gd, av, poor)	83	gd
PREVIOUS STUDY AREA	84	
ORNITH. INTEREST (type?)	85	
SEAL HAUL OUT/ BREEDING AREA	86	
POLLUTED (type?)	87	
VERY CLEAN	88	
FRAGILE	89	
THREATENED	90	
MNR.NNR,LNR, SSSI NEARBY	91	
SEWAGE/INDUSTRIAL OUTFALL NEAR	92	
OTHER SOURCES OF DISTURBANCE (tick and note below)	93	✓
Naval vessels etc, Yachts		

SHORE USAGE (TICK)		
FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)		
ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	✓

OTHER DATA RECORDED		
PHOTOGRAPHS: B-A	107	✓
C-D	108	✓
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

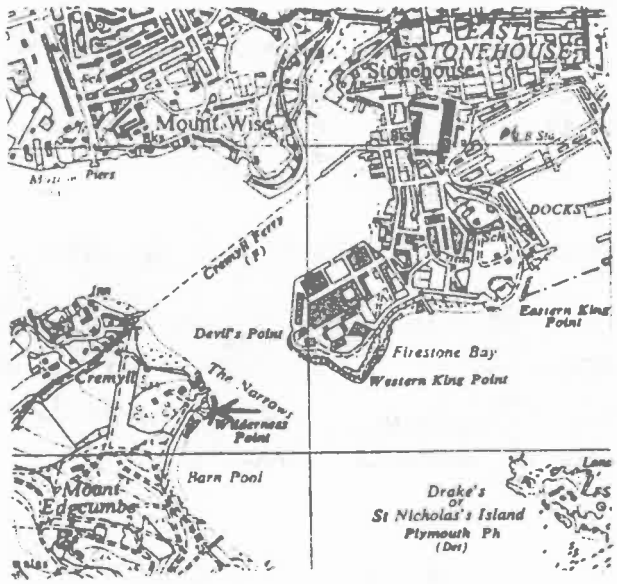
SITE NAME

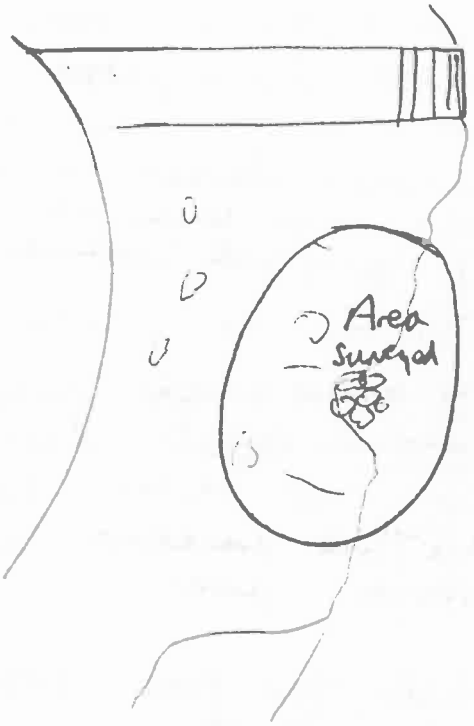
SITE NO. 3

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118						
LOWER MIDSHORE	119						
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MACRL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192						
SMOOTH	193						
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

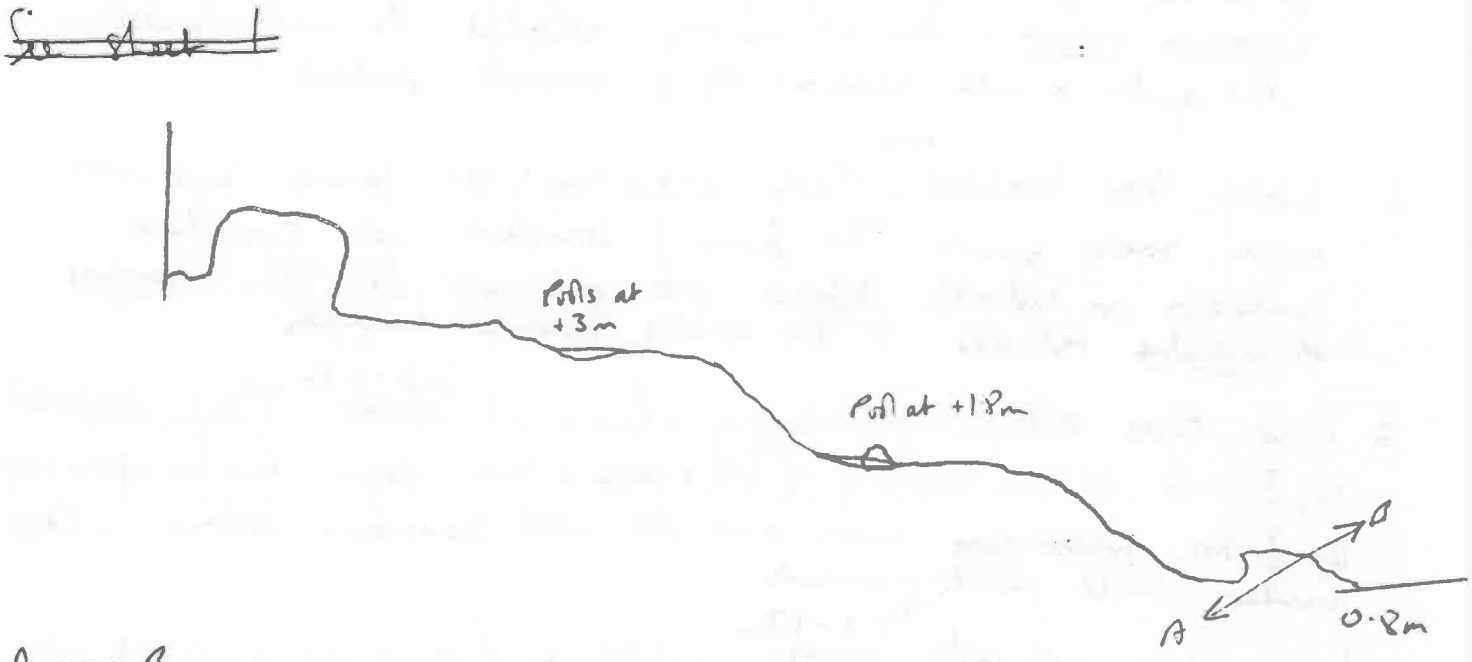
SITE NO.: 3

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)





SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



A — B



SITE NO.: 3

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

1. Upper Middle Shore pools, 3m. Shallow pools with large boulders, stone + pebble. Mar algae Dictyota, other colour save shade for overhanging fucoids. ~~Rock pools~~ Littorina littorea particularly abundant on + around rocks with elements of lower shore animal communities under boulders plus Palaemon serratus + Pagurus ~~bern~~ bernhardus not seen in lower shore pools

2. Open rock at 2-2.5m. Heavy fucoid cover, mainly F. serratus. Rock surface beneath fucoids with carpet of encrusting algae, Audouinella, Chaetophora incrassata, + red + fucoid sporelings. Rock surface silty + of rough, pitted limestone. Dominated by Rhydon under fucoids but where ~~still~~ rock pools occur, limpets + Semibalanus dominate. Few gastropods in general.

3. Middle shore pool, 1.8m. Shallow with large boulders in centre. Boulders with Enteromorpha + Ulva. Surrounding bedrock fucoid dominated. A variety of red algae, dominated by Polysiphonia + Ceramium rubrum. Animals mainly restricted to under boulders where quite a rich community of animals present.

4. Lower shore boulders. +1m Rich under boulder fauna but with many boring species. The fauna of limestone + sandstone boulders was distinctly different with gastropods, other than Nassarius + Acanthina restricted to the smooth sandstone boulders.

5. Lower shore vertical + overhanging surface at ~~0.8~~ 0.8 - 1.3m. Mainly dominated by cuticle but a variety of red, green + brown algae, mainly sporelings. Dendrodoa grossularia covers most area with Corella parallelogramma - large numbers. Small variety of animals.

6. Lower shore open rock, ~~0.8~~ 0.8 - 1.3m. Wide zone of dense red algal turf with a variety of species co-dominant. Digitate dense at low water, + algae Laminaria. Rock surface silty, with Audouinella. Rocks generally dominated by Rhydon but small variety of other species.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Subjectural Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed in the 1984/1985 Intertidal Survey Unit and used in 1985. The categories in those sheets are retained by simple headings except that the type of community present and its cover has not been defined for each habitat since this is described in the brief description at the top of the form. Features which are normally [illegible] in the brief description of a site (eg. including prevailing wind, time of flood, tidal range [illegible]) are not included in the Numbers for each category do not correspond with those on the subjectural habitat record sheet.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: WILDERNESS POINT SITE 3 GRID REFERENCE: SX 456 532

DATE: 23.4.86. NAME OF RECORDER: S.H.

KEY TO HABITAT COLUMNS: 1 of 2 SHEETS

1. FORT WALL AT 4.5 - 5.7 M ~~above LW~~ VERTICAL GRANITE BLOCKS
2. UPPER SHORE ROCK at 3.5 - 4.5 M, DOMINATED BY BARNACLES + LIMPETS.
3. UMS OPEN ROCK. HEAVY FUCOID COVER
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.						
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.						
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa						
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum						
Ceramium shuttleworthianum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dumontia incrassata						
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum						
Gigartina acicularis						
Gigartina stellata						
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						

	1	2	3	4	5	6
Hildenbrandia sp.						
Hypoglossum woodwardii						
Laurencia hybrida						
Laurencia pinnatifida						
Lomentaria articulata						
Lomentaria clavellosa						
Membranoptera alata						
Mesophyllum lichenoides						
Palmaria palmata						
Plumaria elegans						
Polyides rotundus						
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa			A+			
Polysiphonia nigrescens						
Polysiphonia urceolata						
Polysiphonia sp.						
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)						
Rhodophyta indet. (pink)						
Scytosiphon lomentaria						
Porphyra sp.						
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
PHAEOPHYTA						
Ascophyllum nodosum			F			
Bifurcaria bifurcata						
Cladostephus spongiosus						
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.						

+ on Ascophyllum

	1	2	3	4	5	6
Fucus serratus						
Fucus spiralis		10% O				
Fucus vesiculosus		R				
Halidrys siliquosa						
Halopteris scoparia						
Himanthalia elongata						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochrolenca						
Laminaria saccharina						
Laminaria sp. (sporlings)						
Pelvetia canaliculata	R+					
Phaeophyta indet. (filam.)						
Pilayella littoralis						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Chlorophyta indet. (filam.)	R	10% O				
Cladophora pellucida						
Cladophora sp.						
Cladostephus spongiosus						
Codium fragile tomentosoides						
Codium tomentosum						
Enteromorpha sp. (p)						
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera noltii						
Zostera augustifolia						
Zostera marina						
LICHENS						
Calloplaca marina						
Calloplaca thallincola						
Grey lichens						
Lecanora atra						
Lichina confinis						
Lichina pygmaea						
Ochrolechia parella						
Verrucaria maura	A thin					
Verrucaria mucosa						
Xanthoria parietina						

+ on ~~open~~ bed rock at the level

Station 2

A few small pools with Ulva, Enteromorpha filamentous brown + Cladophora rupestris. Mostly open rock with no navo algae.

Station 3

UMS Open rock with similar flora + underflora to Station 4, but with Ascophyllum F + P. lanosa A.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: SITE 3 WICKERNESS POINT GRID REFERENCE: _____

DATE: 23 6 86 NAME OF RECORDER: S H.

KEY TO HABITAT COLUMNS: 1 of 2 SHEETS

1. UMS POOLS AT 5M
2. OPEN ROCK AT 2-2.5M (FUCUS SERRATUS)
3. ROCK POOLS AT 1.8M.
4. LS BOULDERS (not submerged by flood)
5. LS VERTICAL + OVERHANGING SURFACES (LW → 1M)
6. LS OPEN ROCK UPWARD FACING

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium			R			
Audouinella sp.		?A				F+ loc Ex on rock
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp. (present)			R			R
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
tenella caespitosa						
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum	O		S			O+
Ceramium shuttleworthianum						R
Ceramium sp.						O
Chondrus crispus	R		R			
Chylocladia verticillata						
Corallina officinalis	O		A			O
Cryptopleura ramosa			O+			
Cystoclonium purpureum						
Delesseria sanguinea						
Dumontia incrassata	C		R			R*
Gastroclonium ovatum						
Gelidium latifolium ? sp						F
Gelidium pusillum		F				
Gigartina acicularis						
Gigartina stellata		C				S
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						

+ epiphytic
* F on gravelly patches

	1	2	3	4	5	6
Hildenbrandia sp.	F		F+			
Hypoglossum woodwardii						
Laurencia hybrida						
Laurencia pinnatifida						F-C
Lomentaria articulata			R			C
Lomentaria clavellosa						
Membranoptera alata					R	
Mesophyllum lichenoides	:					
Palmaria palmata		C*	F		F	A
Plumaria elegans			R		F	C
Polyides rotundus			S			
Polyneura hilliae sp (young)			R			R
Polysiphonia brodiaei						
Polysiphonia lanosa		✓				
Polysiphonia nigrescens						
Polysiphonia urceolata						
Polysiphonia sp.						
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)			laF			
Rhodophyta indet. (pink)	✓+	?A	laA		P	P
Scytosiphon lomentaria						
Porphyra sp.						
Gymnogongrus crenulatus			O			
Phyllophora pseudoretifera			O			
Rhodomela confervoides			R			
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						P
epiphytic on other algae						
PHAEOPHYTA						
Ascophyllum nodosum		R				
Bifurcaria bifurcata						
Cladostephus spongiosus		R				OF
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.			F		O	O+

+ Phyllophora brodiaei ✓
* Sporelings
+ on stones

++ epiphytic on epiphytes

	1	2	3	4	5	6
Fucus serratus		Ex				
Fucus spiralis						
Fucus vesiculosus						
Halidrys siliquosa						
Halopteris scoparia						
Himanthalia elongata						F, Gr C
Laminaria digitata			R			S
Laminaria hyperborea						
Laminaria ochrolenca						
Laminaria saccharina			R			F
Laminaria sp. (sporlings)		O	O		F	F
Pelvetia canaliculata						
Phaeophyta indet. (filam.)						
Pilayella littoralis						
Saccorhiza polyschides						
Sargassum muticum						
Fucoid sporlings		C				
Encrusting browns	O					
Petalonia fascia	R					
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa					R	
Chaetomorpha melagonium			R			
Chlorophyta indet. (filam.)						
Cladophora ~~pellucida~~ rupestris		C	F		F	F
Cladophora sp.			F			
Cladostephus spongiosus						
Codium fragile tomentosoides						
Codium tomentosum						
Enteromorpha sp. (p)					R	
Ulva sp. (p)	O	O				F
ANGIOSPERMAE						
Zostera noltii						
Zostera augustifolia						
Zostera marina						
LICHENS						
Calloplaca marina						
Calloplaca thallincola						
Grey lichens						
Lecanora atra						
Lichina confinis						
Lichina pygmaea						
Ochrolechia parella						
Verrucaria maura						
Verrucaria mucosa						
Xanthoria parietina						
Red algal sporlings			F			
Lomentaria clavellosa				O		
Apoglossum ruscifolium				F		
Callophyllis laciniata				O		
Corallina officinalis						R

Station 2 Heavy fucoid cover, mostly F. serrata. A few pools with large boulders + stones. Rock surfaces beneath fucoids with cover of encrusting algae. Anthozoella, Cladophora rupestris + red + fucoid sporelings. Silty surfaces of rough limestone, eroded + with small pits.

Station 3 Shallow rock pool with large boulders in centre. Boulders with Ulva + Enteromorpha. Surrounding bedrock fucoid dominated.

Station 5 Mostly small red algae

Station 6

Uniform band of dense red algae mixed turf, with L. digitata + a few L. saccharina at low water. Red algae unbranched, most v dark + difficult to estimate general abundance. Rock surfaces silty with Anthozoella. Good variety of reds.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Wilderness Point (3) GRID REFERENCE: SX 456 532

DATE: 23.4.86 NAME OF RECORDER: K. Hiscock

KEY TO HABITAT COLUMNS: 1 & 2 sheets

1. Fort wall at +4 5 - 5.7m. Vertical granite blocks
2. ~~Upper shore~~ steeply sloping rock at +3.5 - 4.5 m.
3. UMS gently sloping bottom rock ~~at 3m~~ dominated by fucoids at +3m
4.
5.
6.

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
Scypha compressa						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki			O			
Halichondria panicea						
Hemimycale columella						
Hymeniacidon perleve			x			
Myxilla incrustans						
Ophlitaspongia seriata						
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila			C			
Laomedea flexuosa						
Tubularia larynx						
COELENTERATA:ACTINIAE						
Actinia equina						
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina						
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Cirratulus cirratus						
Eulalia viridis						

	1	2	3	4	5	6
Lanice conchilega						
Pomatoceros sp. (p)						
Sabella pavonina						
Spirorbinidae -						
on 'lithothamnia'						
Spirorbinidae -						
on Gigartina/Chondrus						
Spirorbinidae -						
on fucoids						
Spirorbinidae -						
on rock			F			
Terebellidae indet.						
Polydora sp			C			
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus			O			
Chthamalus montagui	C	A				
Chthamalus stellatus		O				
Elminius modestus		F	C			
Semibalanus balanoides		F				
Verruca stroemia			O			
CRUSTACEA:ISOPODA						
Idotea sp. (p)						
CRUSTACEA:AMPHIPODA						
Amphipoda indet.			.	.	..	
Gammarus sp.						
Hyale nilsoni						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						

	1	2	3	4	5	6	
Pagurus berhardus							
Palaemon serratus							
Pisidia longicornis							
Porcellana platycheles							
INSECTA							
Anurida maritima							
Insecta indet. (pupae)							
MOLLUSCA:GASTROPODA							
Polyplacophora indet.							
Calliostoma zizyphinum							
Calyptera chinensis							
Crepidula fornicata							
Gibbula cineraria							
Gibbula umbilicalis			O				
Hydrobia ulvae							
Littorina 'saxatilis'	C	O					
Littorina littorea		F					
Littorina mariae							
Littorina neglecta	F	C					
Littorina neritoides	O						
Littorina obtusata			O				
Littorina obt./mariae							
Lepidochitona cinereus							
Monodonta lineata							
Nucella lapillus							
Patella aspera							
Patella depressa			O				
Patella vulgata	R	A	F				
Patella sp.							
Patina pellucida							
Trivia arctica							
Trivia monacha							
Archidoris pseudoargus							
MOLLUSCA:BIVALVIA							
Anomiidae indet.							
Bowerbankia imbricata							
Cerastoderma edule							
Hiatella arctica							
Mytilus edulis							
Ostrea edulis							
BRYOZOA							
Alcyonidium gelatinosum							
Alcyonidium hirsutum							
Bryozoa indet. (encr.)							
Bugula plumosa							
Bugula turbinata							
Electra pilosa							
Flustrellidra hispida							
Membranipora membranacea							
Scrupocellaria reptans							
Umbonula littoralis							

	1	2	3	4	5	6
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botryllus schlosseri						
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						○
Styelidae indet.						
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						
						○

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Wilderness Point (3) GRID REFERENCE: SX 456 532

DATE: ~~23~~ 23.4.86 NAME OF RECORDER: K. Hiscock

KEY TO HABITAT COLUMNS: 2 of 2 sheets

1. UMS rocks at +3m (animals mostly under boulders)
2. MS open rock at +1.8 - 2.5m
3. LMS rocks at +1.8m (animals mostly under boulders)
4. LS boulders at +0.3 - 1.2m.
5. LS vertical and overhanging surfaces at +0.8 - 1m
6. LS ~~at 0~~ open rock at +0.8 - 1.2m.

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata					R	
Scypha compressa	-	-	-	-	R	
Clima sp (boring)			P			
Leucosolenia botryoides			O	R		
Clava squamata			R			
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea		F	R	-	O	F
Hemimycale columella						
Hymeniacidon perleve		R	R	F	O	O
Myxilla incrustans						
Ophlitaspongia seriata						
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila		C	O	-	-	C
Laomedea flexuosa			O			
Tubularia larynx						
COELENTERATA:ACTINIAE						
Actinia equina						
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina						
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Cirratulus cirratus						
Eulalia viridis						

	1	2	3	4	5	6
Lanice conchilega						
Pomatoceros sp. (p)		R	O	-	-	R
Sabella pavonina						
Spirorbinidae -						
on 'lithothamnia'						
Spirorbinidae -						
on Gigartina/Chondrus						
Spirorbinidae -						
on fucoids		R				
Spirorbinidae -						
on rock		F	C	F		
Terebellidae indet.						
Spirorbis pagenstacheri			C			
Polydora sp.		A	A	C	A	-
Halosydna gelatinosa			R	R		
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus						
Chthamalus montagui						
Chthamalus stellatus						
Elminius modestus	C	O	O			
Semibalanus balanoides		O				
Verruca stroemia						
CRUSTACEA:ISOPODA						
Idotea sp. (p)						
CRUSTACEA:AMPHIPODA						
Amphipoda indet.				.	.	
Gammarus sp.						
Hyale nilsoni						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas	-	-	O	O		
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						

	1	2	3	4	5	6
Pagurus berhardus	R					
Palaemon serratus	F					
Pisidia longicornis	-	-	-	O		
Porcellana platycheles	-	-	R	O		
INSECTA						
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata	-	-	R			
Gibbula cineraria	R	-	F	O	-	O
Gibbula umbilicalis	F	O				
Hydrobia ulvae						
Littorina 'saxatilis'	R					
Littorina littorea	C	-	R			
Littorina mariae						
Littorina neglecta						
Littorina neritoides						
Littorina obtusata		R	-	-	-	R
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata						
Nucella lapillus		×1				
Patella aspera						
Patella depressa		F				
Patella vulgata		O	P			
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
Lacuna pallidula		R				
Goniodoris nodosa	-	-	-	-	F	O
Nassarius incrassatus	-	-	O	O		
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Bowerbankia imbricata						
Cerastoderma edule						
Hiatella arctica				A	O	R
Mytilus edulis						
Ostrea edulis						
Heteranomia squamula	F	-	F	F		
BRYOZOA						
Alcyonidium gelatinosum						
Alcyonidium hirsutum						
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa						F
Flustrellidra hispida						C
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						

	1	2	3	4	5	6
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
Amphipholis squamata	-	-	-	R		
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris	R					
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botryllus schlosseri						
Ciona intestinalis						
Dendrodoa grossularia	-	-	F	-	A	F
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
Botrylloides leachi	-	-	O	C	O	O
Ciona intestinalis	R		R			
?Molgula manhattensis	-	-	F			
CHORDATA:PISCES						
Blennius pholis			R			
Pholis gunnellus						
Cottus scorpius	-	-	R			
Eggs (green rings)	-	-	-	-	-	O
Ocenebra erinacea			R	O		
Lepidochitona cinereus	-	-	R			
~~Aphelochaeta indet (juv.)~~	R		R			
Harmothoe impar						

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86

1 OF 2 SHEETS

RECORD NO.:

SITE NAME: WILDERNESS POINT SITE NO.: 3

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.:	E - U	N - S	E - W	N - S
	SX	456	532 TO	

RECORDER: S. Hiscock / K Hiscock. DATE: 23 D 04 M 86 Y See sheet 1

SITUATION (TICK ONE ONLY)		
OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water windcw open sea)	4	✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	
INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)		
HEADLAND	7	✓
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)		
NORTH	26	
NORTHEAST	27	✓
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)		
HIGH	34	✓
MODERATE	35	✓
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)		
SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
DUNE/MACHAIR	44	
SEA WALL	45	
SHINGLE RIDGE	46	
GRASSLAND	47	
OTHER (tick and note below)	48	✓

Fort

OFFSHORE FEATURES (TICK)		
ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)		
VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	✓
EXTREMELY SHELTERED (fetch 3 km)	59	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)		
NORMAL (around 34°/oo)	65	✓
VARIABLE (30°/oo+)	66	✓
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)		
IGNEOUS	71	✓
LIMESTONES	72	✓
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)		
HABITAT VARIETY	79	✓
SPECIES ABUNDANT	80	
SPECIES ABSENT	81	
SPECIES AT OR NEAR LIMIT	82	
SPECIES RICHNESS (gd, av, poor)	83	av.
PREVIOUS STUDY AREA	84	
ORNITH. INTEREST (type?)	85	
SEAL HAUL OUT/ BREEDING AREA	86	
POLLUTED (type?)	87	
VERY CLEAN	88	
FRAGILE	89	
THREATENED	90	
MNR,NNR,LNR, SSSI NEARBY	91	
SEWAGE/INDUSTRIAL OUTFALL NEAR	92	
OTHER SOURCES OF DISTURBANCE (tick and note below)	93	✓

Naval vessels etc

SHORE USAGE (TICK)		
FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)		
ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	✓

OTHER DATA RECORDED		
PHOTOGRAPHS: W-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

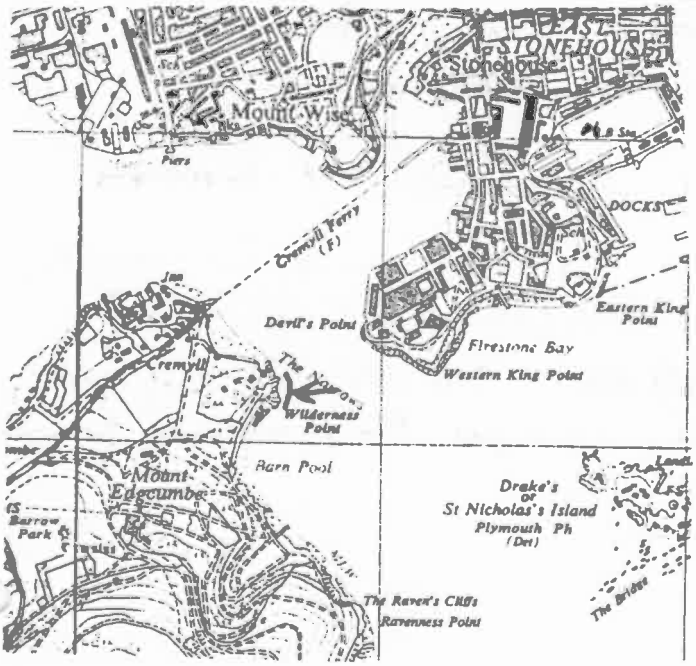
SITE NAME

SITE NO. 3

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118						
LOWER MIDSHORE	119						
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MACRL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192						
SMOOTH	193						
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 3

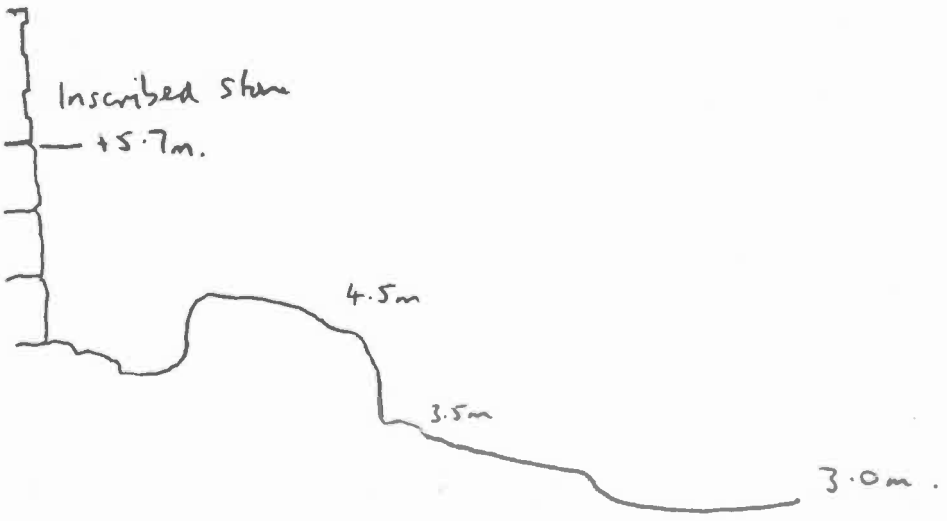
SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)





SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

See sheet 1



SITE NO.: 3

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

1. FORT WALL AT 4.5 - 5.7m above CD. Wall of vertical granite blocks. Mainly bare of algae + lichens, except for a thin, patchy zone of Verrucaria 'maura'. On bedrock at this level, Pelvetia rare in local shelter. Chthamalus montagui x C with L. saxatilis and, surprisingly, L. neritoides

2. UPPER SHORE ROCK AT 3.5-4.5M Dominated by barnacles + limpets, few algae except in a few small rock pools, where fil. browns, Ulva, Enteromorpha + Cladophora rugestra. On open rock, only rare fucoids in local shelter. Chthamalus montagui the predominant barnacle with Patella vulgata abundant.

3. UPPER MIDDLE SHORE open rock. Similar flora + underflora to habitat 1 (sheet 1), but with more Ascophyllum. Animals similar to lower midshore but many more Littorina littorea and Gibbula umbilicalis particularly near to pools.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. Features which would normally be included in the description of a survey area including prevailing wind, time of ELWST, tidal range and annual rainfall are not now included on the form. Numbers for each category do not correspond with those on the sublittoral habitat record sheet.

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86

RECORD NO.:

SITE NAME: CREMYLL SITE NO.: FOUR (4)

SURVEY AREA: PLYMOUTH SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 455 - 533 - TO

RECORDER: MDH DATE: 23 D 04 M 86 Y

SITUATION (TICK ONE ONLY)	
OPEN SEA (1 km offshore)	1
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5 ✓
INTERTIDAL EXTENT (m)	6

COASTAL TYPE (TICK)	
HEADLAND	7
'LINEAR COAST'	8
LARGE BAY (2 km)	9
SMALL BAY	10 ✓
SPIT/BAR	11
OFFSHORE SMALL ISLAND	12
AMONGST ROCKS/ISLETS	13
SOUND/NARROWS	14
SHALLOW RAPIDS	15
SEA LOCH	16
ESTUARY/MARINE INLET	17
LINEAR BEACH	18
EMBAYMENT BEACH	19
SALTMARSH	20
COASTAL LAGOON	21
HARBOUR	22
SEA CAVE	23
WRECK	24
OTHER (tick and note below)	25

ASPECT (TICK)	
NORTH	26
NORTHEAST	27 ✓
EAST	28
SOUTHEAST	29
SOUTH	30
SOUTHWEST	31
WEST	32
NORTHWEST	33

COASTAL HEIGHT (TICK)	
HIGH	34
MODERATE	35
LOW	36 ✓
OTHER (tick and note below)	37

COASTAL BACKING (TICK)	
SAND DUNES	38
LOW CLIFF	39
MODERATE CLIFF	40
HIGH CLIFF	41
SALTMARSH	42
MACHAIR	43
DUNE/MACHAIR	44
SEA WALL low	45 ✓
SHINGLE RIDGE	46
GRASSLAND	47
OTHER (tick and note below)	48

OFFSHORE FEATURES (TICK)	NA
ISLANDS	49
REEFS	50
BREAKWATER	51
SANDBANKS	52
SHOAL	53

WAVE EXPOSURE (TICK)	
VERY EXPOSED (prevailing wind and swell)	54
EXPOSED (prevailing wind)	55
SEMI-EXPOSED (strong wind frequent)	56
SHELTERED (strong wind rare)	57
VERY SHELTERED (fetch 20 km)	58
EXTREMELY SHELTERED (fetch 3 km)	59 ✓

MAX. TIDAL STREAM STRENGTH (TICK)	
VERY STRONG (6 k+)	60
STRONG (3-6 k)	61
MOD. STRONG (1-3 k) offshore	62 ✓
WEAK (1 k)	63
VERY WEAK (negligible)	64

SALINITY REGIME (TICK)	
NORMAL (around 34°/oo)	65
VARIABLE (30°/oo+)	66 ✓
LOW (30°/oo)	67
FRESHWATER STREAM	68
SALINITY MEASURED	69
NOT KNOWN	70

ROCK TYPE (TICK)	
IGNEOUS	71
LIMESTONES	72
HARD SAND/MUDSTONES	73
SOFT SAND/MUDSTONES	74
HARD SLATE/SHALES	75
FRIABLE SLATE/SHALES	76 ✓
NOT KNOWN	77
OTHER (tick and note below)	78

SITE INFORMATION (TICK)	
HABITAT VARIETY	79
SPECIES ABUNDANT	80 ✓
SPECIES ABSENT	81
SPECIES AT OR NEAR LIMIT	82
SPECIES RICHNESS (gd, av, poor)	83 Av
PREVIOUS STUDY AREA	84
ORNITH. INTEREST (type?)	85
SEAL HAUL OUT/ BREEDING AREA	86
POLLUTED (type?)	87
VERY CLEAN	88
FRAGILE	89
THREATENED	90
MNR,NNR,LNR, SSSI NEARBY	91
SEWAGE/INDUSTRIAL OUTFALL NEAR	92
OTHER SOURCES OF DISTURBANCE (tick and note below)	93

SHORE USAGE (TICK)	
FIELD STUDY	94
RECREATION	95
BEACH FISHING	96
BAIT DIGGING	97
SHELLFISH COLLECTION	98
AQUACULTURE	99
MOORING	100
WATERSPORT	101
OTHER (tick and note below)	102

AMENITY (TICK)	
ATTRACTIVE BEACH	103
LOCAL RESORT	104
POPULAR	105
PUBLIC FACILITIES	106 ✓

OTHER DATA RECORDED	
PHOTOGRAPHS: W-A	107 ✓
C-U	108
WATER ANALYSIS	109
SEDIMENT ANALYSIS	110
SPECIMENS COLLECTED	111 ✓
ALGAL CHECKLIST	112
ANIMAL CHECKLIST	113
OTHER (tick and note below) SEDIMENT SAMPLES	114 ✓

0·01 m cores, 0·1 m, 0·5 m cores

INTERTIDAL HABITAT RECORD

SITE NAME

SITE NO. 4

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117	✓					
MIDSHORE	118		✓				
LOWER MIDSHORE	119			✓			
LOWER SHORE	120				✓		
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126	3	2				
SM. ANGULAR COBBLES (64-129 mm)	127	1	1	2	2		
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129	2	2	2	1		
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141	2	2	2	3		
SHINGLE	142						
MUD	143						
BLACK LAYER (note depth)	144	5cm	5cm	5cm	5cm		
MIXTURE OF TYPES IN HABITAT	145	NR.					
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)			NR				
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154	3	3	3	2		
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						

		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165	✓	✓	✓	✓		
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)	NA						
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191	3	3	3	3		
SOFT (DEEP SINK)	192						
SMOOTH	193	2	2	2	2		
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197	1	1	1	1		
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202	1	1	1	1		
UNATTACHED ALGAE	203	1	1	1	1		
FAUNAL BED	204						

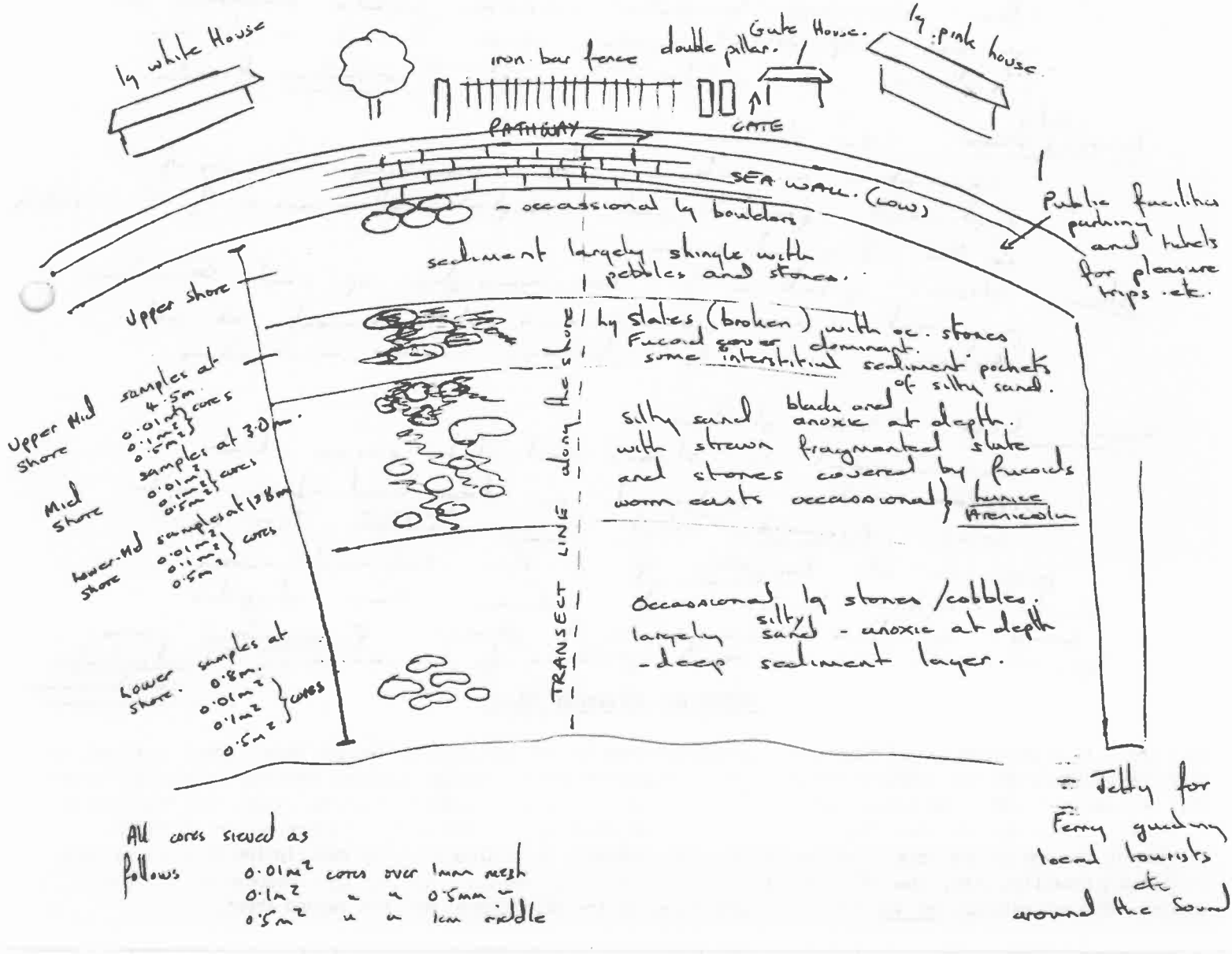
SITE NO.: 4

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



Transect line - located down the shore approximately midway across with alignment midway between the gateposts above the path at the top of the shore (see below.)

SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



All cores sieved as follows
0.01m² cores over 1mm mesh
0.1m² " " 0.5mm "
0.5m² " " 1cm riddle

SITE NO.: 4

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Upper Mid Shore. 4.5m station.
sediment - mass of silty sand dark grey in colour occurring in large pockets down to depths of 10cm with black anoxic layer from 3-5 cm downwards.
Large broken slates were found right across this zone of the shore and covered by fucoid algae the dominant species being F. serratus together with a secondary presence of F. vesiculosus. The mobile rock had patchily distributed Elminius modestus cover.

Mid shore. 3.0m station.
Sediment (as above) silty sand with anoxic layer at greater depth (5cm) and sediment generally more conspicuous and important. Burrows were occasionally seen from lanice conchylega and Arenicola casts were spotted. Fucus serratus covered the scattered sm. boulders, broken slates and large stones with occasional F. vesiculosus. Elminius modestus was the dominant barnacle covering mobile material in patches. Spirobimid worms were found in large numbers on mobile rock and F. serratus fronds.

Mid Lower shore. 1.8m station.
Description as above with increasing amounts of sediment present and complete dominance of F. serratus as the fucoid cover.
Note strewn patches of Enteromorpha sp and Gigartina occurred over some areas of sediment at all stations from just below lower mid shore.

lower shore. 0.8m. station.
Occasional lg. stones and slate pieces but predominantly sediment as described above with some Arenicola casts and lanice tubes. Prominent presence of Nephtys sp. in the sediment cores. Black anoxic layer at below 5cm depths. some smaller amounts of strewn F. serratus were found with occasional presence of luminarians { L. digitata / L. saccharina

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories on these sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. Features which would normally be included in the description of a survey area including prevailing wind, time of [illegible] tidal range and general weather are not now included on the form. Numbers for each category do not correspond with those on the sublittoral habitat record sheet.

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86

RECORD NO.:

SITE NAME: CAWSANDS BAY (NORTH) SITE NO.: 5

SURVEY AREA: PLYMOUTH SOUND SEA AREA:

OS GRID REF.:	E - W	N - S		E - W	N - S
	SX	434	502 TO		

RECORDER: M D HANNAM DATE: 24 D 04 M 86 Y

SITUATION (TICK ONE ONLY)		
OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓
INTERTIDAL EXTENT (m)	6	12m

COASTAL TYPE (TICK)		
HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	✓
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)		
NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	✓
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)		
HIGH	34	
MODERATE	35	✓
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)		
SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF (BACKING)	40	✓
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
DUNE/MACHAIR	44	
SEA WALL	45	✓
SHINGLE RIDGE	46	
GRASSLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)	NA	
ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)		
VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	✓
VERY SHELTERED (fetch 20 km)	58	✓
EXTREMELY SHELTERED (fetch 3 km)	59	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)		
NORMAL (around 34°/oo)	65	✓
VARIABLE (30°/oo+)	66	
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)	
IGNEOUS	71
LIMESTONES	72
HARD SAND/MUDSTONES	73
SOFT SAND/MUDSTONES	74
HARD SLATE/SHALES	75
FRIABLE SLATE/SHALES	76
NOT KNOWN	77
OTHER (tick and note below)	78

MIXTURE / SANDSTONE

SITE INFORMATION (TICK)		
HABITAT VARIETY	79	
SPECIES ABUNDANT	80	
SPECIES ABSENT	81	✓
SPECIES AT OR NEAR LIMIT	82	
SPECIES RICHNESS (gd, av, poor)	83	
PREVIOUS STUDY AREA	84	
ORNITH. INTEREST (type?)	85	
SEAL HAUL OUT/ BREEDING AREA	86	
POLLUTED (type?)	87	
VERY CLEAN	88	✓
FRAGILE	89	
THREATENED	90	
MNR,NNR,LNR, SSSI NEARBY	91	
SEWAGE/INDUSTRIAL OUTFALL NEAR	92	
OTHER SOURCES OF DISTURBANCE (tick and note below)	93	

SHORE USAGE (TICK)		
FIELD STUDY	94	
RECREATION	95	✓
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	✓
OTHER (tick and note below)	102	

AMENITY (TICK)		
ATTRACTIVE BEACH	103	✓
LOCAL RESORT	104	✓
POPULAR	105	
PUBLIC FACILITIES	106	✓

OTHER DATA RECORDED		
PHOTOGRAPHS: W-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	✓
SPECIMENS COLLECTED	111	
ALGAL CHECKLIST	112	
ANIMAL CHECKLIST	113	
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

SITE NAME

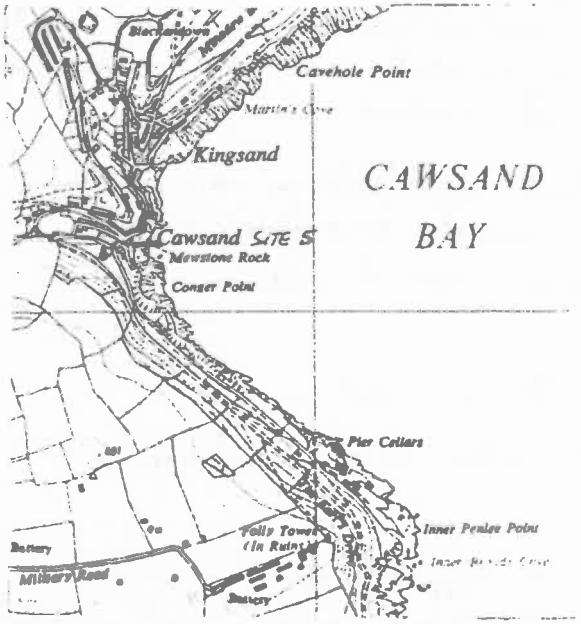
SITE NO. 5

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117	✓					
MIDSHORE	118		✓				
LOWER MIDSHORE	119			✓			
LOWER SHORE	120				✓		
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256–500 mm)	124						
LG. COBBLES (128–256 mm)	125						
LG. SLATES (128–256 mm)	126						
SM. ANGULAR COBBLES (64–129 mm)	127						
SM. ROUND COBBLES (64–128 mm)	128						
SM. SLATES (64–128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16–64 mm)	130						
V.LG.&LG.RND.PEBBLES (16–64 mm)	131	1	2	2	2		
MED.&SM.PEBBLES (4–16 mm)	132	1	2	2	2		
CLEAN GRAVEL (2–4 mm)	133						
MUDDY GRAVEL (2–4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136	3	3	3	3		
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5–2 mm)	138	3	3	3	3		
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147	1	1	1	1		
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1–3)			NA				
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1–3)			NA				
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						

		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)			NA				
OVERHANG	161						
VERTICAL (80–100°)	162						
V. STEEP (40–80°)	163						
STEEP (20–40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1–3)			NA				
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1–3)							
FIRM	190	3	3	3	3		
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192						
SMOOTH	193	3	3	3	3		
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198	1	1	1	1		
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1–3)		NA					
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

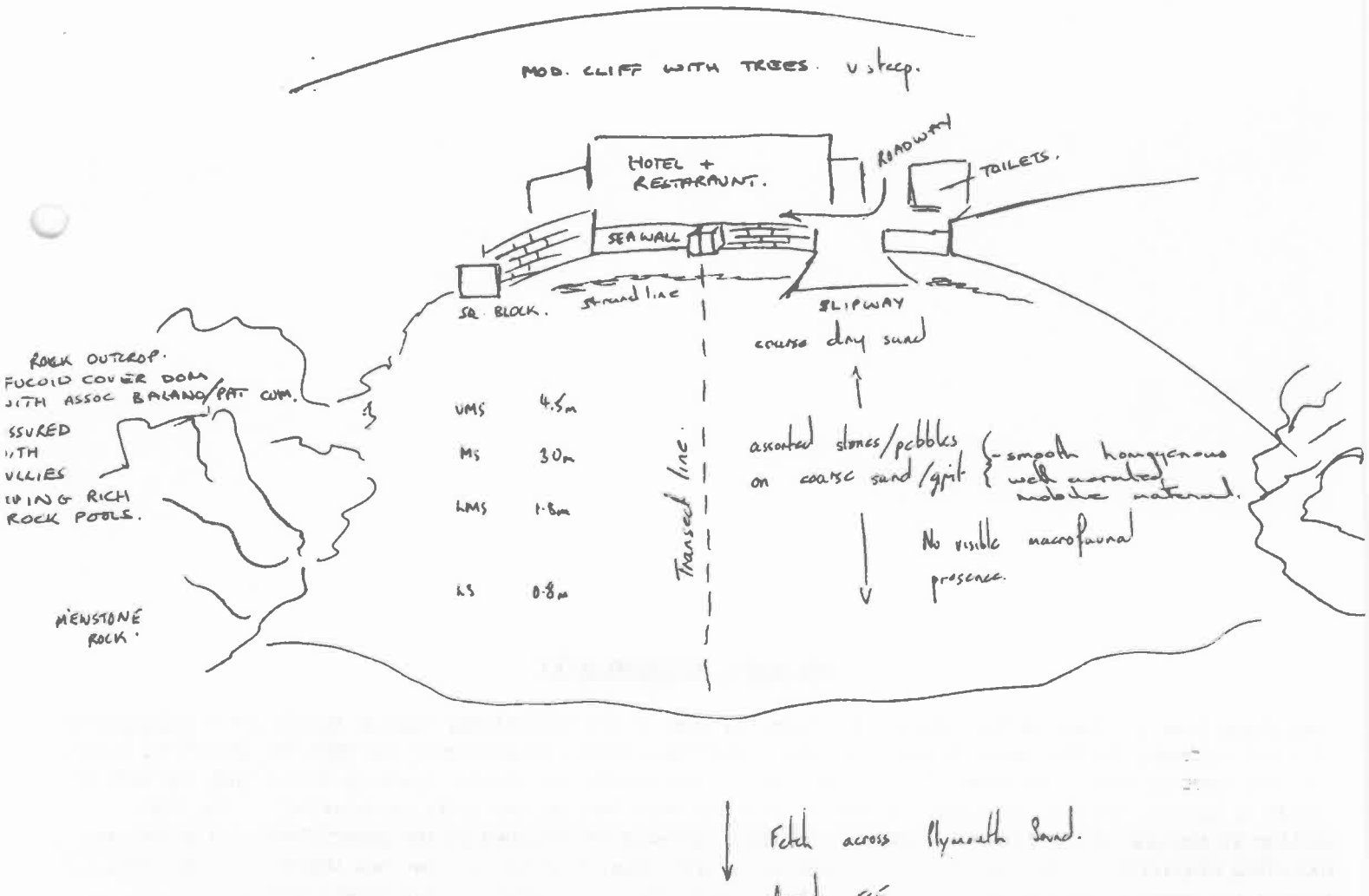
SITE NO.: 5

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



Transect is located in alignment with a square block midway along the sea wall.

SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 5

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

4 zones down the shore were sampled.

UMS 4.5m - occasional lg stones and assorted pebbles on coarse sand and shell & gravel. Very mobile aerated conditions down to ca 10cm no visible macrofaunal content

MS, cMS, LS } 3.0m, 1.8m, 0.8m. } As above homogenous seal distribution down the shore - except an increased secondary cover of stones and various sizes of pebbles

The shore was very sheltered with an ESE aspect.
Usage was for tourism primarily with some watersports and small boat fishing.
The sediment was too coarse to support diverse macrofauna and infaunal content is expected to be negligable.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. Features which would normally be included in the description of a survey area including prevailing wind, time of HW/LW, tidal range and annual rainfall are not now included on the form. Numbers for each category do not correspond with those on the sublittoral habitat record sheet.

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: CAWSANDS BAY (SOUTH) SITE NO.: 6

SURVEY AREA: PLYMOUTH SOUND SEA AREA:

OS GRID REF.:	E - W	N - S		E - W	N - S
	SX	435	501 TO		

RECORDER: M.D HANNAM DATE: 24 D 04 M 86 Y

SITUATION (TICK ONE ONLY)		
OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓
INTERTIDAL EXTENT (m)	6	12m

COASTAL TYPE (TICK)		
HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	✓
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/~~ISLETS~~	13	✓
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)		
NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	✓
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)		
HIGH	34	✓
MODERATE	35	✓
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)		
SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	✓
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
DUNE/MACHAIR	44	
SEA WALL	45	
SHINGLE RIDGE	46	
GRASSLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)		N/A
ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)		
VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	✓
VERY SHELTERED (fetch 20 km)	58	✓
EXTREMELY SHELTERED (fetch 3 km)	59	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)		
NORMAL (around 34°/oo)	65	✓
VARIABLE (30°/oo+)	66	
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)	
IGNEOUS	71
LIMESTONES	72
HARD SAND/MUDSTONES	73
SOFT SAND/MUDSTONES	74
HARD SLATE/SHALES	75
FRIABLE SLATE/SHALES	76
NOT KNOWN	77
OTHER (tick and note below)	78

SITE INFORMATION (TICK)		
HABITAT VARIETY	79	✓
SPECIES ABUNDANT	80	
SPECIES ABSENT	81	
SPECIES AT OR NEAR LIMIT	82	
SPECIES RICHNESS (gd, av, poor)	83	
PREVIOUS STUDY AREA	84	
ORNITH. INTEREST (type?)	85	
SEAL HAUL OUT/ BREEDING AREA	86	
POLLUTED (type?)	87	
VERY CLEAN	88	✓
FRAGILE	89	
THREATENED	90	
MNR,NNR,LNR, SSSI NEARBY	91	
SEWAGE/INDUSTRIAL OUTFALL NEAR	92	
OTHER SOURCES OF DISTURBANCE (tick and note below)	93	

SHORE USAGE (TICK)		
FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	✓
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)		
ATTRACTIVE BEACH	103	✓
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED		
PHOTOGRAPHS: W-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	✓
SPECIMENS COLLECTED	111	
ALGAL CHECKLIST	112	
ANIMAL CHECKLIST	113	
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

SITE NAME

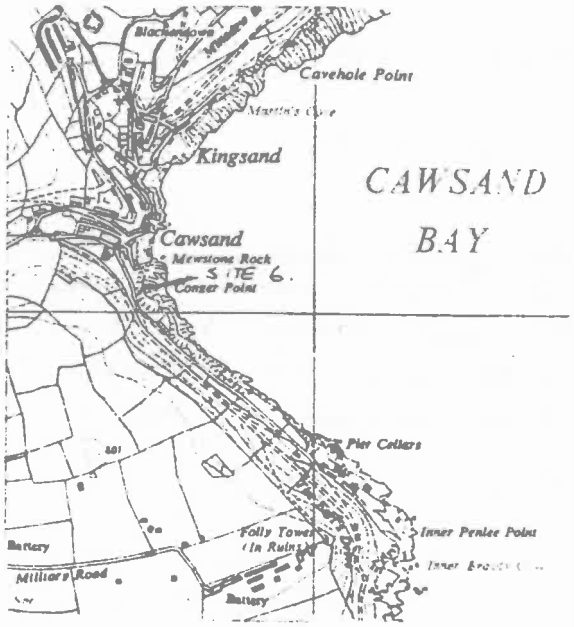
SITE NO. 6

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117	✓					
MIDSHORE	118		✓				
LOWER MIDSHORE	119			✓			
LOWER SHORE	120				✓		
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132	2	2	2	2		
CLEAN GRAVEL (2-4 mm)	133	2	2	2	2		
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138	3	3	3	3		
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
BLACK LAYER (note depth) 5cm	144			✓	✓		
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		NA					
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)				Adjacent	Rock Slope		
FUCOID CANOPY	154	3	3	3	3		
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						

		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)		NA					
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169	3	3	3	3		
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173	2	2	2	2		
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175	2	2	2	2		
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190	3	3	3	3		
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192						
SMOOTH	193	2	2	2	2		
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197	1	1	1	1		
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)		NA					
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

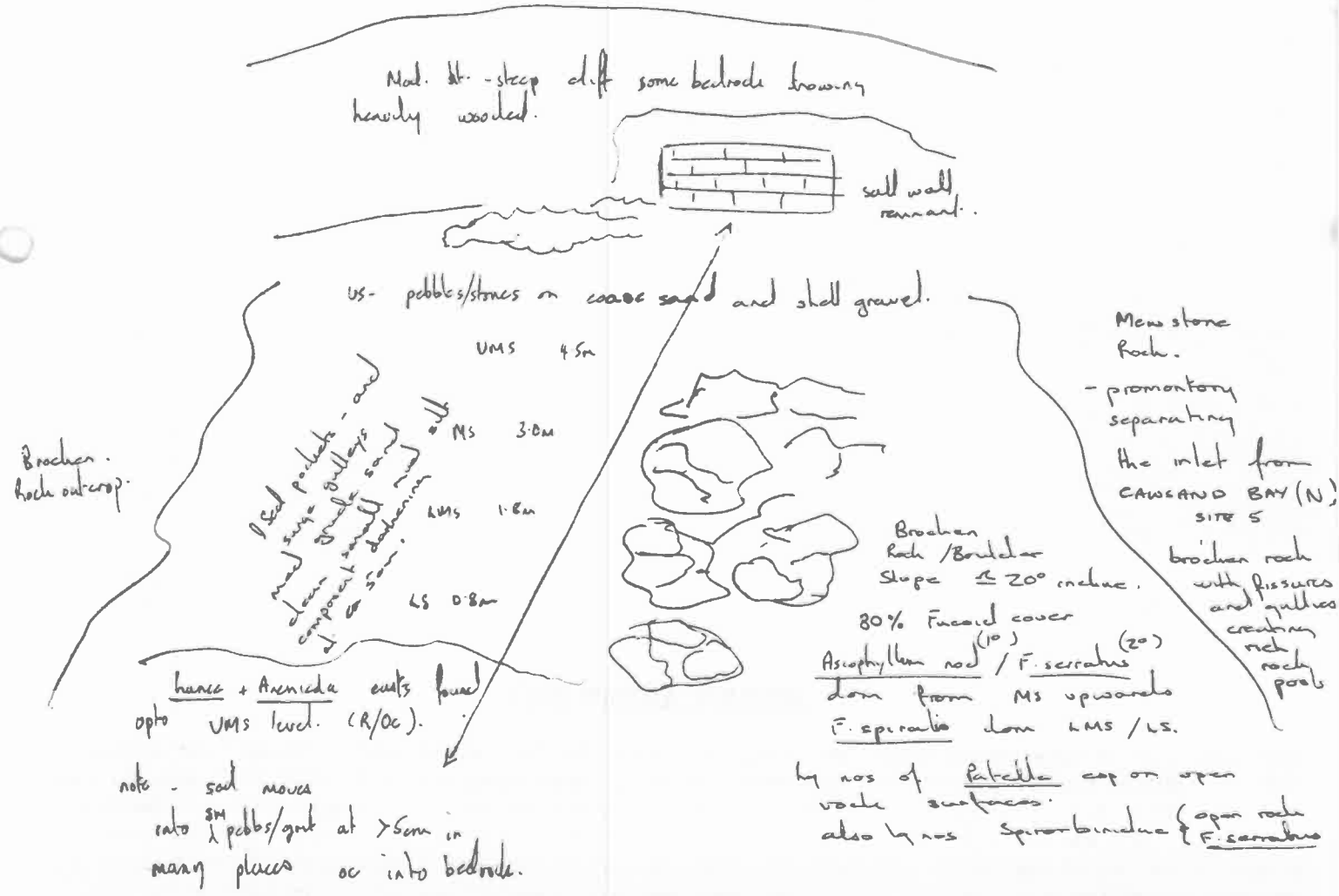
SITE NO.: 6

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



Location note:
The shore consisted of a small inlet with a broken rock / boulder cover and coarse sand interspersed the transect was located down the shore directly in line with a small portion of sea wall (remnant) and along a well marked surge gully with smooth sed. content along its entire length.

SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO. 6

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

The sediment was sampled within a transect down the transect.

US. - 45m. med grade sand down shallow depth moving into pebble/gravel or bedrock
- seem to contain layers of polychaetes
Arenicola casts more.

MS - 30
LMS - 18
LS - 08m
Sed conditions as above with greater depths encountered and a small silty mud content associated with the sand. Arenicola casts and burrows found occassionally - Polychaete dominated sediment no Molluscan or Echinoderm component visible.
some large Nephtys found

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. Features which would normally be included in the description of a survey area including prevailing wind, time of tide, tidal range and annual rainfall are not now included on the form. Numbers for each category do not correspond with those on the sublittoral habitat record sheet.

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86

RECORD NO.:

SITE NAME: CAWSANDS BAY (SOUTH) SITE NO.: 6

SURVEY AREA: SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

[ ][ ] [4][3][5] [5][0][1] TO [ ][ ] [ ][ ][ ][ ] [ ][ ][ ][ ]

RECORDER: S. Hiscock DATE: [2][4] D [0][4] M [8][6] Y

SITUATION (TICK ONE ONLY)		
OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	
INTERTIDAL EXTENT (m)	6	100

COASTAL TYPE (TICK)		
HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	✓
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)		
NORTH	26	
NORTHEAST	27	
EAST	28	✓
SOUTHEAST	29	
SOUTH	30	✓
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)		
HIGH	34	✓
MODERATE	35	✓
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)		
SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	✓
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
DUNE/MACHAIR	44	
SEA WALL	45	
SHINGLE RIDGE	46	
GRASSLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)		
ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)		
VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	✓
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	
WEAK (1 k)	63	
VERY WEAK (negligible)	64	✓

SALINITY REGIME (TICK)		
NORMAL (around 34°/oo)	65	✓
VARIABLE (30°/oo+)	66	
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)		
IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	✓

Added Southdown bay, metamorphic grits

SITE INFORMATION (TICK)		
HABITAT VARIETY	79	✓
SPECIES ABUNDANT	80	✓
SPECIES ABSENT	81	
SPECIES AT OR NEAR LIMIT	82	
SPECIES RICHNESS (gd, av, poor)	83	Good
PREVIOUS STUDY AREA	84	✓
ORNITH. INTEREST (type?)	85	
SEAL HAUL OUT/ BREEDING AREA	86	
POLLUTED (type?)	87	
VERY CLEAN	88	
FRAGILE	89	
THREATENED	90	
MNR,NNR,LNR, SSSI NEARBY	91	
SEWAGE/INDUSTRIAL OUTFALL NEAR	92	✓
OTHER SOURCES OF DISTURBANCE (tick and note below)	93	✓

Tanisk use beach nearby

SHORE USAGE (TICK)		
FIELD STUDY	94	
RECREATION	95	✓
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)		
ATTRACTIVE BEACH	103	✓
LOCAL RESORT	104	✓
POPULAR	105	✓
PUBLIC FACILITIES	106	✓

OTHER DATA RECORDED		
PHOTOGRAPHS: B-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

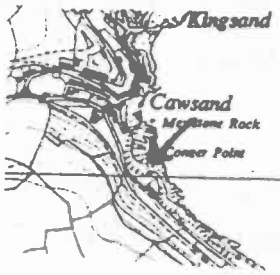
SITE NAME CAL'S SANDS BAY (SOUTH) SITE NO. 6

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116	✓	✓				
UPPER MIDSHORE	117						
MIDSHORE	118			✓	✓	✓	
LOWER MIDSHORE	119						
LOWER SHORE	120						✓
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3	3	3	3	3	3
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128		1				
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131		1			1	
MED.&SM.PEBBLES (4-16 mm)	132		2				
CLEAN GRAVEL (2-4 mm)	133		2				
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						2
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154		2	3			3
FOLIOSE RED ALGAE	155		2	2		2	
FOLIOSE GREEN ALGAE	156		1			2	
ALGAL TURF	157		2	2	2	2	3

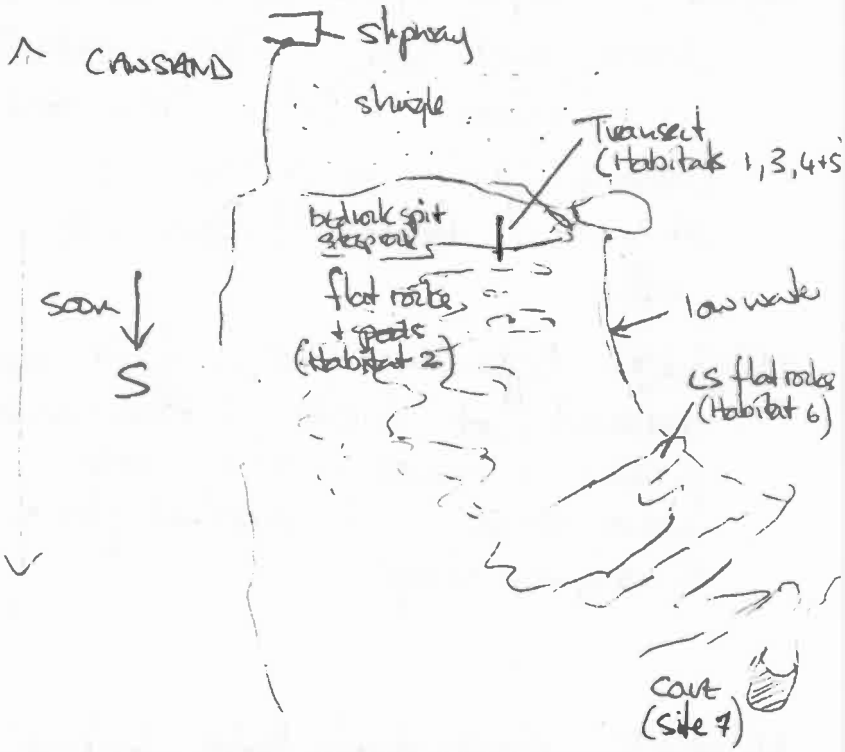
		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158		1		3	3	
FAUNAL TURF	159	3					
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163	✓			✓		
STEEP (20-40°)	164						
SHALLOW (20°)	165			✓			
HORIZONTAL (5°)	166		✓			✓	✓
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						2
BROKEN ROCK	169	3	2	3	3	3	1
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175			?			1
SMALL FISSURES/CREV. (FINGERS)	176			2			
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182			2		3	
ROCKPOOL - SM.	183	1		2	3		
MOBILE COBBLES	184		1				
SCOURED ROCK	185		2				
SAND ON ROCKS	186						1
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192						
SMOOTH	193						
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 6

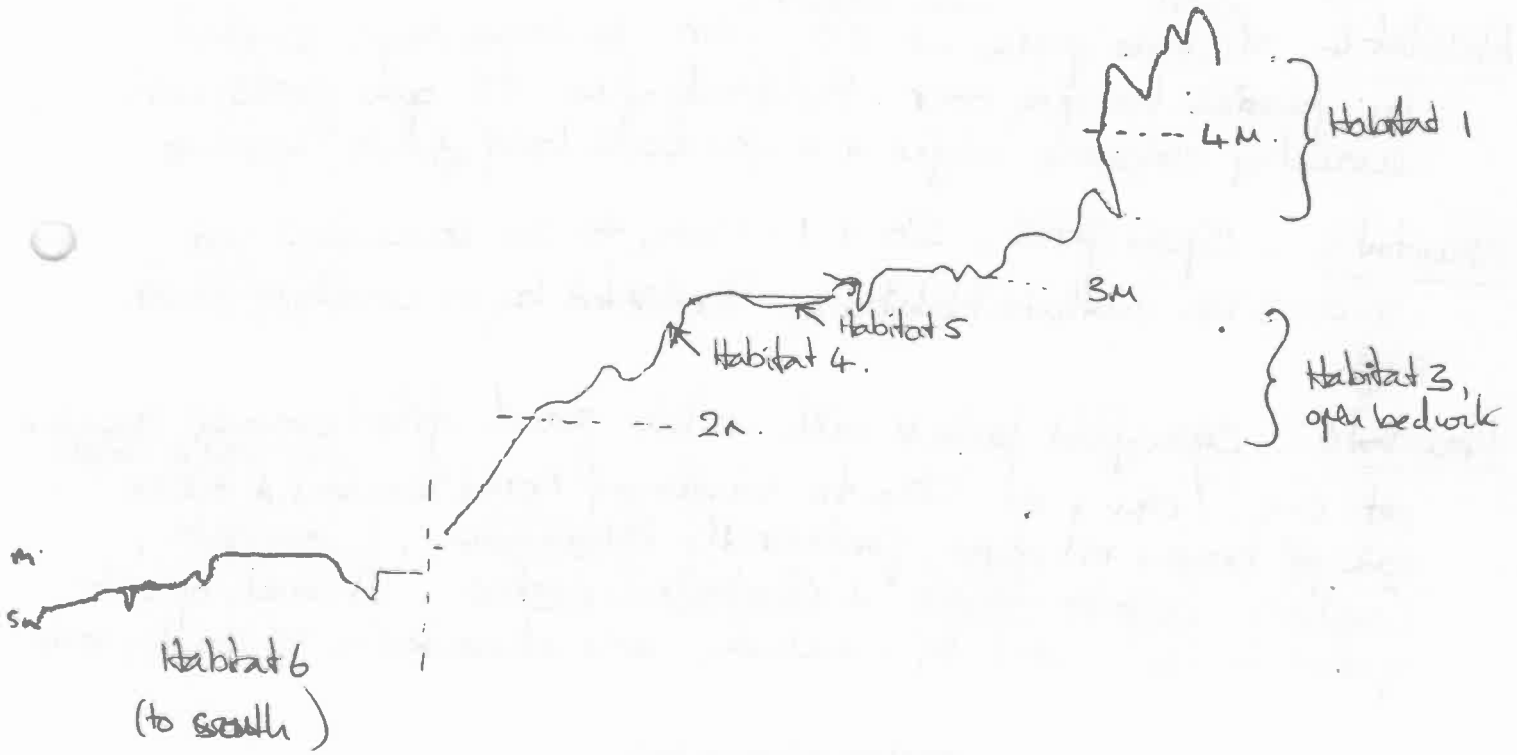
SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



CAWSAND BAY



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 6

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Habitat 1 Steeply dipping top of bedrock ridge at 3.5 - 4.5M above chart datum (upper shore). Steep + vshaped faces with crevices + small pools between. Surfaces dominated by barnacles + limpets. Some barnacle spat. A patchy zone (20-30cm vertically) of Lichina pygmaea at 4.0M. Actinia, Littorina littorea + Gibbula umbilicalis in small pools.

Habitat 2 - Upper shore pool in flat bedrock platform to the SW of the transect, at 4.0M. Pool base of scoured bedrock, mobile pebble + gravel in the base. Algae attached to bedrock around edges. 12 attached plants of Saccorhiza bulbosa. Pool of irregular shape ca. 1M longest length, 10-15cm deep.

Habitat 3 - Gently sloping broken bedrock with rock pools + crevices of varied size, 2.0-3.0M. Cover of fucoids with algal turf + small barnacle bedrock ridges sticking up with barnacles + limpets. Some short Ascophyllum plants.

Habitat 4 - 'Crevice' pools (sublittoral) within Habitat 3 at 2.0-3.0M to 20cm deep, shaded by fucoids hanging over. A different flora to open pools, with encrusting calcareous algae + a few shade-loving foliose species.

Habitat 5 - Open pools, 2M + 1-1.5M, to 20-30cm deep at 2.0-3.0M within Habitat 3. Dominated by a variety of foliose algae.

Habitat 6 - Open flat bedrock with occasional sand-filled crevices (some sand & rocks) at 0.5-1.0M, ca. 50M to south of main transect. A dense cover of brown + red algae, predominantly Himanthalia, L. digitata, Caulacanthus, Gigartina stellata + Gastroclonium ovatum. A variety of other species in the algal turf, including some characteristic of sandy rocks.

INTERTIDAL RECORDING SHEET

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SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: CAWSANDS BAY (SOUTH) SITE 6 GRID REFERENCE: 435 501

DATE: 24.6.86. NAME OF RECORDER: S. HISCOCK

KEY TO HABITAT COLUMNS:

1. Upper shore/bedrock steep at 3.5-4.5M above chart datum.
2. Upper shore pool at 4.0M
3. Middle shore/bedrock at 2.0-3.0M
4. Crevice pools at 2.0-3.0M
5. Open pools at 2.0-3.0M.
6. Lower shore flat bedrock at 0.5-1.0M.

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata				R		R
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.						
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callithamnion ciliata						
Calliblepharis jubata					F	F
Callithamnion roseum						
Callithamnion sp.						
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa						
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum		C		F	C	
Ceramium shuttleworthianum	R		F			
Ceramium sp.						
Chondrus crispus		F	O	O	O	F
Chylocladia verticillata						
Corallina officinalis				F	S	S
Cryptopleura ramosa						
Cystoclonium purpureum						F
Delesseria sanguinea				R	R	
Dumontia incrassata		A	O		F	
Gastroclonium ovatum					O	A
Gelidium latifolium					R	
Gelidium pusillum			F		?R	F
Gigartina acicularis						
Gigartina stellata			A			S
Gracilaria verruscosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						
~~Gastroclonium ovatum~~ Furcellaria lumbricalis					O F	A

	1	2	3	4	5	6
Hildenbrandia sp.						
Hypoglossum woodwardii						
Laurencia hybrida		R				
Laurencia pinnatifida	O		A			
Lomentaria articulata			C		F	F
Lomentaria clavellosa						R
Membranoptera alata						
Mesophyllum lichenoides					O	
Palmaria palmata		O		F		
Plumaria elegans			F	F		
Polyides rotundus						
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa			A			
Polysiphonia nigrescens						
Polysiphonia urceolata						
Polysiphonia sp.		O		O		O
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)				F	O	
Rhodophyta indet. (pink)	O	F		S	A	
Scytosiphon lomentaria						
Porphyra sp.						
Phyllophora traillii				F		
Ditsea carnosa				R	F	O
Phyllophora membranifolia					O	
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
Nitophyllum punctatum						R
PHAEOPHYTA						
Ascophyllum nodosum			C			
Bifurcaria bifurcata						
Cladostephus spongiosus		R		R		
Chorda filum						
Colpomenia peregrina					F	
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.				C		

	1	2	3	4	5	6
Fucus serratus		O	C			
Fucus spiralis						
Fucus vesiculosus	?O		O			
Halidrys siliquosa						
Halopteris scoparia						
Himanthalia elongata					B	A
Laminaria digitata				O	B	A
Laminaria hyperborea					O	
Laminaria ochrolenca						
Laminaria saccharina		O			F	F
Laminaria sp. (sporlings)						F
Pelvetia canaliculata						
Phaeophyta indet. (filam.)						O
Pilayella littoralis						
Saccorhiza polyschides						
Sargassum muticum		C				
encrusting brown				O		
Petalonia fascia					R	
Sporgavium tomentosum			F			
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						R
Chlorophyta indet. (filam.)						
Cladophora pellucida		?C				
Cladophora sp.						O
Cladostephus spongiosus						
Codium fragile tomentosoides						
Codium tomentosum						
Enteromorpha sp. (p)						
Ulva sp. (p)					A	O
ANGIOSPERMAE						
Zostera noltii						
Zostera augustifolia						
Zostera marina						
LICHENS						
Calloplaca marina						
Calloplaca thallincola						
Grey lichens						
Lecanora atra						
Lichina confinis						
Lichina pygmaea	C					
Ochrolechia parella						
Verrucaria maura						
Verrucaria mucosa						
Xanthoria parietina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: CAUSAND'S BAY (SOUTH) CAVE GRID REFERENCE: (2) 435 501

DATE: 24.4.86. NAME OF RECORDER: S. Hawk

KEY TO HABITAT COLUMNS:

1. CAVE at outshore level, northeast facing
2.
3.
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.	F					
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.						
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa						
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum						
Ceramium shuttleworthianum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dumontia incrassata						
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum						
Gigartina acicularis						
Gigartina stellata						
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						

	1	2	3	4	5	6
Hildenbrandia sp.						
Hypoglossum woodwardii						
Laurencia hybrida						
Laurencia pinnatifida						
Lomentaria articulata						
Lomentaria clavellosa						
Membranoptera alata						
Mesophyllum lichenoides	:					
Palmaria palmata						
Plumaria elegans	F					
Polyides rotundus						
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa						
Polysiphonia nigrescens						
Polysiphonia urceolata						
Polysiphonia sp.						
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)						
Rhodophyta indet. (pink)	F					
Scytosiphon lomentaria						
Porphyra sp.						
Phyllophora traillii	F					
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
PHAEOPHYTA						
Ascophyllum nodosum						
Bifurcaria bifurcata						
Cladostephus spongiosus						
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.						

Fucus serratus						
Fucus spiralis						
Fucus vesiculosus						
Halidrys siliquosa						
Halopteris scoparia						
Himanthalia elongata						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochrolenca						
Laminaria saccharina						
Laminaria sp. (sporlings)						
Pelvetia canaliculata						
Phaeophyta indet. (filam.)						
Pilayella littoralis						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Chlorophyta indet. (filam.)						
Cladophora pellucida						
Cladophora sp.						
Cladostephus spongiosus						
Codium fragile tomentosoides						
Codium tomentosum						
Enteromorpha sp. (p)						
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera noltii						
Zostera augustifolia						
Zostera marina						
LICHENS						
Calloplaca marina						
Calloplaca thallincola						
Grey lichens						
Lecanora atra						
Lichina confinis						
Lichina pygmaea						
Ochrolechia parella						
Verrucaria maura						
Verrucaria mucosa						
Xanthoria parietina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS
(Not including species sampled from sediments)

INCOMPLETE ANIMAL RECORDS

SITE NAME: CAWSAND BAY (SOUTH) SITE 6 GRID REFERENCE: 435 501

DATE: 24.4.86. NAME OF RECORDER: S. Hiscock.

KEY TO HABITAT COLUMNS:

1. Upper shore steep bedrock at +3.5-4.5m ~~above C.D.~~
2. Upper shore pool at +4.0m.
3. Middle shore rocky bedrock at +2.0-3.0m.
4. Crevice pools at +2.0-3.0m.
5. Open pools at +2.0-3.0m.
6. Lower shore gravelly flat bedrock at +0.5-1.0m.

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
Scypha compressa						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Ophlitaspongia seriata						
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila						
Laomedea flexuosa						
Tubularia larynx						
COELENTERATA:ACTINIAE						
Actinia equina	F					
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina					O	
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Cirratulus cirratus						
Eulalia viridis						

	1	2	3	4	5	6
Lanice conchilega						
Pomatoceros sp. (p)						
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids						
Spirorbinidae - on rock						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus						
Chthamalus ~~montagui~~ spp.						
Chthamalus stellatus						
Elminius modestus						
Semibalanus balanoides						
Verruca stroemia						
Cirripedia indet.			F			
CRUSTACEA:ISOPODA						
Idotea sp. (p)						
CRUSTACEA:AMPHIPODA						
Amphipoda indet.				.	.	.
Gammarus sp.						
Hyale nilsoni						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber sp.					R	

	1	2	3	4	5	6
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
INSECTA						
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria						
Gibbula umbilicalis			O			
Hydrobia ulvae						
Littorina 'saxatilis'						
Littorina littorea			R			
Littorina mariae						
Littorina neglecta						
Littorina neritoides						
Littorina obtusata			O			
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata						
Nucella lapillus						
Patella aspera						
Patella depressa						
Patella vulgata						
Patella sp.	A		F			
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoarous						
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Bowerbankia imbricata						
Cerastoderma edule						
Hiatella arctica						
Mytilus edulis						
Ostrea edulis						
BRYOZOA						
Alcyonidium gelatinosum						
Alcyonidium hirsutum						
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida						
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						

	1	2	3	4	5	6
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botryllus schlosseri						
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: CAWSANDS BAY (CAVE) SITE NO.: 7

SURVEY AREA: PLYMOUTH SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

[ ][ ] [4][3][5] [5][0][1] TO [ ][ ] [ ][ ][ ][ ] [ ][ ][ ][ ]

RECORDER: S HOLOCK DATE: [2][4] D [0][4] M [8][6] Y

SITUATION (TICK ONE ONLY)		
OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	
INTERTIDAL EXTENT (m)	6	12m
COASTAL TYPE (TICK)		
HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	✓
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	✓
WRECK	24	
OTHER (tick and note below)	25	
ASPECT (TICK)		
NORTH	26	
NORTHEAST	27	
EAST	28	✓
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	
COASTAL HEIGHT (TICK)		
HIGH	34	
MODERATE	35	✓
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)		
SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	✓
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
DUNE/MACHAIR	44	
SEA WALL	45	
SHINGLE RIDGE	46	
GRASSLAND	47	
OTHER (tick and note below)	48	
OFFSHORE FEATURES (TICK)		
ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	
WAVE EXPOSURE (TICK)		
VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	✓
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	
MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	
WEAK (1 k)	63	
VERY WEAK (negligible)	64	✓
SALINITY REGIME (TICK)		
NORMAL (around 34°/oo)	65	✓
VARIABLE (30°/oo+)	66	
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	
ROCK TYPE (TICK)		
IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	✓
OTHER (tick and note below)	78	✓
METAMORPHIC, HARD		
SITE INFORMATION (TICK)		
HABITAT VARIETY	79	✓
SPECIES ABUNDANT	80	✓
SPECIES ABSENT	81	
SPECIES AT OR NEAR LIMIT	82	
SPECIES RICHNESS (gd, av, poor)	83	Good
PREVIOUS STUDY AREA	84	
ORNITH. INTEREST (type?)	85	
SEAL HAUL OUT/ BREEDING AREA	86	
POLLUTED (type?)	87	
VERY CLEAN	88	
FRAGILE	89	
THREATENED	90	
MNR,NNR,LNR, SSSI NEARBY	91	
SEWAGE/INDUSTRIAL OUTFALL NEAR	92	
OTHER SOURCES OF DISTURBANCE (tick and note below)	93	
SHORE USAGE (TICK)		
FIELD STUDY	94	
RECREATION	95	✓
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	
AMENITY (TICK)		
ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	
OTHER DATA RECORDED		
PHOTOGRAPHS: W-A	107	✓
C-U	108	✓
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

SITE NAME CRUSSINOS BAY SOUTH, CLARE SITE NO. 7

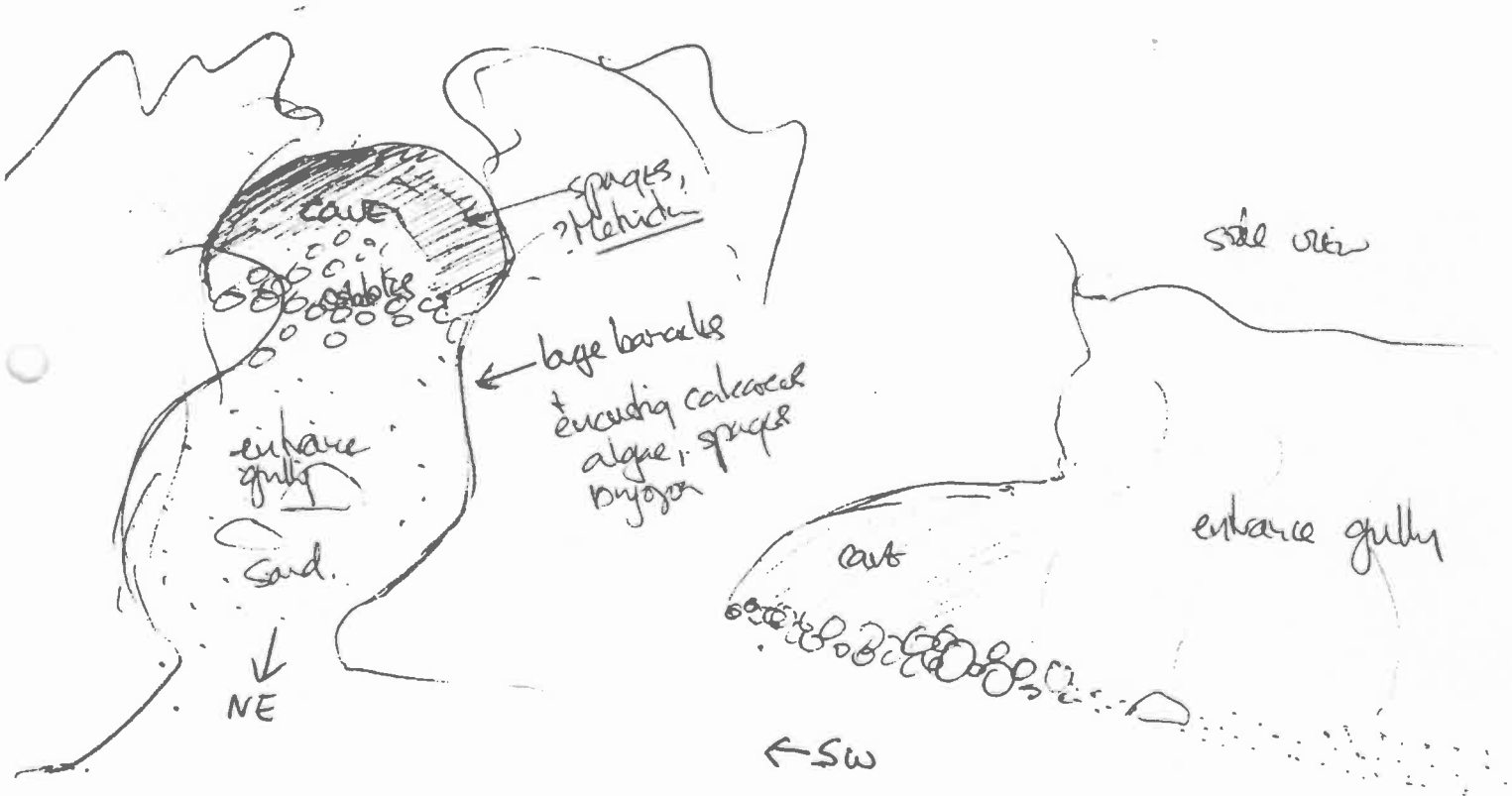
		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118	✓					
LOWER MIDSHORE	119						
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3					
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124	1					
LG. COBBLES (128-256 mm)	125	1					
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128	2					
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131	1					
MED.&SM.PEBBLES (4-16 mm)	132	1					
CLEAN GRAVEL (2-4 mm)	133	1					
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138	2					
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157	1					

		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158						
FAUNAL TURF	159	3					
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161	✓					
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168	3					
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172	2					
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174	2					
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177	3					
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181	1					
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184	2					
SCOURED ROCK	185	2					
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192						
SMOOTH	193						
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 7

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)

SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 7

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Habitat 1.

Cave at approximately midshore level, smooth rounded walls + floor of cobbles + pebbles. Enclosed part of cave ca. 6m deep + 1-2m high, 2m wide, tapering at inner end. Semi-enclosed entrance gully (roof open) ca. 6m long + 1.5-2m wide. Cobbles with no organisms, obviously mobile.

Fauna both inside cave + in entrance gully predominantly encrusting, scattered sponges, v. large barnacles ( ), thick, friable bryozoan covering large areas. Some solitary sponges. Near base of walls, ca 20cm from floor, a zone of Paratooros + sponges, with bare rock next to the cobbles.

~~Entrance~~ A few algae in entrance gully - Plumaria + Phyllophora Traillii.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. Features which would normally be included in the description of a survey area including prevailing wind, time of [illegible], tidal range and annual rainfall are not now included on the form. Numbers for each category do not correspond with those on the sublittoral habitat record sheet.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: SR7 CAWSANDS BAY (SOUTH) CASE. GRID REFERENCE: 45 501

DATE: 24.04.86 NAME OF RECORDER: S Hiscock

KEY TO HABITAT COLUMNS:

1. Cave at midshore level, northeast facing
2.
3.
4.
5.
6.

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea	F					
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
Scypha compressa	O					
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea	C					
Hemimycale columella						
Hymeniacidon perleve						
? Myxilla incrustans	F					
Ophlitaspongia seriata						
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila						
Laomedea flexuosa						
Tubularia larynx						
COELENTERATA:ACTINIAE						
Actinia equina						
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina						
? Metridium senile	O					
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Cirratulus cirratus						
Eulalia viridis						

	1	2	3	4	5	6
Lanice conchilega						
Pomatoceros sp. (p)	C					
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids						
Spirorbinidae - on rock	C					
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus	C					
Balanus improvisus						
Balanus perforatus						
Chthamalus montagui						
Chthamalus stellatus						
Elminius modestus						
Semibalanus balanoides						
Verruca stroemia						
CRUSTACEA:ISOPODA						
Idotea sp. (p)						
CRUSTACEA:AMPHIPODA						
Amphipoda indet.						
Gammarus sp.						
Hyale nilsoni						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						

	1	2	3	4	5	6
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
INSECTA						
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria						
Gibbula umbilicalis						
Hydrobia ulvae						
Littorina 'saxatilis'						
Littorina littorea						
Littorina mariae						
Littorina neglecta						
Littorina neritoides						
Littorina obtusata						
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata						
Nucella lapillus						
Patella aspera						
Patella depressa						
Patella vulgata						
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Bowerbankia imbricata						
Cerastoderma edule						
Hiatella arctica						
Mytilus edulis						
Ostrea edulis						
BRYOZOA						
Alcyonidium gelatinosum						
Alcyonidium hirsutum						
Bryozoa indet. (encr.)	A					
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida (m&s)	P					
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						

	1	2	3	4	5	6
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botryllus schlosseri						
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86

RECORD NO.:

SITE NAME: CREMYLL WEST SITE NO.: B

SURVEY AREA: PLYMOUTH SEA AREA:

OS GRID REF.:	E - W	N - S		E - W	N - S
	45	53	TO		

RECORDER: S. Hiscock DATE: 24 D 04 M 86 Y

SITUATION (TICK ONE ONLY)		
OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	
INTERTIDAL EXTENT (m)	6	15m

COASTAL TYPE (TICK)		
HEADLAND	7	✓
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	✓
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)		
NORTH	26	✓
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)		
HIGH	34	
MODERATE	35	
LOW	36	✓
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)		
SAND DUNES	38	
LOW CLIFF	39	✓
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
DUNE/MACHAIR	44	
SEA WALL	45	
SHINGLE RIDGE	46	
GRASSLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)		
ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)		
VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)		
NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	
LOW (30°/oo)	67	?
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)		
IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	✓
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)		
HABITAT VARIETY	79	
SPECIES ABUNDANT	80	
SPECIES ABSENT	81	✓
SPECIES AT OR NEAR LIMIT	82	
SPECIES RICHNESS (gd, av, poor)	83	Poor
PREVIOUS STUDY AREA	84	
ORNITH. INTEREST (type?)	85	
SEAL HAUL OUT/ BREEDING AREA	86	
POLLUTED (type?)	87	
VERY CLEAN	88	
FRAGILE	89	
THREATENED	90	
MNR,NNR,LNR, SSSI NEARBY	91	
SEWAGE/INDUSTRIAL OUTFALL NEAR	92	
OTHER SOURCES OF DISTURBANCE (tick and note below)	93	✓

Shipbuilding yard ca. 100y to E.

SHORE USAGE (TICK)		
FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)		
ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED		
PHOTOGRAPHS: B-A	107	✓
C-U	109	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

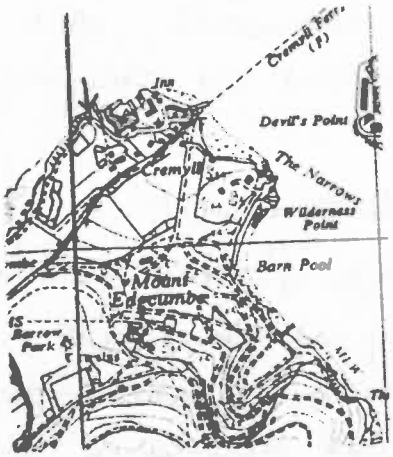
SITE NAME CREMYLL WEST SITE NO. 8

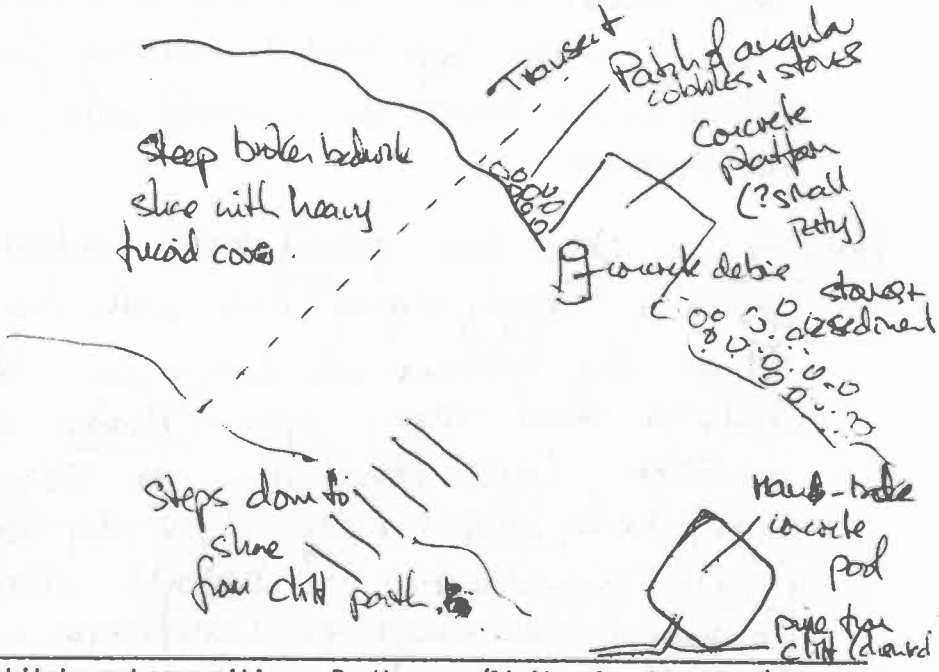
		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115	✓					
UPPER SHORE	116		✓				
UPPER MIDSHORE	117						
MIDSHORE	118			✓			✓
LOWER MIDSHORE	119				✓	✓	
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3	3	3	3	3	
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						~~2~~
WOOD	152						
OTHER (tick & note/ score below)	153						✓
Brick + block debris							2
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154		3	3	3		2
FOLIOSE RED ALGAE	155					4	2
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157					2	

		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158						
FAUNAL TURF	159					2	
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161					✓	
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163	✓					
STEEP (20-40°)	164	✓	✓	✓	✓		
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						✓
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169	3	3	3	3	3	
TERRACES	170		2				
LEDGES	171						
ROCK WALLS	172	2					
OPEN GULLIES	173					1	
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175					1	
SMALL FISSURES/CREV. (FINGERS)	176		1	1	1		
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						2
ROCKPOOL - LG.	182						3
ROCKPOOL - SM.	183			1	1		
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187			1	2		
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192						
SMOOTH	193						
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

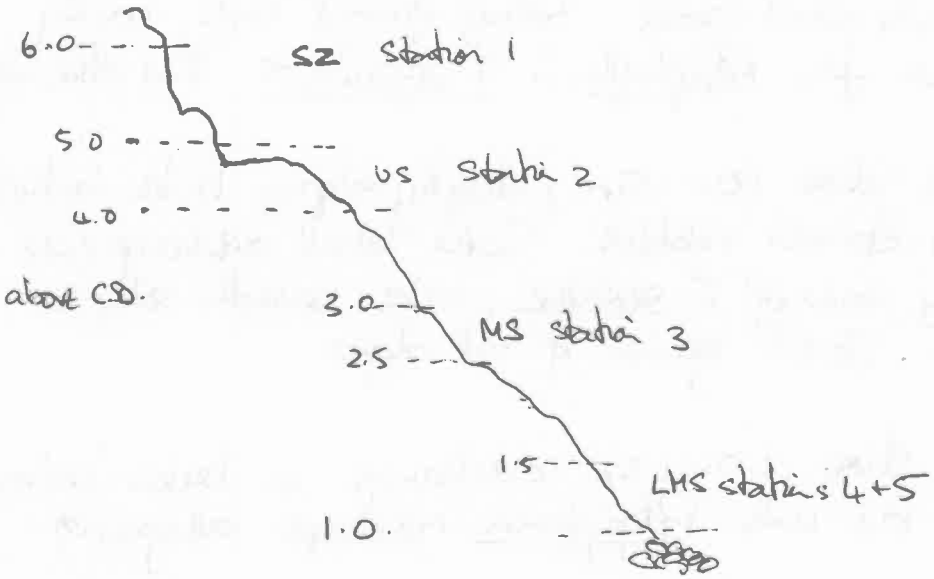
SITE NO.: 8

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)





SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 8

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Habitat 1 - Splash zone at 5.0-6.0m above C.D. on vertical + steep broken rock. The usual zonation of Grey, yellow + black lichens for the ~~top~~ lowest flaking plate downwards, but yellow lichens scarce on vertical rock, abundant on steeply sloping rocks.

Habitat 2 - Upper shore fucoid belt, between 4.0 + 5.0m, on generally steeply sloping rock with one large flattish patch on the transect ca 4m x 3m. Heavy cover of fucoids in distinct short zones; upper Pelvetia ca. 50cm, middle F. spiralis ca. 80cm. lower Ascophyllum ca 50cm but abundance limited by slope, being absent where slope very steep. On the flatter patch Pelvetia abundant. Enteromorpha also present on flatter rocks. Little beneath fucoids except encrusting algae + lichens. A few crevices with overhangs with Corallina.

Habitat 3 - Middle Shore at 2.5-3.0 on steeply sloping broken bedrock with some crevices and very small pools. Heavy fucoid cover, mainly Fucus serratus, with a few Ascophyllum + F. vesiculosus. Few other algae.

Habitat 4 - Lower middle shore 1.0-1.5m, steeply sloping broken bedrock ending in angular stones + cobbles. Some small overhangs (see Habitat 5. Heavy cover of F. serratus, rocks beneath silty + with Audouinella. Small species of red algae.

Habitat 5 Lower middle shore, 1.0-1.5m, overhangs in broken bedrock, animal dominated but with Polysiphonia ? ramosa overgrowing.

Habitat 6 Large (2m x 2m) man-made pool at ca. 3m (mid-shore), with concrete sides + angular boulders + cobble floor, including bricks + blocks. A pipe leading from the cliff ends just above pool, possibly effluent but was dry. Pool with large algal cover, 50% F. serratus, 50% other fucoid algae. Few ~~anemones~~ INTERTIDAL RECORDING SHEET, some sponges beneath stones.

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/NBA Intertidal Survey Unit and used in 1985. The categories in these sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. Features which would normally be included in the description of a survey area including prevailing wind, size of fetch, tidal range and annual rainfall are not now included on the form. Numbers for each category do not correspond with those on the sublittoral habitat record sheet.

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: CREMYLL WEST (SEZ) SITE NO.: 8

SURVEY AREA: PLYMOUTH SEA AREA:

OS GRID REF.:	E - W	N - S		E - W	N - S
	5 X	4 5 /	5 3 6	TO	

RECORDER:

DATE: 2 4 D 0 4 M 8 6 Y

SITUATION (TICK ONE ONLY)		
OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓
INTERTIDAL EXTENT (m)	6	15m

COASTAL TYPE (TICK)		
HEADLAND	7	✓
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	✓
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)		
NORTH	26	✓
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)		
HIGH	34	
MODERATE	35	
LOW	36	✓
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)		
SAND DUNES	38	
LOW CLIFF	39	✓
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
DUNE/MACHAIR	44	
SEA WALL	45	
SHINGLE RIDGE	46	
GRASSLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)		
ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)		
VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)		
NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)		
IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	✓
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)		
HABITAT VARIETY	79	
SPECIES ABUNDANT	80	
SPECIES ABSENT	81	✓
SPECIES AT OR NEAR LIMIT	82	
SPECIES RICHNESS (gd, av, poor)	83	poor
PREVIOUS STUDY AREA	84	
ORNITH. INTEREST (type?)	85	
SEAL HAUL OUT/ BREEDING AREA	86	
POLLUTED (type?) o.l sheens	87	✓
VERY CLEAN	88	
FRAGILE	89	
THREATENED	90	
MNR,NNR,LNR, SSSI NEARBY	91	
SEWAGE/INDUSTRIAL OUTFALL NEAR	92	
OTHER SOURCES OF DISTURBANCE (tick and note below)	93	✓
shipbuilding on 100m E + land opp.		

SHORE USAGE (TICK)		
FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)	
ATTRACTIVE BEACH	103
LOCAL RESORT	104
POPULAR	105
PUBLIC FACILITIES	106

OTHER DATA RECORDED		
PHOTOGRAPHS: W-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

see early shore Hab. later

INTERTIDAL HABITAT RECORD 1 ONLY ON SEDIMENT

SITE NAME SITE NO. 1

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118						
LOWER MIDSHORE	119						
LOWER SHORE	120	✓					
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137	✓3					
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142	✓2					
MUD	143	✓1 - AT DEPTH					
BLACK LAYER (note depth)	144	5cm					
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)			NA				
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)		NA					
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						

		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)		NA					
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190	3					
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192						
SMOOTH	193	2					
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)		NA					
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 8

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)

SEE ROCKY SHORE HABITAT SHEET.

SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

SEE ROCKY SHORE HABITAT SHEET.

SITE NO.:

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

LOWER SHORE SEDIMENT - (10m) mixed muddy shell gravel / shingle. moving rate dark mud at 5cm depth covered small tube dwelling polychaetes visible no other phyla seen no presence
sediment is probably most mobile at the surface but high level of shelter will create stable sediment habitat conditions

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. Features which would normally be included in the description of a survey area including prevailing wind, time of HLWST, tidal range and annual rainfall are not now included on the form. Numbers for each category do not correspond with those on the sublittoral habitat record sheet.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: CREMYLL WEST SITE 8 GRID REFERENCE: 451 535

DATE: 24.4.86 NAME OF RECORDER: S. Hiscock

KEY TO HABITAT COLUMNS:

1. SPLASH ZONE 5.0-6.0M above CD. Lichens in steep rock
2. UPPER SHORE 4.0-5.0M above CD. Steep + broken rock with U.S. fucoids
3. MIDDLE SHORE 2.5-3M above C.D. Steep + broken rock with heavy fucoids
4. LOWER MIDDLE SHORE 1.0-1.5M above C.D. Steep + broken rock with Fucus Serratus
5. LMS orthangs in bedrock 1.0-1.5M.
6. MAN-MADE POOL AT ca. 3M, ca. 2M x 2M + 20-40 cm deep.

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.		F		A		
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.				O		
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa		F				
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum						C
Ceramium shuttleworthianum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dumontia incrassata						C
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum		F				
Gigartina acicularis						
Gigartina stellata			F	F		
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						

	1	2	3	4	5	6
Hildenbrandia sp.		A				
Hypoglossum woodwardii						
Laurencia hybrida						
Laurencia pinnatifida						
Lomentaria articulata				O		
Lomentaria clavellosa						
Membranoptera alata						
Mesophyllum lichenoides						
Palmaria palmata				F		R
Plumaria elegans						
Polyides rotundus						
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa			F			
Polysiphonia nigrescens						
Polysiphonia urceolata						
Polysiphonia sp.					O	F
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)						
Rhodophyta indet. (pink)						
Scytosiphon lomentaria						
Porphyra sp.			R			
Phyllophora traillii				O	O	
Polysiphonia macrocarpa				F	C	
Rhodomela confervoides						O
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
PHAEOPHYTA						
Ascophyllum nodosum		S	F			
Bifurcaria bifurcata						
Cladostephus spongiosus						
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.						

	1	2	3	4	5	6
Fucus serratus			A	S		
Fucus spiralis		S				
Fucus vesiculosus			O			
Halidrys siliquosa						
Halopteris scoparia						
Himanthalia elongata						R
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochrolenca						
Laminaria saccharina						R
Laminaria sp. (sporlings)				F		
Pelvetia canaliculata		S				
Phaeophyta indet. (filam.)			A	A		C
Pilayella littoralis						
Saccorhiza polyschides						
Sargassum muticum						
Fucoid sporlings		F				
? Striaria attenuata						F
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Chlorophyta indet. (filam.)			F	Fc		
Cladophora pellucida						
Cladophora sp.			O			
Cladostephus spongiosus						
Codium fragile tomentosoides						
Codium tomentosum						
Enteromorpha sp. (p)		A		O		R
Ulva sp. (p)				O	O	C
ANGIOSPERMAE						
Zostera noltii						
Zostera augustifolia						
Zostera marina						
Armeria. MOSS	O					
LICHENS						
Calloplaca marina						
Calloplaca thallincola	O					
Grey lichens	A					
Lecanora atra						
Lichina confinis						
Lichina pygmaea						
Ochrolechia parella						
Verrucaria maura	Ex	C				
Verrucaria mucosa		F				
Xanthoria parietina	C					
Ramalina sp.	O					
Polysiphonia ? urceolata						F

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS – ANIMALS

(Not including species sampled from sediments)

SITE NAME: CREMYLL WEST 8 GRID REFERENCE: SX 451 535

DATE: 24/04/86. NAME OF RECORDER: MDH.

KEY TO HABITAT COLUMNS:

1. SPLASH ZONE +5.0 - 6.0m above C.D lichens on steep rock.
2. UPPER SHORE +4.0 - 5.0m " " steep broken rock with Os fucoids
3. MIDDLE SHORE +2.5 - 3.0m " " " " " " heavy fucoid cover
4. LOWER MIDDLE SHORE +1.0 - 1.5m " "
5. LMS OVERHANGS IN BEDROCK +1.0 - 1.5m
6. MAN MADE POOL AT ca +3cm, ca 2m x 2m 20-40cm deep

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
Scypha compressa						
Porifera indet (Encr. Sponge Calcarea)						R
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea					O	
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans			O			
Ophlitaspongia seriata						
Porifera indet (orange)					F	
Porifera indet.						F
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila		O				
Laomedea flexuosa						
Tubularia larynx						
COELENTERATA:ACTINIAE						
Actinia equina						
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina						
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Cirratulus cirratus						
Eulalia viridis						

	1	2	3	4	5	6
Lanice conchilega						
Pomatoceros sp. (p)						F
Sabella pavonina						
Spirorbinidae -						
on 'lithothamnia'						
Spirorbinidae -						
on Gigartina/Chondrus						
Spirorbinidae -						
on fucoids		C	A			
Spirorbinidae -						
on rock		C	A		A	S
Terebellidae indet.						
Aphroditidae indet						R
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus						
Chthamalus montagui						
Chthamalus stellatus						
Elminius modestus	R	C	A			A
Semibalanus balanoides		C	S			A
Verruca stroemia						O
Cirripedia indet					C	
CRUSTACEA:ISOPODA						
Idotea sp. (p)						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubicol)		O	O			
Gammarus sp.						
Hyale nilsoni						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas		x1		x1		
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						

	1	2	3	4	5	6	
Pagurus berhardus							
Palaemon serratus							
Pisidia longicornis							
Porcellana platycheles							
INSECTA							
Anurida maritima							
Insecta indet. (pupae)							
MOLLUSCA:GASTROPODA							
Polyplacophora indet.							
Calliostoma zizyphinum							
Calyptera chinensis							
Crepidula fornicata							
Gibbula cineraria							
Gibbula umbilicalis							
Hydrobia ulvae							
Littorina 'saxatilis'	O	O		O			
Littorina littorea			R	O			
Littorina mariae		R					
Littorina neglecta							
Littorina neritoides							
Littorina obtusata							
Littorina obt./mariae (Juv.)			O				
Lepidochitona cinereus							
Monodonta lineata							
Nucella lapillus			R		R		
Patella aspera							
Patella depressa			S				
Patella vulgata							
Patella sp. disp/asp		O	S		A		
Patina pellucida							
Trivia arctica							
Trivia monacha							
Archidoris pseudoargus							
MOLLUSCA:BIVALVIA							
Anomiidae indet.							
Bowerbankia imbricata							
Cerastoderma edule							
Hiatella arctica							
Mytilus edulis							
Ostrea edulis							
BRYOZOA							
Alcyonidium gelatinosum							
Alcyonidium hirsutum							
Bryozoa indet. (encr.)							
Bugula plumosa							
Bugula turbinata							
Electra pilosa							
Flustrellidra hispida							
Membranipora membranacea							
Scrupocellaria reptans							
Umbonula littoralis							

	1	2	3	4	5	6
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botryllus schlosseri						F
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
Botryllodes leachii				O		
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: Penlee Point SITE NO.: 9

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 444 487 TO

RECORDER: C Hobson / S Hobson DATE: 23 D 04 M 86 Y

SITUATION (TICK ONE ONLY)		
OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	✓
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	
INTERTIDAL EXTENT (m)	6	50

COASTAL TYPE (TICK)		
HEADLAND	7	✓
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)		
NORTH	26	
NORTHEAST	27	✓
EAST	28	✓
SOUTHEAST	29	✓
SOUTH	30	✓
SOUTHWEST	31	✓
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)		
HIGH	34	✓
MODERATE	35	
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)		
SAND DUNES	38	✓
LOW CLIFF	39	✓
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
DUNE/MACHAIR	44	
SEA WALL	45	
SHINGLE RIDGE	46	✓
GRASSLAND	47	✓
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)		
ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)		
VERY EXPOSED (prevailing wind and swell)	54	✓
EXPOSED (prevailing wind)	55	✓
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	
WEAK (1 k)	63	✓
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)		
NORMAL (around 34°/oo)	65	✓
VARIABLE (30°/oo+)	66	
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)		
IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	✓
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)		
HABITAT VARIETY	79	
SPECIES ABUNDANT	80	
SPECIES ABSENT	81	
SPECIES AT OR NEAR LIMIT	82	
SPECIES RICHNESS (gd, av, poor)	83	dv
PREVIOUS STUDY AREA	84	
ORNITH. INTEREST (type?)	85	
SEAL HAUL OUT/ BREEDING AREA	86	
POLLUTED (type?)	87	
VERY CLEAN	88	
FRAGILE	89	
THREATENED	90	
MNR,NNR,LNR, SSSI NEARBY	91	
SEWAGE/INDUSTRIAL OUTFALL NEAR	92	
OTHER SOURCES OF DISTURBANCE (tick and note below)	93	

SHORE USAGE (TICK)		
FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)		
ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED		
PHOTOGRAPHS: M-S	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

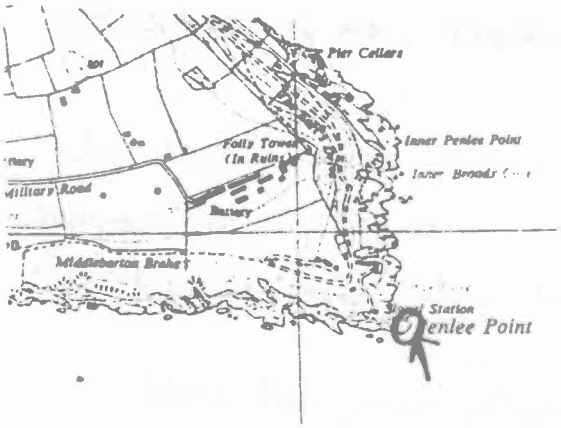
INTERTIDAL HABITAT RECORD

SITE NAME Perlee Point SITE NO. 9

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115	✓					
UPPER SHORE	116		✓				✓
UPPER MIDSHORE	117			✓			✓
MIDSHORE	118				✓		✓
LOWER MIDSHORE	119						✓
LOWER SHORE	120					✓	✓
SUBLITTORAL FRINGE	121						✓
							✓
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3	3	3	3	3	3
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124		2				
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126					2	
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129	2	2			2	
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						3
FOLIOSE GREEN ALGAE	156	3	3		2		
ALGAL TURF	157			3	3	3	
ALGAL CRUST	158			3	3	3	
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164	✓	✓	✓	✓	✓	✓
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169	3	3	3	3	3	3
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						1
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182	3	3	3	3	3	2
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192						
SMOOTH	193						
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

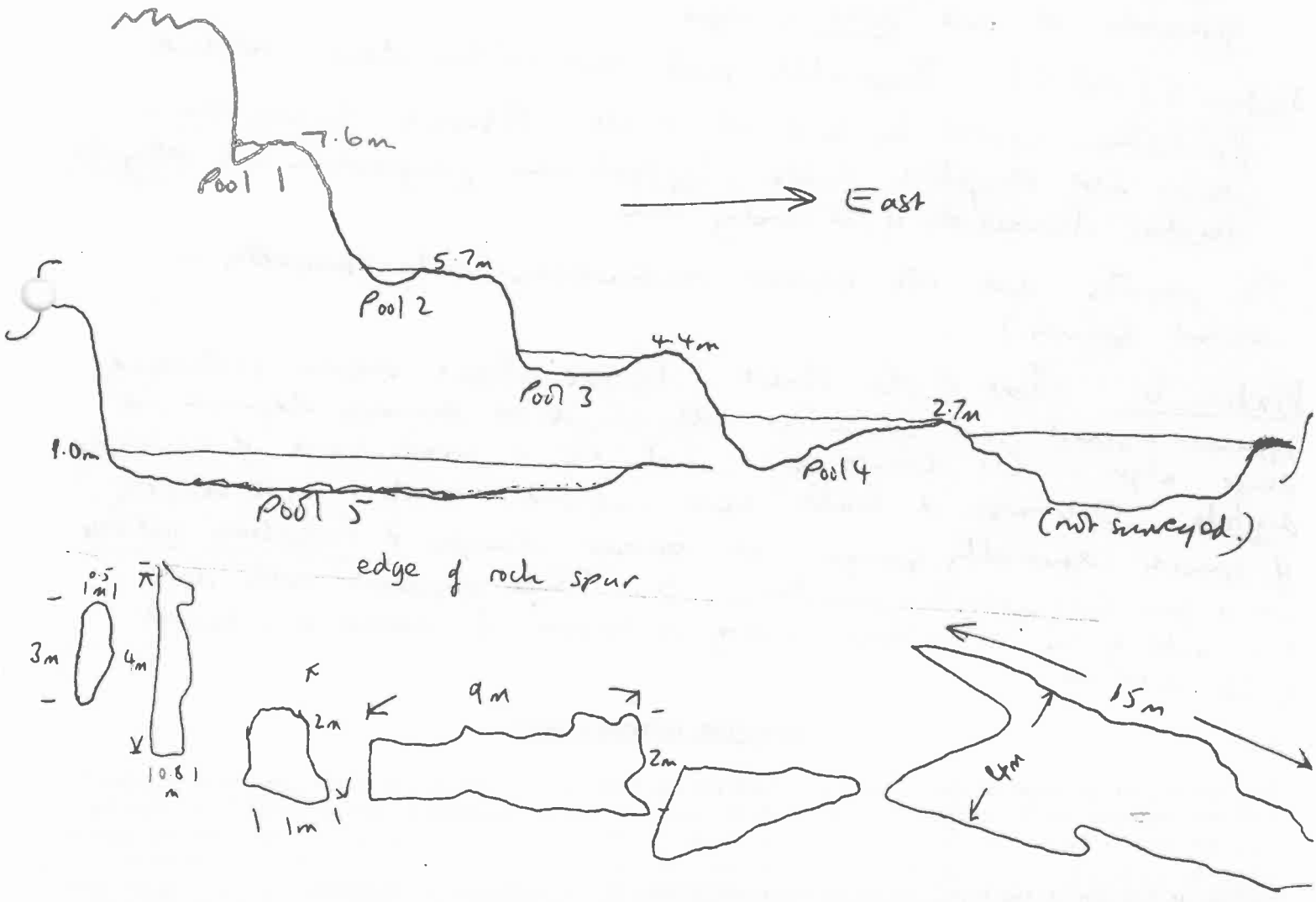
SITE NO.: 9

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)





SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 9

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Station 1 (Pool 1). Broken steep sided rock to the west with a broken rock slope to the east. The pool was dominated by Enteromorpha. ~~Salt~~ Scattered pieces of clear slate were present in the pool. Depth 25cm.

Station 2 (Pool 2). Vertical west side and steeply sloping east side with a maximum depth of 55cm. Sides dominated by Enteromorpha. Boulders and slates in the bottom silty and with Spirorbinidae underneath.

Station 3 (Pool 3). Broken vertical west wall and steeply sloping east wall with a maximum depth of 50cm. Dominated by Corallina officinalis and Ceramium rubrum ~~with~~ over a crust of pink Rhodophyta. Two Sargassum plants present. Amphipods common in algae

Station 4 (Pool 4). Overhanging south side with broken steeply sloping north side and with a maximum depth of 13m. Dominated by Corallina and Ulva with several Sargassum and Himanthalia. Small gastropods and some Idotea in algae

Station 5 (Pool 5). Steep sided pool up to 1m deep with a flat bottom covered by sand and shales. Abundant Audouinella in places with Ahnfeltia plicata, Cystoclonium purpureum and Polyides rotundus characteristic of the sandy rock

(The pools did not appear particularly rich especially in animal species.)

Station 6 Rest of the shore. Open shore areas included typical exposed coast communities with limpets and barnacles dominant and dense algae on the lowest shore including a broad band of Laminaria digitata. Overhangs and small caves included quite a rich variety of species especially sponges and several clumps of Tubularia indivisa and a few Caryophyllia smithii. One large apparent rock pool due south of the Trinity House landing is known to extend as a tunnel to the open sea.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. Features which would normally be included in the description of a survey area including prevailing wind, time of [illegible], tidal range and annual rainfall are not now included on the form. Numbers for each category do not correspond with those on the sublittoral habitat record sheet.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: PENLEE POINT SITE 9. GRID REFERENCE: SX 444 487

DATE: 25.4.86 NAME OF RECORDER: S HISCOCK

KEY TO HABITAT COLUMNS:

1. Splash zone pool at 7.6m (Part 1)
2. U.S. pool at 5.7m. (Part 2)
3. UMS pool at 4.4m (Part 3)
4. LMS pool at 2.7m (Part 4)
5. LS pool at 1m. (Part 5)
6. General shore records

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata					C	
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.					A	
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata				R		
Callithamnion roseum						
Callithamnion sp.						
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
tenella caespitosa						
Ceramium ciliatum				O		
Ceramium echionotum						
Ceramium rubrum			Ex	F	F	
Ceramium shuttleworthianum						
Ceramium sp.						
Chondrus crispus				O	F	
Chylocladia verticillata				R		
Corallina officinalis			Ex	C	F	
Cryptopleura ramosa				R	O	
Cystoclonium purpureum					O	
Delesseria sanguinea				O		
Dumontia incrassata				F	F	
Gastroclonium ovatum				C		
Gelidium latifolium						
Gelidium pusillum						
Gigartina acicularis						
Gigartina stellata						V
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						

	1	2	3	4	5	6
Hildenbrandia sp.						✓
Hypoglossum woodwardii						
Laurencia hybrida						
Laurencia pinnatifida						✓
Lomentaria articulata				O	O	
Lomentaria clavellosa				O	O	
Membranoptera alata						
Mesophyllum lichenoides	:			R		
Palmaria palmata				R	F	
Plumaria elegans						
Polyides rotundus					F	
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa						
Polysiphonia nigrescens				R		
Polysiphonia urceolata						
Polysiphonia sp.				O		
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)						
Rhodophyta indet. (pink)			C		O	
Scytosiphon lomentaria			R			✓
Porphyra sp.						✓
Polysiphonia macrospa					F	
Dilsea carnosa					F	
Rhodymenia corallodes					O	
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
Colonial diatoms				C		
PHAEOPHYTA						
Ascophyllum nodosum						
Bifurcaria bifurcata						
Cladostephus spongiosus						
Chorda ~~filum~~ ~~sp~~ tomentosa					R	
Colpomenia peregrina			O	R		
Cystosiera nodicaulis						
Desmarestia viridis				O	F	
Ectocarpoidea indet.				F		

	1	2	3	4	5	6
Fucus serratus				R		✓
Fucus spiralis						
Fucus vesiculosus						
Halidrys siliquosa						
Halopteris scoparia						
Himanthalia elongata			R	C		
Laminaria digitata					F	
Laminaria hyperborea					F	
Laminaria ochrolenca						
Laminaria saccharina				O	F	
Laminaria sp. (sporlings)					F	
Pelvetia canaliculata						
Phaeophyta indet. (filam.)			C			
Pilayella littoralis						
Saccorhiza polyschides						
Sargassum muticum			O	C	R	
Silachista scutulata			R			
Asperococcus sp.				R		
Saccorhiza polyschides					R	
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						✓
Chlorophyta indet. (filam.)						
Cladophora pellucida						
Cladophora sp.		S	F	O	F	
Cladostephus spongiosus						
Codium fragile tomentosoides						
Codium tomentosum						
Enteromorpha sp. (p)		S				
Ulva sp. (p)			F	A	F	
ANGIOSPERMAE						
Zostera noltii						
Zostera augustifolia						
Zostera marina						
LICHENS						
Calloplaca marina						
Calloplaca thallincola						
Grey lichens						
Lecanora atra						
Lichina confinis						
Lichina pygmaea						
Ochrolechia parella						
Verrucaria maura		O				
Verrucaria mucosa						
Xanthoria parietina						
Ceramiales						
Cystoclonium purpureum				F		
Plocamium cartilagineum						✓
Bangia sp.						✓
Phyllophora traillii						✓
Desmarestia ligulata				R		
? Punctaria sp.			O	R	F	
Pedalonia fascia						✓
Dictyopteris membranacea						✓
Polysiphonia sp.					R	

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Perlee Point (9) GRID REFERENCE: SX 444 487

DATE: 25.4.86 NAME OF RECORDER: K. Hiscock

KEY TO HABITAT COLUMNS:

1. Spl. Pool at +7.6m (Pool 1)
2. US pool at +5.7m (Pool 2)
3. UMS pool at +4.4m (Pool 3)
4. LMS pool at +2.7m (Pool 4)
5. LS pool at +1m (Pool 5)
6. General shore records

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
Scypha compressa						P
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						R
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea						P
Hemimycale columella						P
Hymeniacidon perleve						
Myxilla incrustans						
Ophlitaspongia seriata						
Haliclona sp (purple encr.)						+1
? Haliclona simulans						R
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila						
Laomedea flexuosa						
Tubularia larynx						
Tubularia indivisa					R	P
COELENTERATA:ACTINIAE						
Actinia equina			O	R		
Actinothoe sphyrodeta						
Anemonia viridis					O	
Caryophyllia smithii						R
Cereus pedunculatus						
Corynactis viridis						R
Sagatia elegans						
Urticina felina					F	
Bunodactis verrucosa				R	O	
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Cirratulus cirratus						
Eulalia viridis						

	1	2	3	4	5	6
Lanice conchilega						
Pomatoceros sp. (p)						
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids						
Spirorbinidae - on rock		F				
Terebellidae indet.						
Turbellaria indet. (brng. orange)				P		
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus						
Chthamalus montagui						
Chthamalus stellatus						
Elminius modestus						
Semibalanus balanoides						
Verruca stroemia						
CRUSTACEA:ISOPODA						
Idotea sp. (p)						
Idotea granulosa				P		
Idotea pelagica				P		
CRUSTACEA:AMPHIPODA						
Amphipoda indet.			F			
Gammarus sp.						
Hyale nilsoni						
? Gammarellus angulosus					P	
Aphanna jurinei			P			
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						

	1	2	3	4	5	6
Pagurus berhardus				R	-	
Palaemon serratus					P	
Pisidia longicornis						
Porcellana platycheles						
INSECTA						
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepicula fornicata						
Gibbula cineraria					O	
Gibbula umbilicalis			O			
Hydrobia ulvae						
Littorina 'saxatilis'			O			
Littorina littorea		<1	O			
Littorina mariae						
Littorina neglecta						
Littorina neritoides						
Littorina obtusata						
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata			O			
Nucella lapillus						O
Patella aspera						
Patella depressa						
Patella vulgata			O			P
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus				R		
Nassarius incrassatus					F	
Rissoa parva				P	P	
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Bowerbankia imbricata						
Cerastoderma edule						
Hiatella arctica						
Mytilus edulis						F
Ostrea edulis						
BRYOZOA						
Alcyonidium gelatinosum						
Alcyonidium hirsutum						
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida						
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						P
Scrupocellaria sp.						R

	1	2	3	4	5	6
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
Ophiuroidea indet (all juv)				O		
Marthasterias glacialis						<2
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botryllus schlosseri						O
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
Botryllodes leachi		-	-	R		
Diplosoma listerianum					-	R
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						
Cottus scorpius	-	-	-	<1		
Sir.ella jadensis (Mysid)					P	

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: Hooe Lake Point SITE NO.: 10

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.:	E - W	N - S		E - W	N - S
	SX	450	513	TO	

RECORDER: K Hiscock, S. Hiscock DATE: 25 D 04 M 86 Y

SITUATION (TICK ONE ONLY)		
OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	✓
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE--ROCK (30° deep-water window open sea)	4	
ENCL. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	
INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)		
HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	✓
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)		
NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	✓
SOUTH	30	✓
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)		
HIGH	34	✓
MODERATE	35	✓
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)		
SAND DUNES	38	✓
LOW CLIFF	39	✓
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
DUNE/MACHAIR	44	
SEA WALL	45	
SHINGLE RIDGE	46	✓
GRASSLAND	47	✓
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)		
ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)		
VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	✓
SEMI-EXPOSED (strong wind frequent)	56	✓
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	✓
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)		
NORMAL (around 34°/oo)	65	✓
VARIABLE (30°/oo+)	66	
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)		
IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	✓
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)		
HABITAT VARIETY	79	
SPECIES ABUNDANT	80	
SPECIES ABSENT	81	
SPECIES AT OR NEAR LIMIT	82	
SPECIES RICHNESS (gd. av, poor)	83	av
PREVIOUS STUDY AREA	84	
ORNITH. INTEREST (type?)	85	
SEAL HAUL OUT/ BREEDING AREA	86	
POLLUTED (type?)	87	
VERY CLEAN	88	
FRAGILE	89	
THREATENED	90	
MNR,NNR,LNR, SSSI NEARBY	91	
SEWAGE/INDUSTRIAL OUTFALL NEAR	92	
OTHER SOURCES OF DISTURBANCE (tick and note below)	93	

SHORE USAGE (TICK)		
FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)		
ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED		
PHOTOGRAPHS: A-A	107	✓
C-C	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

SITE NAME _____ SITE NO. 10

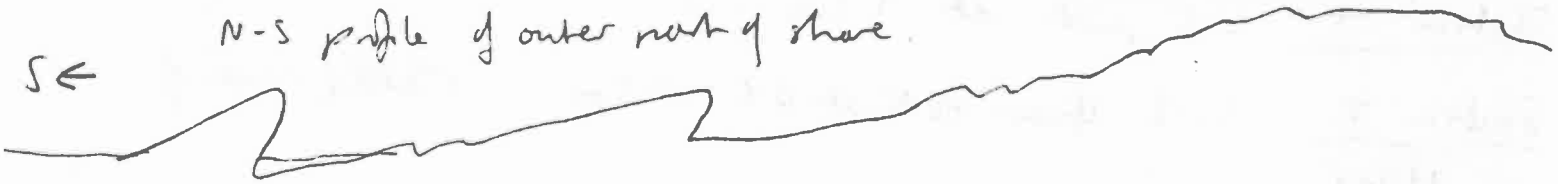
		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116	✓					
UPPER MIDSHORE	117		✓				
MIDSHORE	118		✓				
LOWER MIDSHORE	119		✓	✓			
LOWER SHORE	120				✓	✓	✓
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3	3	3	3	3	3
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155	3		3	3	2	
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165	✓	✓	✓	✓	✓	✓
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169	1	2	1	1	1	3
TERRACES	170	-					
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below) Overhangs	189						2
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192						
SMOOTH	193						
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 10

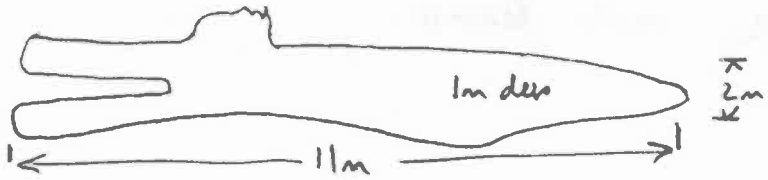
SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)

See sheet 1

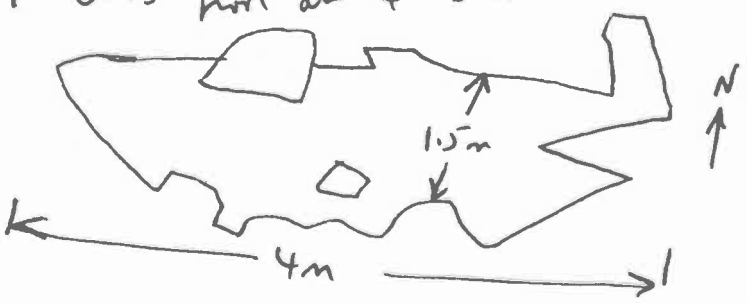
SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



Station 3 - LMS mark at 2.2m



Station 1 UMS mark at 4.5m



SITE NO.: 10

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Station 1 Overhanging surface generally about 50cm high with a patchy red fauna

Station 2 LMS - UMS on

Station 1 UMS rock at 4.5m dominated by encrusting calcareous algae with Bifurcaria bifurcata and Ulva sp. Limpets present and heavily grazed

Station 2 LMS - UMS open rock. Limpet - barnacle dominated with extensive patches of Lichina pygmaea

Station 3 LMS rock at 2.2m. A long steep-sided rock dominated by algae and with Bifurcaria bifurcata and Himanthalia especially conspicuous. Some boulders at the bottom. Very poor sample from netting.

Station 4 LS rock at 1.1m.

Station 5 L.S open rock at 0.8 - 1.3m. Patchy cover of algae.

Station 6 Overhanging rock generally about 50cm height and with a patchy red fauna.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheet developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. Features which would normally be included in the description of a survey area including prevailing wind, time of dig, tidal range and annual rainfall are not now included on the form. Numbers for each category do not correspond with those on the sublittoral habitat record sheet.

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: Hooe Lake Point SITE NO.: 10

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.:	E - W	N - S		E - W	N - S
	SX	4510	5113	TO	

RECORDER: K. Hiscock / S. Hiscock DATE: 25 D 04 M 86 Y

SITUATION (TICK ONE ONLY)		
OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	✓
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	
INTERTIDAL EXTENT (m)	6	80

COASTAL TYPE (TICK)		
HEADLAND	7	
'LINEAR COAST'	8	✓
LARGE BAY (2 km)	9	✓
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	
LINEAR BEACH	18	
ET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)		
NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	✓
SOUTH	30	✓
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)		
HIGH	34	
MODERATE	35	✓
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)		
SAND DUNES	38	
LOW CLIFF	39	✓
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
DUNE/MACHAIR	44	
SEA WALL	45	
SHINGLE RIDGE	46	
GRASSLAND	47	✓
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)		
ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)		
VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	✓
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	
WEAK (1 k)	63	✓
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)		
NORMAL (around 34°/oo)	65	✓
VARIABLE (30°/oo+)	66	
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)		
IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	✓
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)		
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OTHER DATA RECORDED		
PHOTOGRAPHS: W-A	107	✓
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SPECIMENS COLLECTED	111	
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

SITE NAME

SITE NO. 10

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116	✓	✓				
UPPER MIDSHORE	117						
MIDSHORE	118						
LOWER MIDSHORE	119						
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3	3				
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
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METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						

		STN./HABITAT 1	2	3	4	5	6
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OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
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SHALLOW (20°)	165	✓	✓				
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169	3	3				
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182	2	2				
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192						
SMOOTH	193						
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
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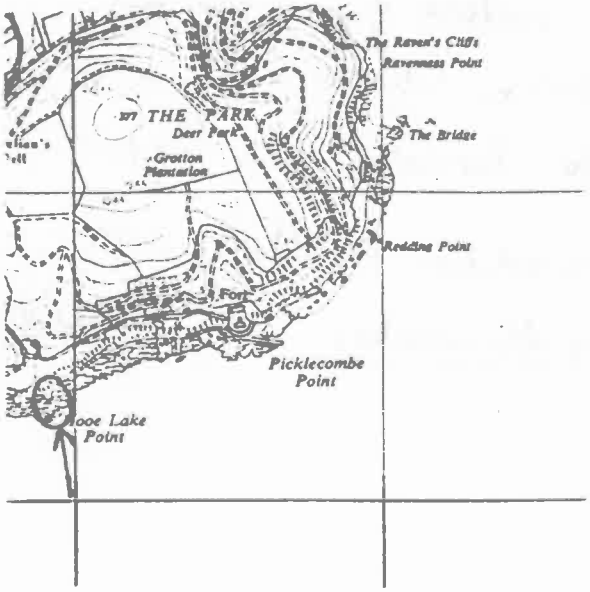
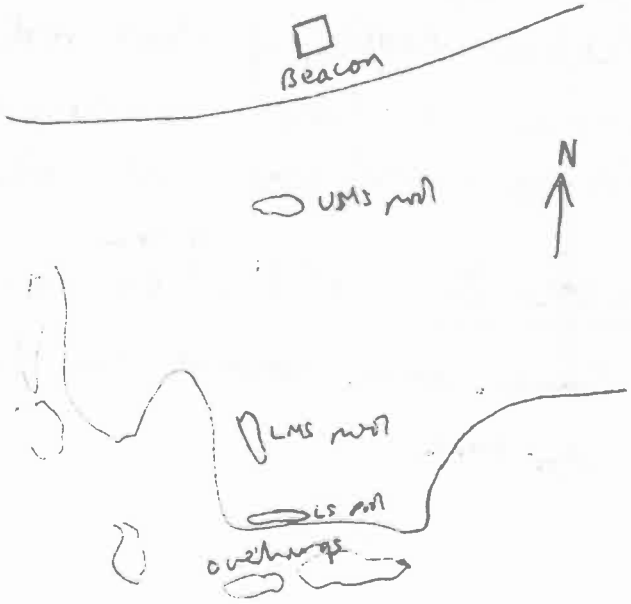
FAUNAL BED	204						

SITE NO.: 10

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)





SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

SITE NO.: 10

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

12. Station 7. Upper shore open rock/— fairly smooth rock platform largely of bare rock with patches of fucoids and barnacles at large numbers of Littorina littorea with many Gibbula umbilicalis at Alaria esculenta near to pools. at 4.0 to 4.5 m

Station 8 Pools at 4m containing abraded pebbles with some areas covered by Corallina officinalis etc. L. littorea absent.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MFA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. Measures which would normally be included in the description of a survey area including prevailing wind, time of HLWST, tidal range and annual rainfall are not now included on the form. Numbers for each category do not correspond with those on the sublittoral habitat record sheet.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: HOOE LAKE POINTSIDE 10.(1) GRID REFERENCE: SX 450 513

DATE: 25.8.86 NAME OF RECORDER: S. HISCOCK.

KEY TO HABITAT COLUMNS:

1. M/S. Pool at 4.5m about C.D.
2. LHS Checklist - open rock
3. C. Midshore pool at 2.2m with Bifurcaria dorsal
4. L.S. pools 1.1-1.5m
5. LS Open rock at 0.8-1.0m.
6. Overhangs on lower Shore (outside adj)

	1	2	3	4	5	6
RHODOPHYTA				R		
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.						
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata			C	C		
Callithamnion roseum						
Callithamnion sp.					F	
Callithamnion tetragonum						
Callithamnion tetricum					R	
Callithamnion/Antithamnion sp.						
Callophyllis laciniata			R			
Catenella caespitosa						
Ceramium ciliatum				F		
Ceramium echionotum			R	F		
Ceramium rubrum	O		F	O		
Ceramium shuttleworthianum						
Ceramium sp. ? flabelligon				R		
Chondrus crispus					O	
Chylocladia verticillata			R			
Corallina officinalis	F		A	Ex	C	
Cryptopleura ramosa			F	F	R	
Cystoclonium purpureum						
Delesseria sanguinea				R		
Dumontia incrassata			R		O	
Gastroclonium ovatum			D	F	O	
Gelidium latifolium						
Gelidium pusillum						
Gigartina acicularis						
Gigartina stellata					C	
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						

	1	2	3	4	5	6
Hildenbrandia sp.						
Hypoglossum woodwardii						
Laurencia hybrida		✓			R	
Laurencia pinnatifida		✓	R		F	
Lomentaria articulata				O	F	
Lomentaria clavellosa						
Membranoptera alata						
Mesophyllum lichenoides	:		F	C		
Palmaria palmata	O		O		O	
Plumaria elegans					F	
Polyides rotundus				F		
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa						
Polysiphonia nigrescens						
Polysiphonia urceolata			R			
Polysiphonia sp.						
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)			F		F	
Rhodophyta indet. (pink)	S		C		A	
Scytosiphon lomentaria	F					
Porphyra sp.		✓			O	
Ploramium					R	
Dilsea			R	R		
Callithamnion granulatum				R		
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
colonial diatom				F		
PHAEOPHYTA						
Ascophyllum nodosum						
Bifurcaria bifurcata		C	A			
Cladostephus spongiosus					R	
Chorda filum						
Colpomenia peregrina			R			
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.	F	✓	F		O	

	1	2	3	4	5	6
Fucus serratus				R	C	
Fucus spiralis						
Fucus vesiculosus		✓				
Halidrys siliquosa						
Halopteris scoparia						
Himanthalia elongata			F	C	C	
Laminaria digitata			F	C	S	
Laminaria hyperborea			F			
Laminaria ochrolenca						
Laminaria saccharina						
Laminaria sp. (sporlings)						
Pelvetia canaliculata						
Phaeophyta indet. (filam.)						
Pilayella littoralis						
Saccorhiza polyschides						
Sargassum muticum						
Chorda tomentosa				F		
Petalonia			R			
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium					R	
Chlorophyta indet. (filam.)				FC	O	
Cladophora pellucida				F		
Cladophora sp. ρ		✓				
Cladostephus spongiosus						
Codium fragile tomentosoides						
Codium tomentosum						
Enteromorpha sp. (p)					O	
Ulva sp. (p)	C	✓	Σ	O	O	
ANGIOSPERMAE						
Zostera noltii						
Zostera augustifolia						
Zostera marina						
LICHENS						
Calloplaca marina						
Calloplaca thallincola						
Grey lichens						
Lecanora atra						
Lichina confinis						
Lichina pygmaea	✓					
Ochrolechia parella						
Verrucaria maura						
Verrucaria mucosa						
Xanthoria parietina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: HOOE LAKE POINT (1) (2) GRID REFERENCE: SX 450 513

DATE: 25.8.86 NAME OF RECORDER: Smithsoak

KEY TO HABITAT COLUMNS:

1. VS. open rock at 4-5m about C.D.
2. VS. gobble at 4m about C.D.
3.
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.						
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.						
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
tenella caespitosa	O					
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum						
Ceramium shuttleworthianum						
Ceramium sp.						
Chondrus crispus		O				
Chylocladia verticillata						
Corallina officinalis		A				
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dumontia incrassata		F				
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum		C				
Gigartina acicularis						
Gigartina stellata		F				
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						

	1	2	3	4	5	6
Hildenbrandia sp.	F					
Hypoglossum woodwardii						
Laurencia hybrida						
Laurencia pinnatifida		R				
Lomentaria articulata						
Lomentaria clavellosa						
Membranoptera alata						
Mesophyllum lichenoides	:					
Palmaria palmata						
Plumaria elegans						
Polyides rotundus						
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa						
Polysiphonia nigrescens						
Polysiphonia urceolata						
Polysiphonia sp.		R				
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)						
Rhodophyta indet. (pink)		A				
Scytosiphon lomentaria						
Porphyra sp.						
Rhodophyta indet.		P				
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
PHAEOPHYTA						
Ascophyllum nodosum						
Bifurcaria bifurcata		R				
Cladostephus spongiosus		R				
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.						

	1	2	3	4	5	6
Fucus serratus						
Fucus spiralis	C					
Fucus vesiculosus						
Halidrys siliquosa						
Halopteris scoparia						
Himanthalia elongata						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochrolenca						
Laminaria saccharina						
Laminaria sp. (sporlings)						
Pelvetia canaliculata	C					
Phaeophyta indet. (filam.)						
Pilayella littoralis						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Chlorophyta indet. (filam.)	F					
Cladophora pellucida						
Cladophora sp.		R				
Cladostephus spongiosus						
Codium fragile tomentosoides						
Codium tomentosum						
Enteromorpha sp. (p)						
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera noltii						
Zostera augustifolia						
Zostera marina						
LICHENS						
Calloplaca marina						
Calloplaca thallincola						
Grey lichens						
Lecanora atra						
Lichina confinis						
Lichina pygmaea						
Ochrolechia parella						
Verrucaria maura	C					
Verrucaria mucosa						
Xanthoria parietina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Hooe Lake Point (10) GRID REFERENCE: SX 450 513

DATE: 25.4.86 NAME OF RECORDER: K. Hiscock

KEY TO HABITAT COLUMNS:

1. UMS rock at +4.5m
2. LMS - UMS open rock
3. LMS rock at +2.2m (Animal records incl. under stones)
4. ~~LS~~ LS rock at +1.1m (algae only)
5. LS open rock +0.9 - 1.3m
6. LS overhangs at +0.8m (animals only).

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						O
Leucosolenia botryoides						
Scypha ciliata			O			×1
Scypha compressa					R	
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea						F
Hemimycale columella						
Hymeniacidon perleve					O	O
Myxilla incrustans						O
Ophlitaspongia seriata						
Cliona sp.						R
Ponjea indet. (yellow stony)						O
Tethya aurantium						R
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila					R	
Laomedea flexuosa						
Tubularia larynx						
COELENTERATA:ACTINIAE						
Actinia equina	R	F				
Actinothoe sphyrodeta						
Anemonia viridis	O				R	
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina						F
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Cirratulus cirratus						
Eulalia viridis						

	1	2	3	4	5	6
Lanice conchilega						
Pomatoceros sp. (p)					O	O
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus					F	
Spirorbinidae - on fucoids						
Spirorbinidae - on rock			O		F	
Terebellidae indet.						
Aphroditidae indet			×1			
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus					C	C
Chthamalus montagui		F				
Chthamalus stellatus		A			F	
Elminius modestus		O				
Semibalanus balanoides		F			O	
Verruca stroemia			F			
CRUSTACEA:ISOPODA						
Idotea sp. (p)					●	
Idotea granulosa					F	
CRUSTACEA:AMPHIPODA						
Amphipoda indet.			·	·	·	·
Gammarus sp.						
Hyale nilsoni						
CRUSTACEA:DECAPODA						
Cancer pagurus			×1			
Carcinus maenas						
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						

	1	2	3	4	5	6
Pagurus berhardus			x1			
Palaemon serratus						
Pisidia longicornis			x1			
Porcellana platycheles			x1			
Galathea squamifera			x2			
INSECTA						
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum			R		O	O
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria			F	-	C	O
Gibbula umbilicalis	F	O	-	-	F	
Hydrobia ulvae						
Littorina 'saxatilis'						
Littorina littorea						
Littorina mariae						
Littorina neglecta		O	-	-	O	
Littorina neritoides						
Littorina obtusata					O	
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata		R				
Nucella lapillus		O	R		O	
Patella aspera					F	
Patella depressa						
Patella vulgata	C	-	-	-	F	
Patella sp.						
Patina pellucida					R	
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
Nassarius incrassatus			O			x1
Ocenebra erinacea						x1
Acmaea virginea					x1	
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Bowerbankia imbricata						
Cerastoderma edule						
Hiatella arctica						
Mytilus edulis		F				
Ostrea edulis						
Heteranomia squamula	-	-	O	-	-	O
Lasaea rubra		F				
Hiatella arctica	x2					
BRYOZOA						
Alcyonidium gelatinosum						
Alcyonidium hirsutum						
Bryozoa indet. (encr.)						
Bugula plumosa						O
Bugula turbinata						
Electra pilosa					F	
Flustrellidra hispida					O	F
Membranipora membranacea						
Scrupocellaria reptans						F
Umbonula littoralis						C
Crisia sp (ovs)						O

	1	2	3	4	5	6
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis			x1			
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botryllus schlosseri						F
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						O
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
Polyclinidae indet (ovs)						x1
CHORDATA:PISCES						
Blennius pholis			x1			
Pholis gunnellus						
Coltus scorpius			x1			
Microciona atrasanguinea						R
Rissoidae indet	O					
Pelta coronata	R	-	-	P		

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Hooe Lake Point (..): GRID REFERENCE: SX 450 513

DATE: 25 4 86 NAME OF RECORDER: K Hiscock

KEY TO HABITAT COLUMNS:

7 ~~1.~~ ~~Upper shore~~ US open rock (tonsletts near roots) at +4 to 4.5m ~~at +4m~~ ~~+ 4.5m~~
8 ~~2.~~ ~~Upper shore~~ US shallow pools at +4m
3.
4.
5.
6.

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
Scypha compressa						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Ophlitaspongia seriata						
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila						
Laomedea flexuosa						
Tubularia larynx						
COELENTERATA:ACTINIAE						
Actinia equina						
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina						
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Cirratulus cirratus						
Eulalia viridis						

	1	2	3	4	5	6	
Lanice conchilega							
Pomatoceros sp. (p)							
Sabella pavonina							
Spirorbinidae - on 'lithothamnia'							
Spirorbinidae - on Gigartina/Chondrus							
Spirorbinidae - on fucoids							
Spirorbinidae - on rock							
Terebellidae indet.							
CRUSTACEA:CIRRIPEDIA							
Balanus crenatus							
Balanus improvisus							
Balanus perforatus							
Chthamalus montagui	C						✓
Chthamalus stellatus	O						✓
Elminius modestus							
Semibalanus balanoides							
Verruca stroemia							
CRUSTACEA:ISOPODA							
Idotea sp. (p)							
CRUSTACEA:AMPHIPODA							
Amphipoda indet.	~~[illegible]~~	F					✓
Gammarus sp.							
Hyale nilsoni	F						✓
CRUSTACEA:DECAPODA							
Cancer pagurus							
Carcinus maenas							
Galathea dispersa							
Galathea squamifera							
Galathea strigosa							
Liocarcinus puber							

Pagurus berhardus		
Palaemon serratus	A	x1
Pisidia longicornis		
Porcellana platycheles		
INSECTA		
Anurida maritima		
Insecta indet. (pupae)		
MOLLUSCA:GASTROPODA		
Polyplacophora indet.		
Calliostoma zizyphinum		
Calyptera chinensis		
Crepidula fornicata		
Gibbula cineraria		
Gibbula umbilicalis	A	O
Hydrobia ulvae		
Littorina 'saxatilis'	A	
Littorina littorea	S	S
Littorina mariae		
Littorina neglecta	F	
Littorina neritoides		
Littorina obtusata	F	x1
Littorina obt./mariae		
Lepidochitona cinereus		
Monodonta lineata	F	O
Nucella lapillus		x1
Patella aspera		
Patella depressa		
Patella vulgata	F	
Patella sp.		
Patina pellucida		
Trivia arctica		
Trivia monacha		
Archidoris pseudoargus		
Rissoidae ind.		O
MOLLUSCA:BIVALVIA		
Anomiidae indet.		
Bowerbankia imbricata		
Cerastoderma edule		
Hiatella arctica		
Mytilus edulis		
Ostrea edulis		
BRYOZOA		
Alcyonidium gelatinosum		
Alcyonidium hirsutum		
Bryozoa indet. (encr.)		
Bugula plumosa		
Bugula turbinata		
Electra pilosa		
Flustrellidra hispida		
Membranipora membranacea		
Scrupocellaria reptans		
Umbonula littoralis		

ECHINODERMATA:STELLEROIDEA
Amphipholis squamata
Asterias rubens
Asterina gibbosa
Ophiothrix fragilis
ECHINODERMATA:ECHINOIDEA
Psammechinus miliaris
CHORDATA:ASCIDIACEA
Ascidiella aspersa
Botryllus schlosseri
Ciona intestinalis
Dendrodoa grossularia
Didemnidae indet.
Didemnum maculosum
Morchellium argus
Sidnyum elegans
Styela clava
Styelidae indet.
CHORDATA:PISCES
Blennius pholis
Pholis gunnellus

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: DRAKES ISLAND NORTH BAY SITE NO.: 11

SURVEY AREA: PLYMOUTH SOUND SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 467 529 TO

RECORDER: J.J. Moore DATE: 25 D 04 M 86 Y

SITUATION (TICK ONE ONLY)		
OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓
INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)		
HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	✓
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	✓
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)		
NORTH	26	✓
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)		
HIGH	34	
MODERATE	35	✓
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)		
SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	✓
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
DUNE/MACHAIR	44	
SEA WALL	45	
SHINGLE RIDGE	46	
GRASSLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)		
ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)		
VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	
WEAK (1 k)	63	✓
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)		
NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	✓
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)		
IGNEOUS	71	✓
LIMESTONES	72	✓
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)		
HABITAT VARIETY	79	
SPECIES ABUNDANT	80	
SPECIES ABSENT	81	
SPECIES AT OR NEAR LIMIT	82	
SPECIES RICHNESS (gd, av, poor)	83	
PREVIOUS STUDY AREA	84	
ORNITH. INTEREST (type?)	85	
SEAL HAUL OUT/ BREEDING AREA	86	
POLLUTED (type?)	87	
VERY CLEAN	88	
FRAGILE	89	
THREATENED	90	
MNR,NNR,LNR, SSSI NEARBY	91	
SEWAGE/INDUSTRIAL OUTFALL NEAR	92	
OTHER SOURCES OF DISTURBANCE (tick and note below)	93	

SHORE USAGE (TICK)		
FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)		
ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED		
PHOTOGRAPHS: U-W	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

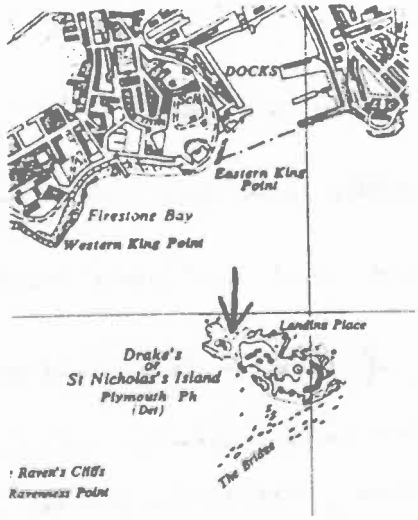
INTERTIDAL HABITAT RECORD

SITE NAME DRAKES ISLAND NORTH BAY — SITE NO. 11

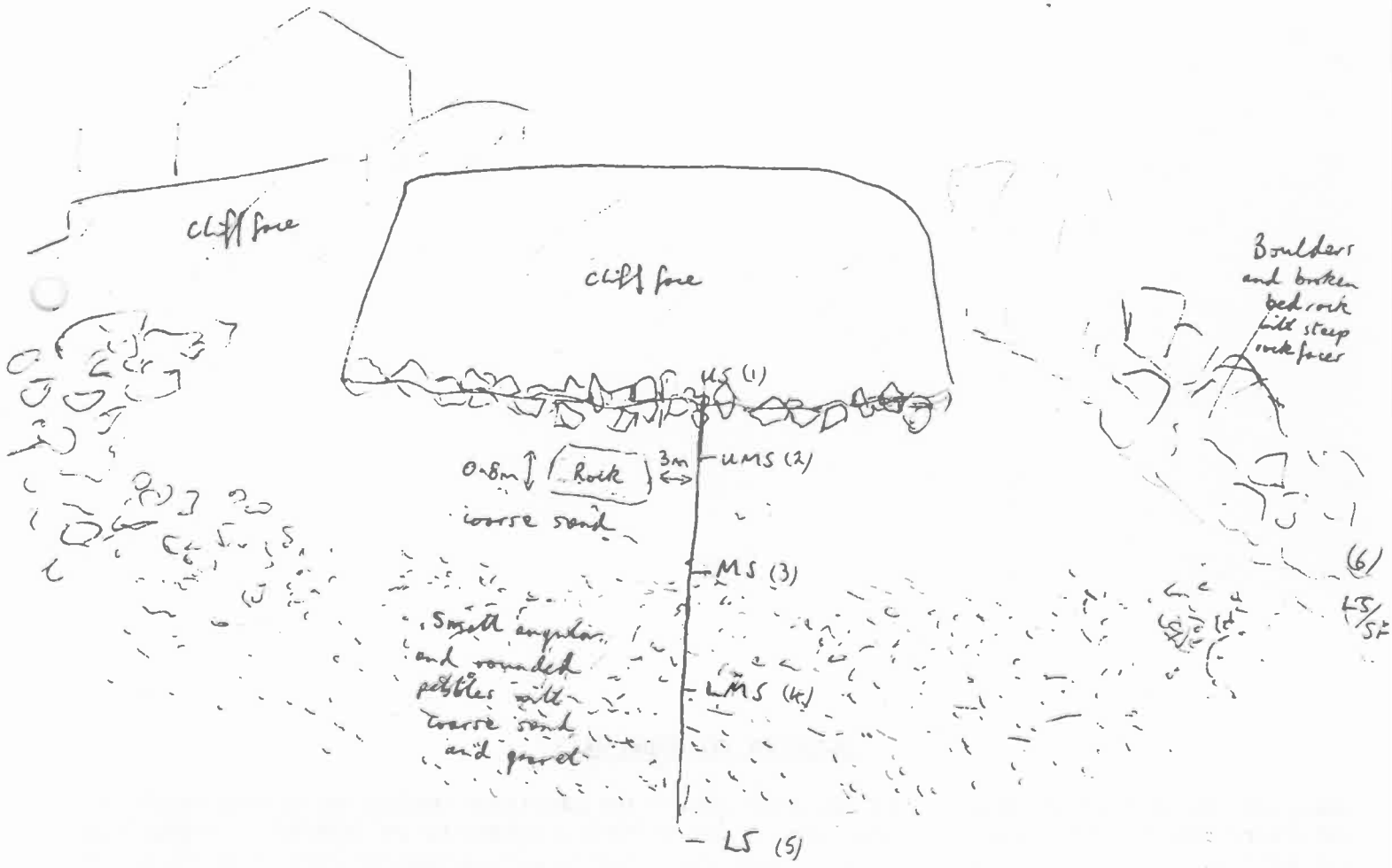
		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116	✓					
UPPER MIDSHORE	117		✓				
MIDSHORE	118			✓			
LOWER MIDSHORE	119				✓		
LOWER SHORE	120					✓	✓
SUBLITTORAL FRINGE	121						✓
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	2					
LG. BOULDERS (500 mm+)	123	3					3
SM. BOULDERS (256-500 mm)	124						3
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127			1		1	
SM. ROUND COBBLES (64-128 mm)	128			1		1	
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132			2	2	3	
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136		1	1	1	3	1
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138		3	2	3	2	
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						3
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154	2					3
FOLIOSE RED ALGAE	155						2
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163	✓					
STEEP (20-40°)	164						✓
SHALLOW (20°)	165		✓	✓	✓	✓	
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169	3					3
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						2
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190		✓	✓	✓	✓	
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192						
SMOOTH	193						
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 11

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 11

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Upper Shore – Large broken boulders in front of cliff face with Chthamalus montagui, Fucus vesiculosus, Littorina saxatilis, Enteromorpha, Patella sp. and Ligia oceanica

Upper mid-shore – coarse sand with some shell gravel

Mid-Shore – coarse sand with small angular and rounded pebbles and cobbles

Lower mid-shore – coarse sand with small and medium pebbles and some shell gravel

Lower Shore – clean shell gravel and small pebbles with coarse sand and some small cobbles

Lower Shore and sublittoral fringe of rocky shore at west side of bay – large and small broken boulders with dense canopy of Himanthalia, Laminaria saccharina, Chondrus crispus, Pelvetia canaliculata etc. Rich fauna of Dendrodoa grossularia, Halichondria panicea, many understone species and underhang species.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. Features which would normally be included in the description of a survey area including prevailing wind, time of flood, tidal range and annual rainfall are not now included on the form. Numbers for each category do not correspond with those on the sublittoral habitat record sheet.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

DETAIL FROM HABITAT 6 – SITE 11.

INTERTIDAL SURVEYS – PLANTS

(Not including species sampled from sediments)

SITE NAME: DRAKES ISLAND (NORTH BAY) (11) GRID REFERENCE: SX 467 529

DATE: 25/04/86. NAME OF RECORDER: MDH

KEY TO HABITAT COLUMNS:

1. LOWER SHORE / SUB LITORAL FRINGE at +0.4 – 1.0m ~~[illegible]~~. (ROCK SURFACES)
2.
3.
4.
5.
6.

	1 (LMS)	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.						
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callithamnion ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.						
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.	O					
Callophyllis laciniata	P					
Cat[illegible]tenella caespitosa						
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum						
Ceramium shuttleworthianum						
Ceramium sp.	O					
Chondrus crispus	C					
Chylocladia verticillata						
Corallina officinalis	O					
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dumontia incrassata						
Gastroclonium ovatum	P					
Gelidium latifolium						
Gelidium pusillum						
Gigartina acicularis						
Gigartina stellata	C					
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						

	1	2	3	4	5	6
Hildenbrandia sp.						
Hypoglossum woodwardii						
Laurencia hybrida						
Laurencia pinnatifida						
Lomentaria articulata	O					
Lomentaria clavellosa	P					
Membranoptera alata						
Mesophyllum lichenoides	:					
Palmaria palmata	C					
Plumaria elegans						
Polyides rotundus	P					
Polyneura hilliae	P					
Polysiphonia brodiaei						
Polysiphonia lanosa						
Polysiphonia nigrescens						
Polysiphonia urceolata						
Polysiphonia sp.						
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)						
Rhodophyta indet. (pink)						
Scytosiphon lomentaria						
Porphyra sp.	P					
Giffordia ?granulosa	P					
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
PHAEOPHYTA						
Ascophyllum nodosum						
Bifurcaria bifurcata						
Cladostephus spongiosus						
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.						

	1	2	3	4	5	6
Fucus serratus		S				
Fucus spiralis						
Fucus vesiculosus						
Halidrys siliquosa						
Halopteris scoparia						
Himanthalia elongata	S					
Laminaria digitata	A					
Laminaria hyperborea						
Laminaria ochrolenca						
Laminaria saccharina	A					
Laminaria sp. (sporlings)						
Pelvetia canaliculata						
Phaeophyta indet. (filam.)						
Pilayella littoralis						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Chlorophyta indet. (filam.)						
Cladophora pellucida						
Cladophora sp.						
Cladostephus spongiosus	P					
Codium fragile tomentosoides						
Codium tomentosum						
Enteromorpha sp. (p)						
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera noltii						
Zostera augustifolia						
Zostera marina						
LICHENS						
Calloplaca marina						
Calloplaca thallincola						
Grey lichens						
Lecanora atra						
Lichina confinis						
Lichina pygmaea						
Ochrolechia parella						
Verrucaria maura						
Verrucaria mucosa						
Xanthoria parietina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

DETAIL FROM HABBITAT 6 - SITE 11

INTERTIDAL SURVEYS - ANIMALS
(Not including species sampled from sediments)

SITE NAME: DRAKES ISLAND NORTH BAY GRID REFERENCE: SX 467 529

DATE: 25/07/86 NAME OF RECORDER: MDH.

KEY TO HABITAT COLUMNS: LS | SLF

1. ~~UPPER SHORE/ SUB LITTORAL FRINGE~~ +0.4 - 1.0m above CD (ROCK SURFACES)
2. LS UNDER BOULDERS ~~No BOULD 1 (HABBITAT COL)~~
3. LS UNDER OVERHANGS ~~No BOULD 1 (HABITAT COL)~~
4. LMS - ~~incomplete dominants only~~ rock
5.
6.

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata		0	0			
Scypha compressa						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea			E			
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans			F			
Ophlitaspongia seriata						
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila						
Laomedea flexuosa						
Tubularia larynx						
COELENTERATA:ACTINIAE						
Actinia equina			0			
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus			F			
Corynactis viridis						
Sagatia elegans						
Urticina felina		x1				
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Cirratulus cirratus						
Eulalia viridis						

	1	2	3	4	5	6
Lanice conchilega						
Pomatoceros sp. (p)		0				
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids						
Spirorbinidae - on rock		c				
Terebellidae indet.		0	f			
Polynoidae indet.		0	f			
Nereidae indet		0				
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus						
Chthamalus montagui						
Chthamalus stellatus						
Elminius modestus				5		
Semibalanus balanoides				0		
Verruca stroemia			F			
CRUSTACEA:ISOPODA						
Idotea sp. (p)						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (col.)		0	.	.	.	.
Gammarus sp.		0				
Hyale nilsoni		0				
CRUSTACEA:DECAPODA						
Cancer pagurus		0				
Carcinus maenas						
Galathea dispersa						
Galathea squamifera		0				
Galathea strigosa		f				
Liocarcinus puber		0				

	1	2	3	4	5	6
Pagurus berhardus		O				
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles		O				
INSECTA						
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria		c				
Gibbula umbilicalis		R				
Hydrobia ulvae						
Littorina 'saxatilis'				O		
Littorina littorea						
Littorina mariae						
Littorina neglecta						
Littorina neritoides						
Littorina obtusata						
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata						
Nucella lapillus						
Patella aspera						
Patella depressa						
Patella vulgata						
Patella sp.				A		
Patina pellucida on kelp.	P.					
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus		O				
Nasarius reticulatus		O				
Goniodoris nodosa.		F	F			
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Bowerbankia imbricata						
Cerastoderma edule						
Hiatella arctica						
Mytilus edulis						
Ostrea edulis						
BRYOZOA						
Alcyonidium gelatinosum						
Alcyonidium hirsutum						
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida	O					
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis		O	F			

	1	2	3	4	5	6
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis		O				
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa			R			
Botryllus schlosseri			F			
Ciona intestinalis						
Dendrodoa grossularia		A	O			
Didemnidae indet.						
Didemnum maculosum			O			
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
~~Botryllus schlosseri~~			~~O~~			
Botrylloides leachi			O			
CHORDATA:PISCES						
Blennius pholis			X1			
Pholis gunnellus						
Procerodes ulvae (Turbellaria)	P					

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86

RECORD NO.:

SITE NAME: St. John's Lake Mussel Bed SITE NO.: 12

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.:	E - W	N - S		E - W	N - S
	436	542	TO		

RECORDER: J.J. Moore DATE: 25 D 04 M 86 Y

SITUATION (TICK ONE ONLY)	
OPEN SEA (1 km offshore)	1
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5 ✓
INTERTIDAL EXTENT (m)	6

COASTAL TYPE (TICK)	
HEADLAND	7
'LINEAR COAST'	8
LARGE BAY (2 km)	9
SMALL BAY	10
SPIT/BAR	11
OFFSHORE SMALL ISLAND	12
AMONGST ROCKS/ISLETS	13
SOUND/NARROWS	14
SHALLOW RAPIDS	15
SEA LOCH	16
ESTUARY/MARINE INLET	17 ✓
LINEAR BEACH	18
POCKET BEACH	19
SALTMARSH	20
COASTAL LAGOON	21
HARBOUR	22
SEA CAVE	23
WRECK	24
OTHER (tick and note below)	25

ASPECT (TICK)	
NORTH	26
NORTHEAST	27
EAST	28 ✓
SOUTHEAST	29
SOUTH	30
SOUTHWEST	31
WEST	32
NORTHWEST	33

COASTAL HEIGHT (TICK)	
HIGH	34
MODERATE	35
LOW	36 ✓
OTHER (tick and note below)	37

COASTAL BACKING (TICK)	
SAND DUNES	38
LOW CLIFF	39
MODERATE CLIFF	40
HIGH CLIFF	41
SALTMARSH	42
MACHAIR	43
DUNE/MACHAIR	44
SEA WALL	45
SHINGLE RIDGE	46
GRASSLAND	47
OTHER (tick and note below)	48

OFFSHORE FEATURES (TICK)	
ISLANDS	49
REEFS	50
BREAKWATER	51
SANDBANKS	52
SHOAL	53

WAVE EXPOSURE (TICK)	
VERY EXPOSED (prevailing wind and swell)	54
EXPOSED (prevailing wind)	55
SEMI-EXPOSED (strong wind frequent)	56
SHELTERED (strong wind rare)	57
VERY SHELTERED (fetch 20 km)	58
EXTREMELY SHELTERED (fetch 3 km)	59 ✓

MAX. TIDAL STREAM STRENGTH (TICK)	
VERY STRONG (6 k+)	60
STRONG (3-6 k)	61
MOD. STRONG (1-3 k)	62
WEAK (1 k)	63
VERY WEAK (negligible)	64 ✓

SALINITY REGIME (TICK)	
NORMAL (around 34°/oo)	65
VARIABLE (30°/oo+)	66 ✓
LOW (30°/oo)	67
FRESHWATER STREAM	68
SALINITY MEASURED	69
NOT KNOWN	70

ROCK TYPE (TICK)	
IGNEOUS	71
LIMESTONES	72
HARD SAND/MUDSTONES	73
SOFT SAND/MUDSTONES	74
HARD SLATE/SHALES	75
FRIABLE SLATE/SHALES	76
NOT KNOWN	77 ✓
OTHER (tick and note below)	78

SITE INFORMATION (TICK)	
HABITAT VARIETY	79
SPECIES ABUNDANT	80
SPECIES ABSENT	81
SPECIES AT OR NEAR LIMIT	82
SPECIES RICHNESS (gd, av, poor)	83
PREVIOUS STUDY AREA	84
ORNITH. INTEREST (type?)	85
SEAL HAUL OUT/ BREEDING AREA	86
POLLUTED (type?)	87
VERY CLEAN	88
FRAGILE	89
THREATENED	90
MNR,NNR,LNR, SSSI NEARBY	91
SEWAGE/INDUSTRIAL OUTFALL NEAR	92
OTHER SOURCES OF DISTURBANCE (tick and note below)	93

SHORE USAGE (TICK)	
FIELD STUDY	94
RECREATION	95
BEACH FISHING	96
BAIT DIGGING	97
SHELLFISH COLLECTION	98
AQUACULTURE	99
MOORING	100
WATERSPORT	101
OTHER (tick and note below)	102

AMENITY (TICK)	
ATTRACTIVE BEACH	103
LOCAL RESORT	104
POPULAR	105
PUBLIC FACILITIES	106

OTHER DATA RECORDED	
PHOTOGRAPHS: B-A	107
C-U	108
WATER ANALYSIS	109
SEDIMENT ANALYSIS	110
SPECIMENS COLLECTED	111 ✓
ALGAL CHECKLIST	112
ANIMAL CHECKLIST	113
OTHER (tick and note below)	114

INTERTIDAL HABITAT RECORD

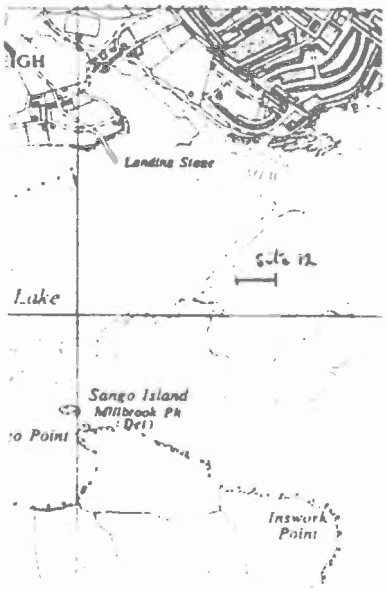
SITE NAME St Johns Lake Mussel Bed SITE NO. 12

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118						
LOWER MIDSHORE	119	✓	✓				
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143	3	3				
BLACK LAYER (note depth)	144	1cm	0cm				
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147	2	3				
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						

		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166	✓	✓				
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191	3					
SOFT (DEEP SINK)	192		3				
SMOOTH	193		1				
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198	2	1				
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 12

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



sparse Mussel bed on black mud

Mud Flat

① ×

② ×

SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

SITE NO.: 12

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

① Sparse bed of Mussels on ~~sand~~ black anoxic mud

② Mud flat ~~sand~~ - fairly smooth with numerous cockle shells (dead) on surface

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1989 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. Features which would normally be included in the description of a survey area including prevailing wind, time of LWST, tidal range and annual rainfall are not now included on the form. Numbers for each category do not correspond with those in the sublittoral habitat record sheet.

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: St. Johns Lake Upper Reaches SITE NO.: 13

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 432 541 TO

RECORDER: J.J. Moore DATE: 25 D 04 M 86 Y

SITUATION (TICK ONE ONLY)	
OPEN SEA (1 km offshore)	1
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4
C. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5 ✓
INTERTIDAL EXTENT (m)	6

COASTAL TYPE (TICK)	
HEADLAND	7
'LINEAR COAST'	8
LARGE BAY (2 km)	9
SMALL BAY	10
SPIT/BAR	11
OFFSHORE SMALL ISLAND	12
AMONGST ROCKS/ISLETS	13
SOUND/NARROWS	14
SHALLOW RAPIDS	15
SEA LOCH	16
ESTUARY/MARINE INLET	17 ✓
LINEAR BEACH	18
KET BEACH	19
SALTMARSH	20
COASTAL LAGOON	21
HARBOUR	22
SEA CAVE	23
WRECK	24
OTHER (tick and note below)	25

ASPECT (TICK)	
NORTH	26
NORTHEAST	27
EAST	28
SOUTHEAST	29
SOUTH	30
SOUTHWEST	31
WEST	32
NORTHWEST	33

COASTAL HEIGHT (TICK)	
HIGH	34
MODERATE	35
LOW	36 ✓
OTHER (tick and note below)	37

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SAND DUNES	38
LOW CLIFF	39
MODERATE CLIFF	40
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SHINGLE RIDGE	46
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OFFSHORE FEATURES (TICK)	
ISLANDS	49
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BREAKWATER	51
SANDBANKS	52
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WAVE EXPOSURE (TICK)	
VERY EXPOSED (prevailing wind and swell)	54
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VERY STRONG (6 k+)	60
STRONG (3-6 k)	61
MOD. STRONG (1-3 k)	62
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NORMAL (around 34°/oo)	65
VARIABLE (30°/oo+)	66 ✓
LOW (30°/oo)	67
FRESHWATER STREAM	68
SALINITY MEASURED	69
NOT KNOWN	70

ROCK TYPE (TICK)	
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SITE INFORMATION (TICK)	
HABITAT VARIETY	79
SPECIES ABUNDANT	80
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SPECIES AT OR NEAR LIMIT	82
SPECIES RICHNESS (gd, av, poor)	83
PREVIOUS STUDY AREA	84
ORNITH. INTEREST (type?)	85
SEAL HAUL OUT/ BREEDING AREA	86
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VERY CLEAN	88
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MNR,NNR,LNR, SSSI NEARBY	91
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SPECIMENS COLLECTED	111 ✓
ALGAL CHECKLIST	112
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OTHER (tick and note below)	114

INTERTIDAL HABITAT RECORD

SITE NAME St. John's Lake Upper Reaches — SITE NO. 13

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LOCATION ON SHORE							
SPLASH ZONE	115						
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UPPER MIDSHORE	117						
MIDSHORE	118	✓	✓				
LOWER MIDSHORE	119						
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LG. BOULDERS (500 mm+)	123						
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ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192	3	3				
SMOOTH	193	3	3				
WORKED	194						
RIPPLED	195						
MOUNDS	196						
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SHELLS (INTACT)	198						
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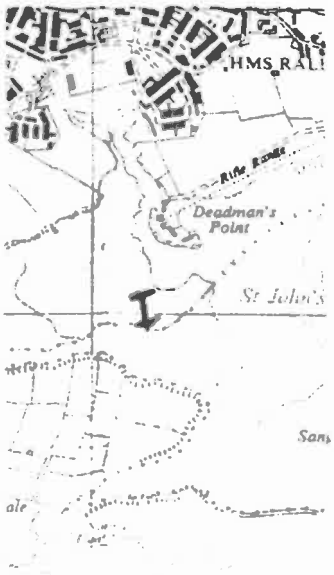
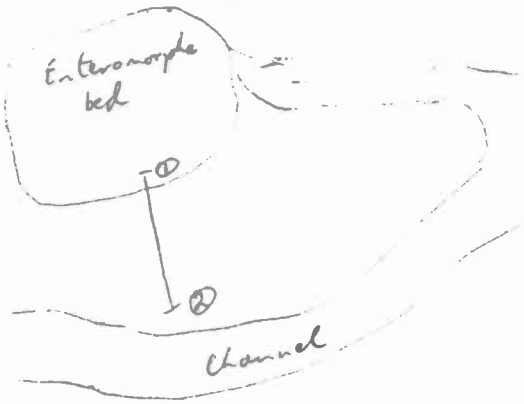
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202	3					
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 13

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)





SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

SITE NO.: 13

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

① Rich intertidal mud flat (Mid shore)

② Rich intertidal mud flat covered in Enteromorpha, with dense patches of Hydrobia ulvae and polychaetes.

INTERTIDAL RECORDING SHEET

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SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: St. Johns Lake Landing Stage SITE NO.: 14

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX [ ][ ][ ] [ ][ ][ ][ ] TO [ ][ ] [ ][ ][ ][ ] [ ][ ][ ][ ]

RECORDER: J. J. Moore DATE: 25 D 04 M 86 Y

SITUATION (TICK ONE ONLY)	
OPEN SEA (1 km offshore)	1
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5
INTERTIDAL EXTENT (m)	6

COASTAL TYPE (TICK)	
HEADLAND	7
'LINEAR COAST'	8
LARGE BAY (2 km)	9
SMALL BAY	10
SPIT/BAR	11
OFFSHORE SMALL ISLAND	12
AMONGST ROCKS/ISLETS	13
SOUND/NARROWS	14
SHALLOW RAPIDS	15
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LINEAR BEACH	18
POCKET BEACH	19
SALTMARSH	20
COASTAL LAGOON	21
HARBOUR	22
SEA CAVE	23
WRECK	24
OTHER (tick and note below)	25

ASPECT (TICK)	
NORTH	26
NORTHEAST	27
EAST	28
SOUTHEAST	29
SOUTH	30 ✓
SOUTHWEST	31
WEST	32
NORTHWEST	33

COASTAL HEIGHT (TICK)	
HIGH	34
MODERATE	35
LOW	36 ✓
OTHER (tick and	

COASTAL BACKING (TICK)	
SAND DUNES	38
LOW CLIFF	39
MODERATE CLIFF	40
HIGH CLIFF	41
SALTMARSH	42
MACHAIR	43
DUNE/MACHAIR	44
SEA WALL	45
SHINGLE RIDGE	46
GRASSLAND	47 ✓
OTHER (tick and note below)	48

OFFSHORE FEATURES (TICK)	
ISLANDS	49
REEFS	50
BREAKWATER	51
SANDBANKS	52
SHOAL	53

WAVE EXPOSURE (TICK)	
VERY EXPOSED (prevailing wind and swell)	54
EXPOSED (prevailing wind)	55
SEMI-EXPOSED (strong wind frequent)	56
SHELTERED (strong wind rare)	57
VERY SHELTERED (fetch 20 km)	58
EXTREMELY SHELTERED (fetch 3 km)	59 ✓

MAX. TIDAL STREAM STRENGTH (TICK)	
VERY STRONG (6 k+)	60
STRONG (3-6 k)	61
MOD. STRONG (1-3 k)	62 ✓
WEAK (1 k)	63
VERY WEAK (negligible)	64

SALINITY REGIME (TICK)	
NORMAL (around 34°/oo)	65
VARIABLE (30°/oo+)	66 ✓
LOW (30°/oo)	67
FRESHWATER STREAM	68
SALINITY MEASURED	69
NOT KNOWN	70

ROCK TYPE (TICK)	
IGNEOUS	71
LIMESTONES	72
HARD SAND/MUDSTONES	73
SOFT SAND/MUDSTONES	74

FRIABLE SLATE/SHALES	76
NOT KNOWN	77 ✓
OTHER (tick and note below)	78

SITE INFORMATION (TICK)	
HABITAT VARIETY	79
SPECIES ABUNDANT	80
SPECIES ABSENT	81
SPECIES AT OR NEAR LIMIT	82
SPECIES RICHNESS (gd, av, poor)	83
PREVIOUS STUDY AREA	84
ORNITH. INTEREST (type?)	85
SEAL HAUL OUT/ BREEDING AREA	86
POLLUTED (type?) Rubbish	87 ✓
VERY CLEAN	88
FRAGILE	89
THREATENED	90
MNR,NNR,LNR, SSSI NEARBY	91
SEWAGE/INDUSTRIAL OUTFALL NEAR	92
OTHER SOURCES OF DISTURBANCE (tick and note below)	93

SHORE USAGE (TICK)	
FIELD STUDY	94
RECREATION	95
BEACH FISHING	96
BAIT DIGGING	97
SHELLFISH COLLECTION	98
AQUACULTURE	99
MOORING	100 ✓
WATERSPORT	101
OTHER (tick and note below)	102

AMENITY (TICK)	
ATTRACTIVE BEACH	103
LOCAL RESORT	104
POPULAR	105
PUBLIC FACILITIES	106

OTHER DATA RECORDED	
PHOTOGRAPHS: W-A	107
C-U	108
WATER ANALYSIS	109
SEDIMENT ANALYSIS	110
SPECIMENS COLLECTED	111 ✓
ALGAL CHECKLIST	112
ANIMAL CHECKLIST	113
OTHER (tick and note below)	

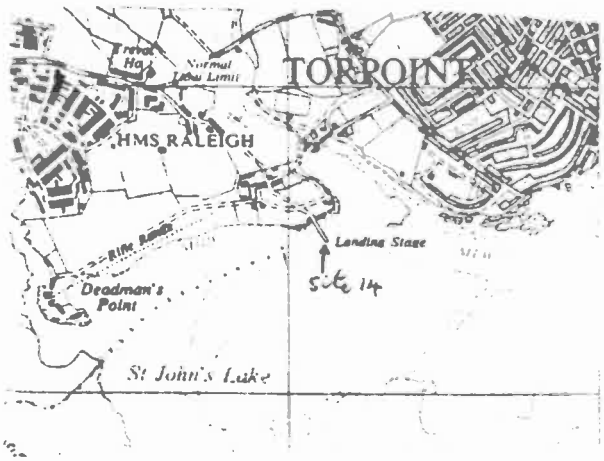
INTERTIDAL HABITAT RECORD

SITE NAME St Johns Lake Landing Stage SITE NO. 14

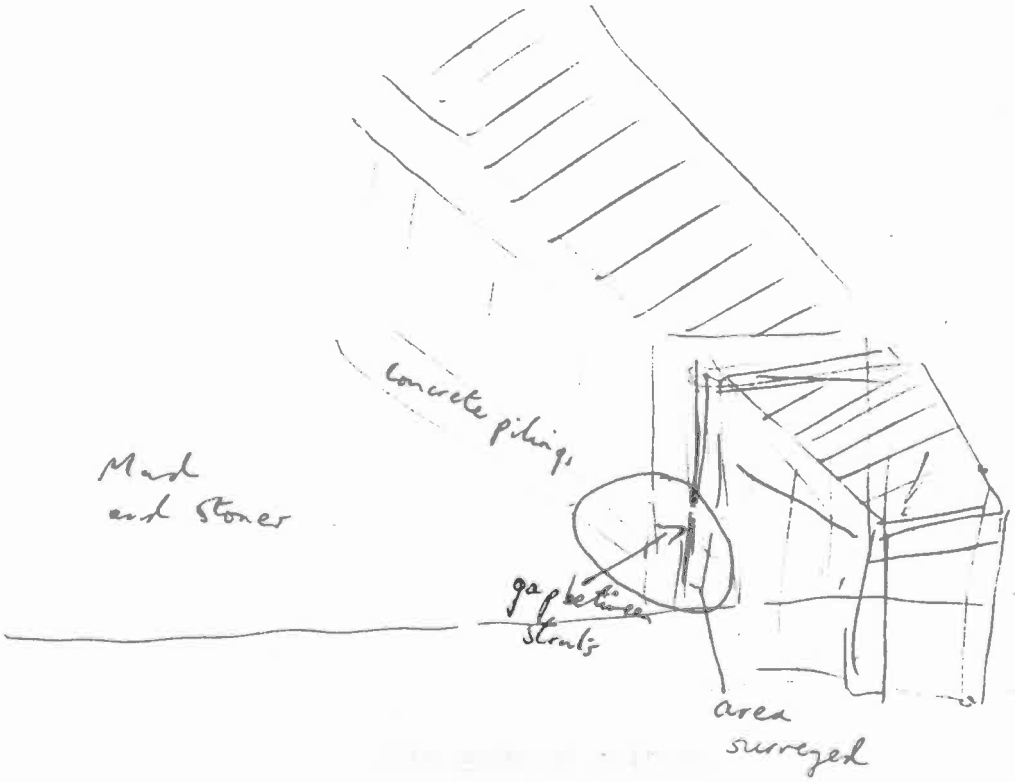
		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118						
LOWER MIDSHORE	119	✓					
LOWER SHORE	120	✓					
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151	3					
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162	✓					
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192						
SMOOTH	193						
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 14

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 14

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Lower Shore, Landing stage pier piles (concrete) surrounded by mud and stones. Fucus serratus, Elminius modestus, Semibalanus balanoides, Pomatoceros triqueter, Bowerbankia imbricata on concrete. Serpulid worm collected.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. [illegible] would normally be [illegible] in the description of a survey area [illegible]

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86

RECORD NO.:

SITE NAME: W OF PASSAGE POINT. SITE NO.: 15

SURVEY AREA: PLYMOUTH SOUND (INTERTIDAL) SEA AREA:

OS GRID REF.:	E - W	N - S		E - W	N - S
	SX	418	572	TO	

RECORDER:

DATE: 26. D 04 M 86 Y

SITUATION (TICK ONE ONLY)		
OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	
INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)		
HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	✓
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)		
NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	✓
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)		
HIGH	34	
MODERATE	35	
LOW	36	✓
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)		
SAND DUNES	38	
LOW CLIFF	39	✓
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
DUNE/MACHAIR	44	
SEA WALL	45	
SHINGLE RIDGE	46	
GRASSLAND background	47	✓
OTHER (tick and note below) disused quarry	48	✓

OFFSHORE FEATURES (TICK)		
ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	✓
SHOAL	53	

WAVE EXPOSURE (TICK)		
VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)		
NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	
LOW (30°/oo)	67	✓
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)		
IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	✓
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)		
HABITAT VARIETY	79	✓
SPECIES ABUNDANT	80	
SPECIES ABSENT	81	
SPECIES AT OR NEAR LIMIT	82	
SPECIES RICHNESS (gd, av, poor)	83	
PREVIOUS STUDY AREA	84	
ORNITH. INTEREST (type?)	85	
SEAL HAUL OUT/ BREEDING AREA	86	
POLLUTED (type?)	87	
VERY CLEAN	88	
FRAGILE	89	
THREATENED	90	
MNR,NNR,LNR, SSSI NEARBY	91	
SEWAGE/INDUSTRIAL OUTFALL NEAR	92	
OTHER SOURCES OF DISTURBANCE (tick and note below) small amounts of RUBBISH tipped onsite	93	✓

SHORE USAGE (TICK)		
FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	✓
AQUACULTURE	99	
MOORING	100	✓
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)	NA	
ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED		
PHOTOGRAPHS: V-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	✓
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

SITE NAME

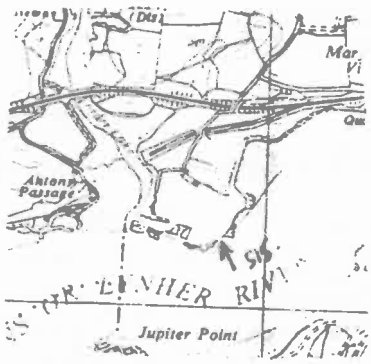
SITE NO. 15

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115	✓					
UPPER SHORE	116		✓				
UPPER MIDSHORE	117			✓			
MIDSHORE	118				✓		
LOWER MIDSHORE	119					✓	
LOWER SHORE	120						✓
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3	3	3	3		
LG. BOULDERS (500 mm+)	123				2	2	
SM. BOULDERS (256-500 mm)	124			2	2	2	
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126				3	2	2
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129				2	3	3
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132					2	2
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134					3	2
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137					3	2
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
BLACK LAYER (note depth)	144				2cm	2cm	2cm
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147					2	
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154	-	2	3	3	1	1
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						

		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158					1	1
FAUNAL TURF	159						
FAUNAL BED Mussel.	160					3	3
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167		3	3	3		
UNBROKEN ROCK	168	3	3	3	3		
BROKEN ROCK	169		1	1	1		
TERRACES	170						
LEDGES	171						
ROCK WALLS	172	3					
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174		2	2	2		
LARGE FISSURES/CREV.(ARM)	175		2	2	2		
SMALL FISSURES/CREV. (FINGERS)	176		2	2	2		
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183		2	2	2		
MOBILE COBBLES	184						
SCOURED ROCK	185		2	2	2		
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187		2	2	2		
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190					3	3
SOFT (SHALLOW SINK)	191					2	2
SOFT (DEEP SINK)	192						
SMOOTH	193						
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198					3	3
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202					1	1
UNATTACHED ALGAE	203						
FAUNAL BED Mussel.	204					3	3

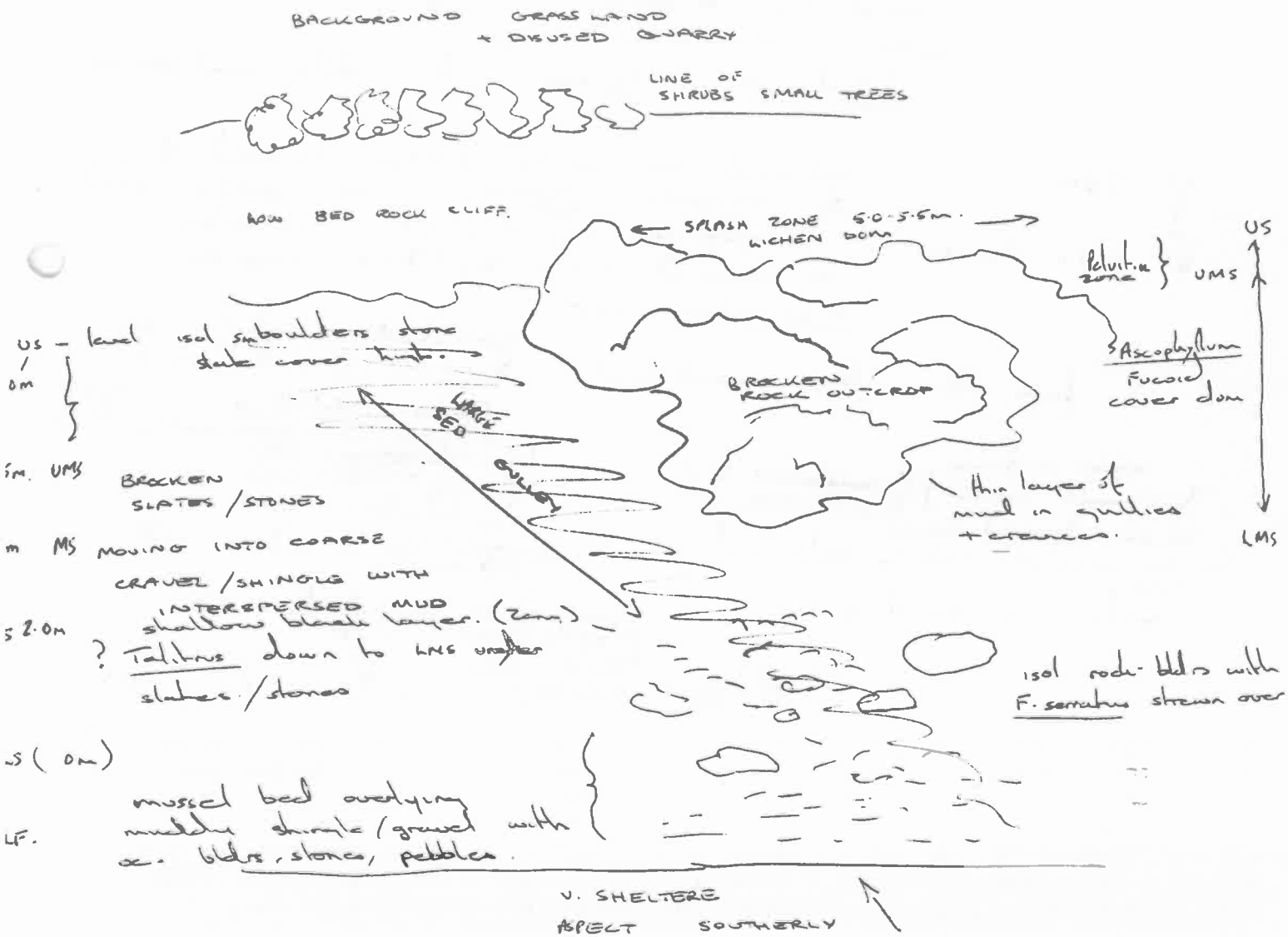
SITE NO.: —

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



note - access via inflatable

SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.:

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

ROCKY SHORE US → LMS (ROCK OUTCROP)

SPLASH ZONE 5.0 - 5.5m. Lichen cover dom. vert. bedrock faces.
Verrucaria mucosa + Xanthoria dom.

US - 4.5 - 5.0m. Pelvetia canaliculata dom.
with occassion. L.t. saxatilis. } in gullies + crevices
Enteromorpha.
Ascophyllum.

MS + LMS } - Ascophyllum nod dom surface cover. with occ. F. vesiculosus
F. serratus with ↑ abdce up the shore of Ascophyllum.

gullies with mud + under alga cover } L.littorea F L. saxatilis O. L.t obtusata O
Actinia equina also on open rock surfaces
- on rock surfaces } Semibal. balanoides O } patchily distributed over rock surfaces.
Elminius modestus
under algae - Gammarids.
+ Dynamena pumila attached to algae.

SEDIMENT SHORE : LARGE GULLEY + LOWER SHORE REGION }
Samples taken at MS / SLF 0.05m² core and 0.02m² cores repeated

US → LMS (2.0m) oar size slates (broken) + mixture of pebbles stones and occassional boulders overlying muddy / clay gravel and shingle with black anoxic layer.
? Talitrus in lg nos under slates and stones

MS 2.0m
↓
SLF <1.0m above C.D

sediment as above except Faunal Bed of Mussels covering large patches and supporting a quite diverse community. occasional large boulders support F. serratus cover

fauna within the mussel bed:
Cerastoderma edule (O)
Bucchinum undatum (O)
Ostrea edulis (R/O)
Crepidula fornicata (R)
L.t. obtusata. (O)
L.t saxatilis (O)
L.t littorea (F)
Curculuna crenatus within sediments
Halicondria bowerbankia (O)
Bowerbankia. (O)
Mastus lutea. (R)
Myxilla incrustans R/O

some surface barnacle cover } E. balanoides (C)
B. crenatus O
were found assoc to the mussels and lgr rocks and stones

under rock/boulders SLF.

INTERTIDAL RECORDING SHEET

This check list is based on the [illegible] and categories used in the Subittoral Habitat Record Sheet developed in 1975 and replaces the NCC section of the rocky shore recording sheets developed by the SMBA/MCA Intertidal Survey Unit and used in 1985. The [illegible] such a case are covered by similar headings except that the type of community present and its cover [illegible] to be recorded for each habitat are to be described in the plain text section at the end of the form. Species which normally occur but are not in the description of a sample may be recorded using prevailing wind, [illegible] Numbers for each category do not [illegible] with those on the subittoral habitat record sheet.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: W OF PASSAGE POINT (15) GRID REFERENCE: SX 418 572

DATE: 26/07/86 NAME OF RECORDER: MDH

KEY TO HABITAT COLUMNS:

1. ~~US~~ SPLASH ZONE at +5.0m and above (lichen zone.)
2. US at +4.5-5.0m (Pelvetia zone)
3. UMS at +4.0-4.5m } (Ascophyllum zone)
4. MS at +3.0m+
5. LMS at +2.0m+ (Fucoid zone.)
6. LS. at +1.0m. (Mussel Bed)

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						0
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.						
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.						0
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
enella caespitosa						
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum						0
Ceramium shuttleworthianum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dumontia incrassata						
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum						
Gigartina acicularis						
Gigartina stellata						
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						

	1	2	3	4	5	6
Hildenbrandia sp.						
Hypoglossum woodwardii						
Laurencia hybrida						
Laurencia pinnatifida						
Lomentaria articulata						
Lomentaria clavellosa						0
Membranoptera alata						
Mesophyllum lichenoides						
Palmaria palmata						
Plumaria elegans						
Polyides rotundus						
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa (On Asc)			0	0		
Polysiphonia nigrescens						
Polysiphonia urceolata						0
Polysiphonia sp.						0
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)						
Rhodophyta indet. (pink)						
Scytosiphon lomentaria						
Porphyra sp.						
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
PHAEOPHYTA						
Ascophyllum nodosum		0	S	S	A/C	
Bifurcaria bifurcata						
Cladostephus spongiosus						
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.						

	1	2	3	4	5	6
Fucus serratus			O	C	C	
Fucus spiralis						
Fucus vesiculosus			O	O		
Halidrys siliquosa						
Halopteris scoparia						
Himanthalia elongata						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochrolenca						
Laminaria saccharina						
Laminaria sp. (sporlings)						
Pelvetia canaliculata		F				
Phaeophyta indet. (filam.)						
Pilayella littoralis						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Chlorophyta indet. (filam.)						
Cladophora pellucida						
Cladophora sp.						
Cladostephus spongiosus						
Codium fragile tomentosoides						
Codium tomentosum						
Enteromorpha sp. (p)		O	O	O		
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera noltii						
Zostera augustifolia						
Zostera marina						
LICHENS						
Calloplaca marina						
Calloplaca thallincola						
Grey lichens	C					
Lecanora atra						
Lichina confinis						
Lichina pygmaea	C					
Ochrolechia parella						
Verrucaria maura	A					
Verrucaria mucosa						
Xanthoria parietina	C					

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: W OF PASSAGE POINT 15 GRID REFERENCE: SX 918 572

DATE: _____ NAME OF RECORDER: MOH

KEY TO HABITAT COLUMNS:

1. US +4.5 - 5.0m (Pelvetia zone)
2. UMS +4.0 - 4.5m
3. MS +3.0m +
4. LMS +2.0m
5. LS +1.0m
6. SubF +1.0m and below (Mussel bed)

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
Scypha compressa						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki (under stones)						O
Halichondria panicea						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans (under stones)						O
Ophlitaspongia seriata						
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila (Alt to Alg)			C	C		
Laomedea flexuosa						
Tubularia larynx						
COELENTERATA:ACTINIAE						
Actinia equina						
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina						
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Cirratulus cirratus (in sed.)					O	O
Eulalia viridis						

	1	2	3	4	5	6
Lanice conchilega						
Pomatoceros sp. (p) under stones					O	O
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids			O	O		
Spirorbinidae - on rock						
Terebellidae indet.					P	
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus				·	O	O
Balanus improvisus						
Balanus perforatus						
Chthamalus montagui						
Chthamalus stellatus						
Elminius modestus		C	C	C	F	
Semibalanus balanoides		O	O	O		
Verruca stroemia						
CRUSTACEA:ISOPODA						
Idotea sp. (p)						
CRUSTACEA:AMPHIPODA						
Amphipoda indet.					·	·
Gammarus sp. (under Ampithoe)						
Hyale nilsoni		P	P			
Chaetogammarus marinus		O	O			
Orchestia mediterranea	P					
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas			O	O		
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						

	1	2	3	4	5	6
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
INSECTA						
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata					R/O	R/O
Gibbula cineraria						
Gibbula umbilicalis						
Hydrobia ulvae						
Littorina 'saxatilis'		F	O	O	O	
Littorina littorea			O	F	O	
Littorina mariae						
Littorina neglecta						
Littorina neritoides						
Littorina obtusata			F	O	O	
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata						
Nucella lapillus						
Patella aspera						
Patella depressa						
Patella vulgata						
Patella sp.		O	O	R		
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
Buccinum undatum					O	O
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Bowerbankia imbricata						
Cerastoderma edule					O	O
Hiatella arctica						
Mytilus edulis			.		F/A	F/A
Ostrea edulis					R/O	R/O
Modiolus sp.						R/O
BRYOZOA						
Alcyonidium gelatinosum						
Alcyonidium hirsutum						
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida						
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						
Bowerbankia imbricata under bldrs.						O

	1	2	3	4	5	6
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botryllus schlosseri						
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: Mussel bed south of Beggars Island SITE NO.: 16

SURVEY AREA: SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 424 521 TO

RECORDER: DATE: 26 D 04 M 86 Y

SITUATION (TICK ONE ONLY)	
OPEN SEA (1 km offshore)	1
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5 ✓
INTERTIDAL EXTENT (m)	6

COASTAL TYPE (TICK)	
HEADLAND	7
'LINEAR COAST'	8
LARGE BAY (2 km)	9
SMALL BAY	10
SPIT/BAR	11
OFFSHORE SMALL ISLAND	12
AMONGST ROCKS/ISLETS	13
SOUND/NARROWS	14
SHALLOW RAPIDS	15
SEA LOCH	16
ESTUARY/MARINE INLET	17 ✓
LINEAR BEACH	18
POCKET BEACH	19
SALTMARSH	20
COASTAL LAGOON	21
HARBOUR	22
SEA CAVE	23
WRECK	24
OTHER (tick and note below)	25

ASPECT (TICK)	
NORTH	26
NORTHEAST	27
EAST	28
SOUTHEAST	29
SOUTH	30
SOUTHWEST	31
WEST	32
NORTHWEST	33 ✓

COASTAL HEIGHT (TICK)	
HIGH	34
MODERATE	35 ✓
LOW	36
OTHER (tick and note below)	37

COASTAL BACKING (TICK)	
SAND DUNES	38
LOW CLIFF	39
MODERATE CLIFF	40 ✓
HIGH CLIFF	41
SALTMARSH	42
MACHAIR	43
DUNE/MACHAIR	44
SEA WALL	45
SHINGLE RIDGE	46
GRASSLAND	47
OTHER (tick and note below)	48

OFFSHORE FEATURES (TICK)	
ISLANDS	49
REEFS	50
BREAKWATER	51
SANDBANKS	52
SHOAL	53

WAVE EXPOSURE (TICK)	
VERY EXPOSED (prevailing wind and swell)	54
EXPOSED (prevailing wind)	55
SEMI-EXPOSED (strong wind frequent)	56
SHELTERED (strong wind rare)	57
VERY SHELTERED (fetch 20 km)	58
EXTREMELY SHELTERED (fetch 3 km)	59 ✓

MAX. TIDAL STREAM STRENGTH (TICK)	
VERY STRONG (6 k+)	60
STRONG (3-6 k)	61
MOD. STRONG (1-3 k)	62 ✓
WEAK (1 k)	63
VERY WEAK (negligible)	64

SALINITY REGIME (TICK)	
NORMAL (around 34°/oo)	65
VARIABLE (30°/oo+)	66 ✓
LOW (30°/oo)	67
FRESHWATER STREAM	68
SALINITY MEASURED	69
NOT KNOWN	70

ROCK TYPE (TICK)	
IGNEOUS	71
LIMESTONES	72
HARD SAND/MUDSTONES	73
SOFT SAND/MUDSTONES	74
[illegible]	75

FRIABLE SLATE/SHALES	76
NOT KNOWN	77 ✓
OTHER (tick and note below)	78

SITE INFORMATION (TICK)	
HABITAT VARIETY	79
SPECIES ABUNDANT	80 ✓
SPECIES ABSENT	81
SPECIES AT OR NEAR LIMIT	82
SPECIES RICHNESS (gd, av, poor)	83
PREVIOUS STUDY AREA	84
ORNITH. INTEREST (type?)	85
SEAL HAUL OUT/ BREEDING AREA	86
POLLUTED (type?)	87
VERY CLEAN	88
FRAGILE	89
THREATENED	90
MNR,NNR,LNR, SSSI NEARBY	91
SEWAGE/INDUSTRIAL OUTFALL NEAR	92
OTHER SOURCES OF DISTURBANCE (tick and note below)	93

SHORE USAGE (TICK)	
FIELD STUDY	94
RECREATION	95
BEACH FISHING	96
BAIT DIGGING	97
SHELLFISH COLLECTION	98
AQUACULTURE	99
MOORING	100
WATERSPORT	101
OTHER (tick and note below)	102

AMENITY (TICK)	
ATTRACTIVE BEACH	103
LOCAL RESORT	104
POPULAR	105
PUBLIC FACILITIES	106

OTHER DATA RECORDED	
PHOTOGRAPHS: W-A	107
C-U	108
WATER ANALYSIS	109
SEDIMENT ANALYSIS	110
SPECIMENS COLLECTED	111 ✓
ALGAL CHECKLIST	112
ANIMAL CHECKLIST	113 ✓
OTHER [illegible]	[illegible]
note below)	114

INTERTIDAL HABITAT RECORD

SITE NAME Mussel bed South of Beggars Island

SITE NO. 16

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118	✓					
LOWER MIDSHORE	119	✓					
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134	2					
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142	1					
MUD	143						
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147	3					
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166	✓					
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190	2					
SOFT (SHALLOW SINK)	191	3					
SOFT (DEEP SINK)	192						
SMOOTH	193						
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198	3					
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204	3					

SITE NO.: 16

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

SITE NO.: 16

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Dense mussel bed on muddy clay. Surface macrofauna – Mytilus edulis (super abundant), Elminius modestus (super abundant) plus Littorina littorea, L. saxatilis, Cerastoderma, Fucus vesiculosus, Ascophyllum, Pelvetia. Specimens of interstitial worms collected.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover [illegible] been defined for each habitat and is to be described in the blank section at the end of the form. [illegible] would normally be included in the description of a survey [illegible] including prevailing wind, time of [illegible], tidal range and annual rainfall are not now included on the form [illegible]

Species list for Site 16 — Mussel bed south of Beggar Island

Animals

Mytilus edulis (S)
Elminius modestus (S.)
Semibalanus balanoides (O.)
Littorina littorea (f.)
L. saxatilis (f.)
Carcinodema edule (O.)

Algae

Fucus vesiculosus (f)
Ascophyllum (O)
Pelvetia (R.)

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: Muddy shore adjacent to Site 16 SITE NO.: 17

SURVEY AREA: SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

5 X 4 2 5 5 7 1 TO

RECORDER: J.J. Moore DATE: 2 6 D 0 4 M 8 6 Y

SITUATION (TICK ONE ONLY)	
OPEN SEA (1 km offshore)	1
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5 ✓

INTERTIDAL EXTENT (m)	6

COASTAL TYPE (TICK)	
HEADLAND	7
'LINEAR COAST'	8
LARGE BAY (2 km)	9
SMALL BAY	10
SPIT/BAR	11
OFFSHORE SMALL ISLAND	12
AMONGST ROCKS/ISLETS	13
SOUND/NARROWS	14
SHALLOW RAPIDS	15
SEA LOCH	16
ESTUARY/MARINE INLET	17 ✓
LINEAR BEACH	18
POCKET BEACH	19
SALTMARSH	20
COASTAL LAGOON	21
HARBOUR	22
SEA CAVE	23
WRECK	24
OTHER (tick and note below)	25

ASPECT (TICK)	
NORTH	26
NORTHEAST	27
EAST	28
SOUTHEAST	29
SOUTH	30
SOUTHWEST	31
WEST	32
NORTHWEST	33 ✓

COASTAL HEIGHT (TICK)	
HIGH	34
MODERATE	35 ✓
LOW	36
OTHER (tick and note below)	37

COASTAL BACKING (TICK)	
SAND DUNES	38
LOW CLIFF	39
MODERATE CLIFF	40 ✓
HIGH CLIFF	41
SALTMARSH	42
MACHAIR	43
DUNE/MACHAIR	44
SEA WALL	45
SHINGLE RIDGE	46
GRASSLAND	47
OTHER (tick and note below)	48

OFFSHORE FEATURES (TICK)	
ISLANDS	49
REEFS	50
BREAKWATER	51
SANDBANKS	52
SHOAL	53

WAVE EXPOSURE (TICK)	
VERY EXPOSED (prevailing wind and swell)	54
EXPOSED (prevailing wind)	55
SEMI-EXPOSED (strong wind frequent)	56
SHELTERED (strong wind rare)	57
VERY SHELTERED (fetch 20 km)	58
EXTREMELY SHELTERED (fetch 3 km)	59 ✓

MAX. TIDAL STREAM STRENGTH (TICK)	
VERY STRONG (6 k+)	60
STRONG (3-6 k)	61
MOD. STRONG (1-3 k)	62 ✓
WEAK (1 k)	63
VERY WEAK (negligible)	64

SALINITY REGIME (TICK)	
NORMAL (around 34°/oo)	65
VARIABLE (30°/oo+)	66 ✓
LOW (30°/oo)	67
FRESHWATER STREAM	68
SALINITY MEASURED	69
NOT KNOWN	70

ROCK TYPE (TICK)	
IGNEOUS	71
LIMESTONES	72
HARD SAND/MUDSTONES	73
SOFT SAND/MUDSTONES	74
FRIABLE SLATE/SHALES	76
NOT KNOWN	77 ✓
OTHER (tick and note below)	78

SITE INFORMATION (TICK)	
HABITAT VARIETY	79
SPECIES ABUNDANT	80
SPECIES ABSENT	81
SPECIES AT OR NEAR LIMIT	82
SPECIES RICHNESS (gd, av, poor)	83
PREVIOUS STUDY AREA	84
ORNITH. INTEREST (type?)	85
SEAL HAUL OUT/ BREEDING AREA	86
POLLUTED (type?)	87
VERY CLEAN	88
FRAGILE	89
THREATENED	90
NNR,NNR,LNR, SSSI NEARBY	91
SEWAGE/INDUSTRIAL OUTFALL NEAR	92
OTHER SOURCES OF DISTURBANCE (tick and note below)	93

SHORE USAGE (TICK)	
FIELD STUDY	94
RECREATION	95
BEACH FISHING	96
BAIT DIGGING	97
SHELLFISH COLLECTION	98
AQUACULTURE	99
MOORING	100
WATERSPORT	101
OTHER (tick and note below)	102

AMENITY (TICK)	
ATTRACTIVE BEACH	103
LOCAL RESORT	104
POPULAR	105
PUBLIC FACILITIES	106

OTHER DATA RECORDED	
PHOTOGRAPHS: W-A	107
C-U	108
WATER ANALYSIS	109
SEDIMENT ANALYSIS	110
SPECIMENS COLLECTED	111 ✓
ALGAL CHECKLIST	112
ANIMAL CHECKLIST	113
OTHER (tick and note below)	114

INTERTIDAL HABITAT RECORD

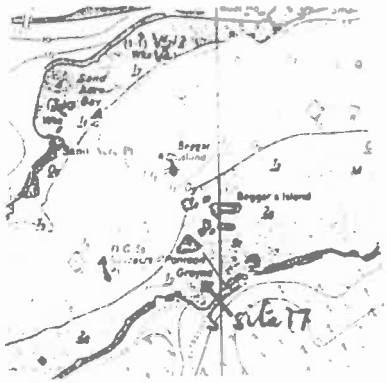
SITE NAME *Muddy shore adjacent to site 16* SITE NO. *17*

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118						
LOWER MIDSHORE	119	✓					
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124	1					
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134	2					
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142	2					
MUD	143	3					
BLACK LAYER (note depth)	144	1cm					
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						

		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166	✓					
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192	3					
SMOOTH	193	2					
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198	1					
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 17

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

SITE NO.: 17

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Thick mud with some gravel and stones. Black layer 1cm below surface. Occasional boulders on surface covered in barnacles. One sample taken - 0.01m² / 0.5m sieve

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The [illegible] in those sheets are covered by similar headings except that the type of community present and its cover [illegible] and is to be described in the blank section at the end of the form. [illegible] be included in the description of a [illegible] including prevailing wind, tim[illegible]

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: Mussel bed near Jupiter Point SITE NO.: 18

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.:	E - W	N - S		E - W	N - S
	5 X: 4 1 3	5 6 9	TO		

RECORDER: J.J. Moore DATE: 2 6 D 0 4 M 8 6 Y

SITUATION (TICK ONE ONLY)	
OPEN SEA (1 km offshore)	1
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5 ✓
INTERTIDAL EXTENT (m)	6

COASTAL TYPE (TICK)	
HEADLAND	7
'LINEAR COAST'	8
LARGE BAY (2 km)	9
SMALL BAY	10
SPIT/BAR	11
OFFSHORE SMALL ISLAND	12
AMONGST ROCKS/ISLETS	13
SOUND/NARROWS	14
SHALLOW RAPIDS	15
SEA LOCH	16
ESTUARY/MARINE INLET	17 ✓
LINEAR BEACH	18
POCKET BEACH	19
SALTMARSH	20
COASTAL LAGOON	21
HARBOUR	22
SEA CAVE	23
WRECK	24
OTHER (tick and note below)	25

ASPECT (TICK)	
NORTH	26
NORTHEAST	27
EAST	28
SOUTHEAST	29
SOUTH	30
SOUTHWEST	31
WEST	32
NORTHWEST	33 ✓

COASTAL HEIGHT (TICK)	
HIGH	34
MODERATE	35 ✓
LOW	36
OTHER (tick and	

COASTAL BACKING (TICK)	
SAND DUNES	38
LOW CLIFF	39
MODERATE CLIFF	40
HIGH CLIFF	41
SALTMARSH	42
MACHAIR	43
DUNE/MACHAIR	44
SEA WALL	45
SHINGLE RIDGE	46
GRASSLAND	47
OTHER (tick and note below)	48

OFFSHORE FEATURES (TICK)	
ISLANDS	49
REEFS	50
BREAKWATER	51
SANDBANKS	52
SHOAL	53

WAVE EXPOSURE (TICK)	
VERY EXPOSED (prevailing wind and swell)	54
EXPOSED (prevailing wind)	55
SEMI-EXPOSED (strong wind frequent)	56
SHELTERED (strong wind rare)	57
VERY SHELTERED (fetch 20 km)	58
EXTREMELY SHELTERED (fetch 3 km)	59 ✓

MAX. TIDAL STREAM STRENGTH (TICK)	
VERY STRONG (6 k+)	60
STRONG (3-6 k)	61
MOD. STRONG (1-3 k)	62 ✓
WEAK (1 k)	63
VERY WEAK (negligible)	64

SALINITY REGIME (TICK)	
NORMAL (around 34°/oo)	65
VARIABLE (30°/oo+)	66
LOW (30°/oo)	67 ✓
FRESHWATER STREAM	68
SALINITY MEASURED	69
NOT KNOWN	70

ROCK TYPE (TICK)	
IGNEOUS	71
LIMESTONES	72
HARD SAND/MUDSTONES	73
SOFT SAND/MUDSTONES	74
OTHER (tick and	

FRIABLE SLATE/SHALES	76
NOT KNOWN	77 ✓
OTHER (tick and note below)	78

SITE INFORMATION (TICK)	
HABITAT VARIETY	79
SPECIES ABUNDANT	80
SPECIES ABSENT	81
SPECIES AT OR NEAR LIMIT	82
SPECIES RICHNESS (gd, av, poor)	83
PREVIOUS STUDY AREA	84
ORNITH. INTEREST (type?)	85
SEAL HAUL OUT/ BREEDING AREA	86
POLLUTED (type?)	87
VERY CLEAN	88
FRAGILE	89
THREATENED	90
MNR,NNR,LNR, SSSI NEARBY	91
SEWAGE/INDUSTRIAL OUTFALL NEAR	92
OTHER SOURCES OF DISTURBANCE (tick and note below)	93

SHORE USAGE (TICK)	
FIELD STUDY	94
RECREATION	95
BEACH FISHING	96
BAIT DIGGING	97
SHELLFISH COLLECTION	98
AQUACULTURE	99
MOORING	100
WATERSPORT	101
OTHER (tick and note below)	102

AMENITY (TICK)	
ATTRACTIVE BEACH	103
LOCAL RESORT	104
POPULAR	105
PUBLIC FACILITIES	106

OTHER DATA RECORDED	
PHOTOGRAPHS: B-A	107 ✓
C-U	108 ✓
WATER ANALYSIS	109
SEDIMENT ANALYSIS	110
SPECIMENS COLLECTED	111
ALGAL CHECKLIST	112
ANIMAL CHECKLIST	113 ✓
OTHER (tick and note below)	114

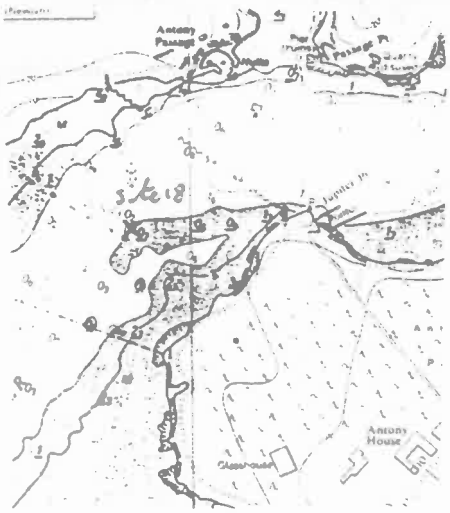
INTERTIDAL HABITAT RECORD

SITE NAME *Mussel bed near Tupiti Point* SITE NO. 18

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118						
LOWER MIDSHORE	119						
LOWER SHORE	120	✓					
SUBLITTORAL FRINGE	121	✓					
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134	3					
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136	2					
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147	3					
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166	✓					
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190	3					
SOFT (SHALLOW SINK)	191	1					
SOFT (DEEP SINK)	192						
SMOOTH	193						
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198	3					
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204	3					

SITE NO.: 18

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

SITE NO.: 18

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Dense mussel bed with abundant / super abundant Halichondria sp. on muddy gravel - Some patches of clean gravel overlying muddy gravel. Halichondria forming large masses with organ pipe-like structure ; 100 % cover sublittorally

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover [illegible] not been defined for each habitat [illegible] is to be described in the blank section at the [illegible] the [illegible] which would normally be included in the description of a survey [illegible] including prevailing wind, [illegible] tidal range and annual rainfall are not now included on the [illegible]

Species list for site 18 — Mussel bed near Tupite Point

Animals

Mytilus edulis (extremely abundant)

Halichondria ? bowerbanki (abundant)

Crepidula fornicata (Occasional)

? Myxilla incrustans (Occasional)

Buccinum undatum (Rare)

Bowerbankia imbricata (Abundant)

Algae

Red filamentous algae (Occ.)

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: Opposite Black Rock SITE NO.: 19

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 395 558 TO

RECORDER: J.J. Moore DATE: 26 D 04 M 86 Y

SITUATION (TICK ONE ONLY)	
OPEN SEA (1 km offshore)	1
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5 ✓
INTERTIDAL EXTENT (m)	6

COASTAL TYPE (TICK)	
HEADLAND	7
'LINEAR COAST'	8
LARGE BAY (2 km)	9
SMALL BAY	10
SPIT/BAR	11
OFFSHORE SMALL ISLAND	12
AMONGST ROCKS/ISLETS	13
SOUND/NARROWS	14
SHALLOW RAPIDS	15
SEA LOCH	16
ESTUARY/MARINE INLET	17 ✓
LINEAR BEACH	18
POCKET BEACH	19
SALTMARSH	20
COASTAL LAGOON	21
HARBOUR	22
SEA CAVE	23
WRECK	24
OTHER (tick and note below)	25

ASPECT (TICK)	
NORTH	26 ✓
NORTHEAST	27
EAST	28
SOUTHEAST	29
SOUTH	30
SOUTHWEST	31
WEST	32
NORTHWEST	33

COASTAL HEIGHT (TICK)	
HIGH	34
MODERATE	35 ✓
LOW	36
OTHER (tick and note below)	37

COASTAL BACKING (TICK)	
SAND DUNES	38
LOW CLIFF	39
MODERATE CLIFF	40
HIGH CLIFF	41
SALTMARSH	42
MACHAIR	43
DUNE/MACHAIR	44
SEA WALL	45
SHINGLE RIDGE	46
GRASSLAND	47
OTHER (tick and note below)	48

OFFSHORE FEATURES (TICK)	
ISLANDS	49
REEFS	50
BREAKWATER	51
SANDBANKS	52
SHOAL	53

WAVE EXPOSURE (TICK)	
VERY EXPOSED (prevailing wind and swell)	54
EXPOSED (prevailing wind)	55
SEMI-EXPOSED (strong wind frequent)	56
SHELTERED (strong wind rare)	57
VERY SHELTERED (fetch 20 km)	58
EXTREMELY SHELTERED (fetch 3 km)	59 ✓

MAX. TIDAL STREAM STRENGTH (TICK)	
VERY STRONG (6 k+)	60
STRONG (3-6 k)	61
MOD. STRONG (1-3 k)	62 ✓
WEAK (1 k)	63
VERY WEAK (negligible)	64

SALINITY REGIME (TICK)	
NORMAL (around 34°/oo)	65
VARIABLE (30°/oo+)	66
LOW (30°/oo)	67 ✓
FRESHWATER STREAM	68
SALINITY MEASURED	69
NOT KNOWN	70

ROCK TYPE (TICK)	
IGNEOUS	71
METAMORPHIC	72
HARD SAND/MUDSTONES	73
SOFT SAND/MUDSTONES	74
CHALK	75
FRIABLE SLATE/SHALES	76
NOT KNOWN	77 ✓
OTHER (tick and note below)	78

SITE INFORMATION (TICK)	
HABITAT VARIETY	79
SPECIES ABUNDANT	80
SPECIES ABSENT	81
SPECIES AT OR NEAR LIMIT	82
SPECIES RICHNESS (gd, av, poor)	83
PREVIOUS STUDY AREA	84
ORNITH. INTEREST (type?)	85
SEAL HAUL OUT/ BREEDING AREA	86
POLLUTED (type?)	87
VERY CLEAN	88
FRAGILE	89
THREATENED	90
MNR,NNR,LNR, SSSI NEARBY	91
SEWAGE/INDUSTRIAL OUTFALL NEAR	92
OTHER SOURCES OF DISTURBANCE (tick and note below)	93

SHORE USAGE (TICK)	
FIELD STUDY	94
RECREATION	95
BEACH FISHING	96
BAIT DIGGING	97
SHELLFISH COLLECTION	98
AQUACULTURE	99
MOORING	100
WATERSPORT	101
OTHER (tick and note below)	102

AMENITY (TICK)	
ATTRACTIVE BEACH	103
LOCAL RESORT	104
POPULAR	105
PUBLIC FACILITIES	106

OTHER DATA RECORDED	
PHOTOGRAPHS: B-A	107
C-D	108
WATER ANALYSIS	109
SEDIMENT ANALYSIS	110
SPECIMENS COLLECTED	111 ✓
ALGAL CHECKLIST	112
ANIMAL CHECKLIST	113
OTHER (tick and note below)	114

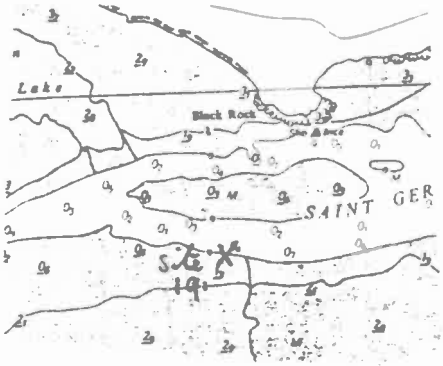
INTERTIDAL HABITAT RECORD

SITE NAME Opposite Black Rock SITE NO. 19

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118						
LOWER MIDSHORE	119						
LOWER SHORE	120	✓					
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134	2					
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142	1					
MUD	143	3					
BLACK LAYER (note depth)	144	/cm					
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165	✓					
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192	3					
SMOOTH	193	3					
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198	3					
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 19

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

SITE NO.: 19

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Glutinous mud and shingle with blacklayer at 1cm, dense whole shell debris on surface (mostly Cerastoderma). Occasional Corbicula and Cockles on surface. Sample taken - 0.1 m^2 skim of surface mud / 0.5mm sieve.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/NSA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and the [illegible] are listed for each habitat and to be described [illegible] section at the [illegible] normally [illegible] in the description [illegible] including [illegible]

Species list for Site 19 – Mudflat opposite Black Rock

Corbicula manilensis occasional
Ceratoderma edule occasional

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: Sandbank near Wacker Lake Buoy SITE NO.: 20

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SK 392 557 TO

RECORDER: J.J. Moore DATE: 26 D 04 M 86 Y

SITUATION (TICK ONE ONLY)	
OPEN SEA (1 km offshore)	1
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5 ✓
INTERTIDAL EXTENT (m)	6

COASTAL TYPE (TICK)	
HEADLAND	7
'LINEAR COAST'	8
LARGE BAY (2 km)	9
SMALL BAY	10
SPIT/BAR	11
OFFSHORE SMALL ISLAND	12
AMONGST ROCKS/ISLETS	13
SOUND/NARROWS	14
SHALLOW RAPIDS	15
SEA LOCH	16
ESTUARY/MARINE INLET	17 ✓
LINEAR BEACH	18
POCKET BEACH	19
SALTMARSH	20
COASTAL LAGOON	21
HARBOUR	22
SEA CAVE	23
WRECK	24
OTHER (tick and note below)	25

ASPECT (TICK)	
NORTH	26
NORTHEAST	27
EAST	28
SOUTHEAST	29
SOUTH	30
SOUTHWEST	31
WEST	32
NORTHWEST	33 ✓

COASTAL HEIGHT (TICK)	
HIGH	34
MODERATE	35 ✓
LOW	36
OTHER (tick and	

COASTAL BACKING (TICK)	
SAND DUNES	38
LOW CLIFF	39
MODERATE CLIFF	40
HIGH CLIFF	41
SALTMARSH	42
MACHAIR	43
DUNE/MACHAIR	44
SEA WALL	45
SHINGLE RIDGE	46
GRASSLAND	47
OTHER (tick and note below)	48

OFFSHORE FEATURES (TICK)	
ISLANDS	49
REEFS	50
BREAKWATER	51
SANDBANKS	52
SHOAL	53

WAVE EXPOSURE (TICK)	
VERY EXPOSED (prevailing wind and swell)	54
EXPOSED (prevailing wind)	55
SEMI-EXPOSED (strong wind frequent)	56
SHELTERED (strong wind rare)	57
VERY SHELTERED (fetch 20 km)	58
EXTREMELY SHELTERED (fetch 3 km)	59 ✓

MAX. TIDAL STREAM STRENGTH (TICK)	
VERY STRONG (6 k+)	60
STRONG (3-6 k)	61
MOD. STRONG (1-3 k)	62 ✓
WEAK (1 k)	63
VERY WEAK (negligible)	64

SALINITY REGIME (TICK)	
NORMAL (around 34°/oo)	65
VARIABLE (30°/oo+)	66
LOW (30°/oo)	67 ✓
FRESHWATER STREAM	68
SALINITY MEASURED	69
NOT KNOWN	70

ROCK TYPE (TICK)	
IGNEOUS	71
LIMESTONES	72
HARD SAND/MUDSTONES	73
SOFT SAND/MUDSTONES	74

FRIABLE SLATE/SHALES	76
NOT KNOWN	77 ✓
OTHER (tick and note below)	78

SITE INFORMATION (TICK)	
HABITAT VARIETY	79
SPECIES ABUNDANT	80
SPECIES ABSENT	81
SPECIES AT OR NEAR LIMIT	82
SPECIES RICHNESS (gd, av, poor)	83
PREVIOUS STUDY AREA	84
ORNITH. INTEREST (type?)	85
SEAL HAUL OUT/ BREEDING AREA	86
POLLUTED (type?)	87
VERY CLEAN	88
FRAGILE	89
THREATENED	90
MNR,NNR,LNR, SSSI NEARBY	91
SEWAGE/INDUSTRIAL OUTFALL NEAR	92
OTHER SOURCES OF DISTURBANCE (tick and note below)	93

SHORE USAGE (TICK)	
FIELD STUDY	94
RECREATION	95
BEACH FISHING	96
BAIT DIGGING	97
SHELLFISH COLLECTION	98
AQUACULTURE	99
MOORING	100
WATERSPORT	101
OTHER (tick and note below)	102

AMENITY (TICK)	
ATTRACTIVE BEACH	103
LOCAL RESORT	104
POPULAR	105
PUBLIC FACILITIES	106

OTHER DATA RECORDED	
PHOTOGRAPHS: W-A	107
C-U	108
WATER ANALYSIS	109
SEDIMENT ANALYSIS	110
SPECIMENS COLLECTED	111 ✓
ALGAL CHECKLIST	112
ANIMAL CHECKLIST	113
OTHER (tick and note below)	114

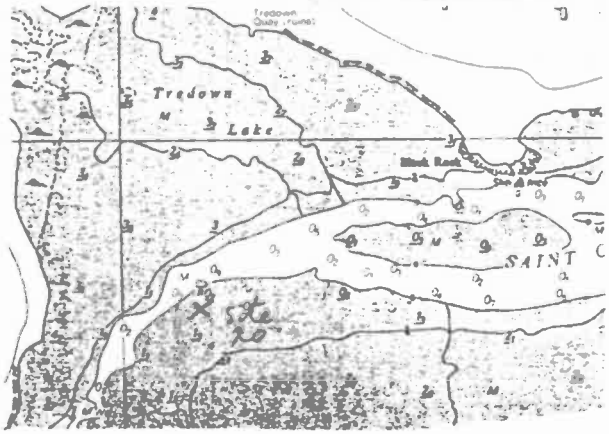
INTERTIDAL HABITAT RECORD

SITE NAME Sandbank near Wanka Lake Buoy SITE NO. 20

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118						
LOWER MIDSHORE	119						
LOWER SHORE	120	✓					
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140	3					
SANDY MUD	141						
SHINGLE	142						
MUD	143						
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147	2					
TREE BRANCHES	148						
OTHER (score & note type below)	149						
Wood Pulp		3					
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
FILAMENTOUS ALGAE	157						
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165	✓					
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190	3					
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192						
SMOOTH	193	2					
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 20

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

SITE NO.: 20

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Muddy sand with high wood detritus / pulp content. Sample taken - 0.1m2/h sieve. - one Arenicola in sample. No obvious black layer

Thick bed of stranded wood pulp and twigs on sandbank

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in these sheets are covered by similar headings except that the type of community present and its cover [illegible] defined for each habitat and is to be described in the blank section at the end of the form. [illegible] would normally be included in the description of a survey area including prevailing wind, time [illegible] range and annual rainfall are not now included on the form.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: Opposite Redshank Point SITE NO.: 21

SURVEY AREA: Plymouth / R. Lynher SEA AREA:

OS GRID REF.:	E - W	N - S		E - W	N - S
	SK	385	552	TO	

RECORDER: J.J. Moore DATE: 26 D 04 M 86 Y

SITUATION (TICK ONE ONLY)	
OPEN SEA (1 km offshore)	1
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5 ✓
INTERTIDAL EXTENT (m)	6

COASTAL TYPE (TICK)	
HEADLAND	7
'LINEAR COAST'	8
LARGE BAY (2 km)	9
SMALL BAY	10
SPIT/BAR	11
OFFSHORE SMALL ISLAND	12
AMONGST ROCKS/ISLETS	13
SOUND/NARROWS	14
SHALLOW RAPIDS	15
SEA LOCH	16
ESTUARY/MARINE INLET	17 ✓
LINEAR BEACH	18
POCKET BEACH	19
SALTMARSH	20
COASTAL LAGOON	21
HARBOUR	22
SEA CAVE	23
WRECK	24
OTHER (tick and note below)	25

ASPECT (TICK)	
NORTH	26 ✓
NORTHEAST	27
EAST	28
SOUTHEAST	29
SOUTH	30
SOUTHWEST	31
WEST	32
NORTHWEST	33

COASTAL HEIGHT (TICK)	
HIGH	34
MODERATE	35 ✓
LOW	36
OTHER (tick and	

COASTAL BACKING (TICK)	
SAND DUNES	38
LOW CLIFF	39
MODERATE CLIFF	40
HIGH CLIFF	41
SALTMARSH	42
MACHAIR	43
DUNE/MACHAIR	44
SEA WALL	45
SHINGLE RIDGE	46
GRASSLAND	47
OTHER (tick and note below)	48

OFFSHORE FEATURES (TICK)	
ISLANDS	49
REEFS	50
BREAKWATER	51
SANDBANKS	52
SHOAL	53

WAVE EXPOSURE (TICK)	
VERY EXPOSED (prevailing wind and swell)	54
EXPOSED (prevailing wind)	55
SEMI-EXPOSED (strong wind frequent)	56
SHELTERED (strong wind rare)	57
VERY SHELTERED (fetch 20 km)	58
EXTREMELY SHELTERED (fetch 3 km)	59 ✓

MAX. TIDAL STREAM STRENGTH (TICK)	
VERY STRONG (6 k+)	60
STRONG (3-6 k)	61
MOD. STRONG (1-3 k)	62 ✓
WEAK (1 k)	63
VERY WEAK (negligible)	64

SALINITY REGIME (TICK)	
NORMAL (around 34°/oo)	65
VARIABLE (30°/oo+)	66
LOW (30°/oo)	67 ✓
FRESHWATER STREAM	68
SALINITY MEASURED	69
NOT KNOWN	70

ROCK TYPE (TICK)	
IGNEOUS	71
LIMESTONES	72
HARD SAND/MUDSTONES	73
SOFT SAND/MUDSTONES	74
HARD SLATE/	75

FRIABLE SLATE/SHALES	76
NOT KNOWN	77 ✓
OTHER (tick and note below)	78

SITE INFORMATION (TICK)	
HABITAT VARIETY	79
SPECIES ABUNDANT	80
SPECIES ABSENT	81
SPECIES AT OR NEAR LIMIT	82
SPECIES RICHNESS (gd, av, poor)	83
PREVIOUS STUDY AREA	84
ORNITH. INTEREST (type?)	85
SEAL HAUL OUT/ BREEDING AREA	86
POLLUTED (type?)	87
VERY CLEAN	88
FRAGILE	89
THREATENED	90
MNR,NNR,LNR, SSSI NEARBY	91
SEWAGE/INDUSTRIAL OUTFALL NEAR	92
OTHER SOURCES OF DISTURBANCE (tick and note below)	93

SHORE USAGE (TICK)	
FIELD STUDY	94
RECREATION	95
BEACH FISHING	96
BAIT DIGGING	97
SHELLFISH COLLECTION	98
AQUACULTURE	99
MOORING	100
WATERSPORT	101
OTHER (tick and note below)	102

AMENITY (TICK)	
ATTRACTIVE BEACH	103
LOCAL RESORT	104
POPULAR	105
PUBLIC FACILITIES	106

OTHER DATA RECORDED	
PHOTOGRAPHS: B-A	107
C-U	108
WATER ANALYSIS	109
SEDIMENT ANALYSIS	110
SPECIMENS COLLECTED	111 ✓
ALGAL CHECKLIST	112
ANIMAL CHECKLIST	113
OTHER (tick and note below)	

INTERTIDAL HABITAT RECORD

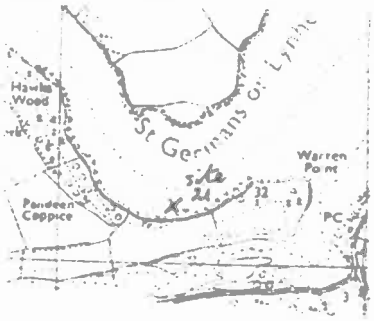
SITE NAME Opposite Redbank Point SITE NO. 21

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118						
LOWER MIDSHORE	119	✓					
LOWER SHORE	120	✓					
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143	3					
BLACK LAYER (note depth)	144	1-2 cm					
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
Wood pulp / detritus		3					
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						

		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165	✓					
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192	3					
SMOOTH	193	3					
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 21

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

SITE NO.: 21

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Glutinous muddy clay on surface, overlying black anoxic mud and wood detritus at 2cm depth. No visible macrofauna. Occasional rocks strewn with Fucus serratus. Sediment sample taken – 0.01m² / 0.5mm sieve

INTERTIDAL RECORDING SHEET

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SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: Redshank Point SITE NO.: 22

SURVEY AREA: Plymouth / River Lynher SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

5 X 3 8 5 5 5 4 TO

RECORDER: J.J. Moore DATE: 1 6 D 0 4 M 8 6 Y

SITUATION (TICK ONE ONLY)	
OPEN SEA (1 km offshore)	1
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5 ✓

INTERTIDAL EXTENT (m)	6

COASTAL TYPE (TICK)	
HEADLAND	7
'LINEAR COAST'	8
LARGE BAY (2 km)	9
SMALL BAY	10
SPIT/BAR	11
OFFSHORE SMALL ISLAND	12
AMONGST ROCKS/ISLETS	13
SOUND/NARROWS	14
SHALLOW RAPIDS	15
SEA LOCH	16
ESTUARY/MARINE INLET	17 ✓
LINEAR BEACH	18
POCKET BEACH	19
SALTMARSH	20
COASTAL LAGOON	21
HARBOUR	22
SEA CAVE	23
WRECK	24
OTHER (tick and note below)	25

ASPECT (TICK)	
NORTH	26
NORTHEAST	27
EAST	28
SOUTHEAST	29
SOUTH	30 ✓
SOUTHWEST	31
WEST	32
NORTHWEST	33

COASTAL HEIGHT (TICK)	
[illegible]	34
[illegible]PATE	35
[illegible]	36 ✓
OTHER (tick and [illegible]	[illegible]

COASTAL BACKING (TICK)	
SAND DUNES	38
LOW CLIFF	39
MODERATE CLIFF	40
HIGH CLIFF	41
SALTMARSH	42
MACHAIR	43
DUNE/MACHAIR	44
SEA WALL	45
SHINGLE RIDGE	46
GRASSLAND	47
OTHER (tick and note below)	48

OFFSHORE FEATURES (TICK)	
ISLANDS	49
REEFS	50
BREAKWATER	51
SANDBANKS	52
SHOAL	53

WAVE EXPOSURE (TICK)	
VERY EXPOSED (prevailing wind and swell)	54
EXPOSED (prevailing wind)	55
SEMI-EXPOSED (strong wind frequent)	56
SHELTERED (strong wind rare)	57
VERY SHELTERED (fetch 20 km)	58
EXTREMELY SHELTERED (fetch 3 km)	59 ✓

MAX. TIDAL STREAM STRENGTH (TICK)	
VERY STRONG (6 k+)	60
STRONG (3-6 k)	61
MOD. STRONG (1-3 k)	62 ✓
WEAK (1 k)	63
VERY WEAK (negligible)	64

SALINITY REGIME (TICK)	
NORMAL (around 34°/oo)	65
VARIABLE (30°/oo+)	66
LOW (30°/oo)	67 ✓
FRESHWATER STREAM	68
SALINITY MEASURED	69
NOT KNOWN	70

ROCK TYPE (TICK)	
IGNEOUS	71
LIMESTONE	72
HARD SAND/MUDSTONE	73
SOFT SAND/MUDSTONES	74
SLATE/SHALE	75
FRIABLE SLATE/SHALES	76
NOT KNOWN	77 ✓
OTHER (tick and note below)	78

SITE INFORMATION (TICK)	
HABITAT VARIETY	79
SPECIES ABUNDANT	80
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POLLUTED (type?)	87
VERY CLEAN	88
FRAGILE	89
THREATENED	90
MNR,NNR,LNR, SSSI NEARBY	91
SEWAGE/INDUSTRIAL OUTFALL NEAR	92
OTHER SOURCES OF DISTURBANCE (tick and note below)	93

SHORE USAGE (TICK)	
FIELD STUDY	94
RECREATION	95
BEACH FISHING	96
BAIT DIGGING	97
SHELLFISH COLLECTION	98
AQUACULTURE	99
MOORING	100
WATERSPORT	101
OTHER (tick and note below)	102

AMENITY (TICK)	
ATTRACTIVE BEACH	103
LOCAL RESORT	104
POPULAR	105
PUBLIC FACILITIES	106

OTHER DATA RECORDED	
PHOTOGRAPHS: W-A	107
C-U	108
WATER ANALYSIS	109
SEDIMENT ANALYSIS	110
SPECIMENS COLLECTED	111
ALGAL CHECKLIST	112
ANIMAL CHECKLIST	113
OTHER (tick and note below)	114

INTERTIDAL HABITAT RECORD

SITE NAME Redshank Point SITE NO. 22

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118	✓					
LOWER MIDSHORE	119	✓					
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
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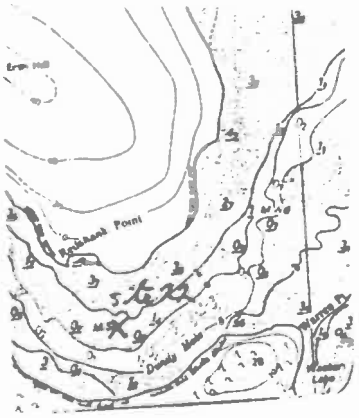
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134	3					
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142	3					
MUD	143						
BLACK LAYER (note depth)	144	1-2 cm					
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
Wood pulp / detritus		3					
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FILIOSE RED ALGAE	155						
FILIOSE GREEN ALGAE	156						
LOOSE LYING ALGAE	157						
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166	✓					
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191	3					
SOFT (DEEP SINK)	192						
SMOOTH	193						
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 22

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

:

SITE NO.: 22

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Dense wood pulp (2 foot thick in places). Sand areas – coarse sand surface on top of gravelly shingly sand. No obvious macrofauna. Blacklayer 1-2cm deep. No samples taken

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. [illegible] would normally be included in the description [illegible] survey are including prevailing wind, [illegible], tidal range and annual rainfall are not now included on the form.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86

RECORD NO.:

SITE NAME: Opposite Erth Hill SITE NO.: 23

SURVEY AREA: Plymouth / R. Lynher SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 380 556 TO

RECORDER: J.J. Moore DATE: 26 D 04 M 86 Y

SITUATION (TICK ONE ONLY)	
OPEN SEA (1 km offshore)	1
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4 ✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5
INTERTIDAL EXTENT (m)	6

COASTAL TYPE (TICK)	
HEADLAND	7
'LINEAR COAST'	8
LARGE BAY (2 km)	9
SMALL BAY	10
SPIT/BAR	11
OFFSHORE SMALL ISLAND	12
AMONGST ROCKS/ISLETS	13
SOUND/NARROWS	14
SHALLOW RAPIDS	15
SEA LOCH	16
ESTUARY/MARINE INLET	17 ✓
LINEAR BEACH	18
POCKET BEACH	19
SALTMARSH	20
COASTAL LAGOON	21
HARBOUR	22
SEA CAVE	23
WRECK	24
OTHER (tick and note below)	25

ASPECT (TICK)	
NORTH	26
NORTHEAST	27 ✓
EAST	28
SOUTHEAST	29
SOUTH	30
SOUTHWEST	31
WEST	32
NORTHWEST	33

COASTAL HEIGHT (TICK)	
HIGH	34
MODERATE	35 ✓
LOW	36
OTHER (tick and	

COASTAL BACKING (TICK)	
SAND DUNES	38
LOW CLIFF	39
MODERATE CLIFF	40 ✓
HIGH CLIFF	41
SALTMARSH	42
MACHAIR	43
DUNE/MACHAIR	44
SEA WALL	45
SHINGLE RIDGE	46
GRASSLAND	47
OTHER (tick and note below)	48

OFFSHORE FEATURES (TICK)	
ISLANDS	49
REEFS	50
BREAKWATER	51
SANDBANKS	52
SHOAL	53

WAVE EXPOSURE (TICK)	
VERY EXPOSED (prevailing wind and swell)	54
EXPOSED (prevailing wind)	55
SEMI-EXPOSED (strong wind frequent)	56
SHELTERED (strong wind rare)	57
VERY SHELTERED (fetch 20 km)	58
EXTREMELY SHELTERED (fetch 3 km)	59 ✓

MAX. TIDAL STREAM STRENGTH (TICK)	
VERY STRONG (6 k+)	60
STRONG (3-6 k)	61
MOD. STRONG (1-3 k)	62 ✓
WEAK (1 k)	63
VERY WEAK (negligible)	64

SALINITY REGIME (TICK)	
NORMAL (around 34°/oo)	65
VARIABLE (30°/oo+)	66
LOW (30°/oo)	67 ✓
FRESHWATER STREAM	68
SALINITY MEASURED	69
NOT KNOWN	70

ROCK TYPE (TICK)	
IGNEOUS	71
LIMESTONES	72
HARD SAND/MUDSTONES	73
SOFT SAND/MUDSTONES	74
[illegible]	75 ✓

FRIABLE SLATE/SHALES	76
NOT KNOWN	77
OTHER (tick and note below)	78

SITE INFORMATION (TICK)	
HABITAT VARIETY	79
SPECIES ABUNDANT	80
SPECIES ABSENT	81
SPECIES AT OR NEAR LIMIT	82
SPECIES RICHNESS (gd, av, poor)	83
PREVIOUS STUDY AREA	84
ORNITH. INTEREST (type?)	85
SEAL HAUL OUT/ BREEDING AREA	86
POLLUTED (type?)	87
VERY CLEAN	88
FRAGILE	89
THREATENED	90
MNR,NNR,LNR, SSSI NEARBY	91
SEWAGE/INDUSTRIAL OUTFALL NEAR	92
OTHER SOURCES OF DISTURBANCE (tick and note below)	93

SHORE USAGE (TICK)	
FIELD STUDY	94
RECREATION	95
BEACH FISHING	96
BAIT DIGGING	97
SHELLFISH COLLECTION	98
AQUACULTURE	99
MOORING	100
WATERSPORT	101
OTHER (tick and note below)	102

AMENITY (TICK)	
ATTRACTIVE BEACH	103
LOCAL RESORT	104
POPULAR	105
PUBLIC FACILITIES	106

OTHER DATA RECORDED	
PHOTOGRAPHS: W-A	107
C-U	108
WATER ANALYSIS	109
SEDIMENT ANALYSIS	110
SPECIMENS COLLECTED	111 ✓
ALGAL CHECKLIST	112
ANIMAL CHECKLIST	113
OTHER (tick and	
note below)	114

INTERTIDAL HABITAT RECORD

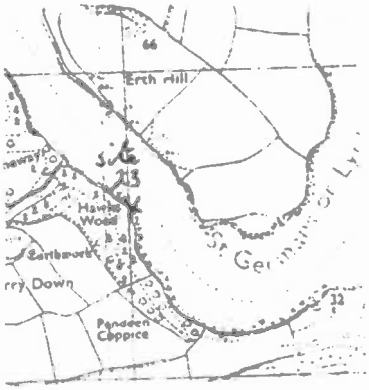
SITE NAME Opposite Ett Hill SITE NO. 23

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118	✓					
LOWER MIDSHORE	119	✓					
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3					
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143	3					
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
Leaf detritus		2					
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154	2					
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
CRUST	157						

		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164	✓					
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169	3					
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187	3					
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
Leaf detritus		2					
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192	3					
SMOOTH	193						
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
Leaf detritus		2					
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 23

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

SITE NO.: 23

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Bedrock with mud covering over 50%. Surface detrital matte (leaves and wood pulp). Ascophyllum and Fucus vesiculosus covering some rocky outcrops. Nereis diversicolor in mud. Sample taken - 0.01 m^2 / 0.5mm sieve

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC [illegible] rocky shore recording sheets developed by the [illegible] Intertidal Survey Unit and used in 1985. The [illegible] these sheets are covered by similar headings except that the [illegible] community present and its [illegible] defined for each habitat and a [illegible] [illegible] section [illegible] would [illegible] [illegible] tidal range [illegible] [illegible] are not [illegible] [illegible] [illegible]

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86

RECORD NO.:

SITE NAME: S OF PENTILLIE QUAY SITE NO.: 24

SURVEY AREA: PLYMOUTH SOUND SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 412 644 TO

RECORDER: M. Mannam DATE: 27 D 04 M 86 Y

SITUATION (TICK ONE ONLY)	
OPEN SEA (1 km offshore)	1
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea) (WALL)	4 ✓ 2°
ENC. COASTLINE-SEDIMENT 30° deep-water window to open sea)	5 ✓
INTERTIDAL EXTENT (m)	6 35m

COASTAL TYPE (TICK)	
HEADLAND	7
'LINEAR COAST'	8
LARGE BAY (2 km)	9
SMALL BAY	10
SPIT/BAR	11
OFFSHORE SMALL ISLAND	12
AMONGST ROCKS/ISLETS	13
SOUND/NARROWS	14
SHALLOW RAPIDS	15
SEA LOCH	16
ESTUARY/MARINE INLET	17 ✓
LINEAR BEACH	18
POCKET BEACH	19
SALTMARSH	20
COASTAL LAGOON	21
HARBOUR	22
SEA CAVE	23
WRECK	24
OTHER (tick and note below)	25

ASPECT (TICK)	
NORTH	26
NORTHEAST	27
EAST	28 ✓
SOUTHEAST	29
SOUTH	30
SOUTHWEST	31
WEST	32
NORTHWEST	33

COASTAL HEIGHT (TICK)	
HIGH	34
MODERATE	35 ✓
LOW	36
OTHER (tick and note below)	37

COASTAL BACKING (TICK)	
SAND DUNES	38
LOW CLIFF	39
MODERATE CLIFF	40
HIGH CLIFF	41
SALTMARSH	42
MACHAIR	43
DUNE/MACHAIR	44
SEA WALL	45 ✓
SHINGLE RIDGE	46
GRASSLAND	47
OTHER (tick and note below)	48

OFFSHORE FEATURES (TICK)	
ISLANDS	49
REEFS	50
BREAKWATER	51
SANDBANKS / MUD	52 ✓
SHOAL	53

WAVE EXPOSURE (TICK)	
VERY EXPOSED (prevailing wind and swell)	54
EXPOSED (prevailing wind)	55
SEMI-EXPOSED (strong wind frequent)	56
SHELTERED (strong wind rare)	57
VERY SHELTERED (fetch 20 km)	58
EXTREMELY SHELTERED (fetch 3 km)	59 ✓

MAX. TIDAL STREAM STRENGTH (TICK)	
VERY STRONG (6 k+)	60
STRONG (3-6 k)	61
MOD. STRONG (1-3 k)	62 ✓
WEAK (1 k)	63
VERY WEAK (negligible)	64

SALINITY REGIME (TICK)	
NORMAL (around 34°/oo)	65
VARIABLE (30°/oo+)	66
LOW (30°/oo)	67 ✓
FRESHWATER STREAM	68
SALINITY MEASURED	69
NOT KNOWN	70

ROCK TYPE (TICK)	
IGNEOUS	71
LIMESTONES	72
HARD SAND/MUDSTONES	73
SOFT SAND/MUDSTONE	74
HARD SLATE/SHALES	75
FRIABLE SLATE/SHALES	76 ✓
NOT KNOWN	77
OTHER (tick and note below)	78

SITE INFORMATION (TICK)	
HABITAT VARIETY	79
SPECIES ABUNDANT	80
SPECIES ABSENT	81
SPECIES AT OR NEAR LIMIT	82
SPECIES RICHNESS (gd, av, poor)	83
PREVIOUS STUDY AREA	84
ORNITH. INTEREST (type?)	85
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POLLUTED (type?)	87
VERY CLEAN	88
FRAGILE	89
THREATENED	90
MNR,NNR,LNR, SSSI NEARBY	91
SEWAGE/INDUSTRIAL OUTFALL NEAR	92
OTHER SOURCES OF DISTURBANCE (tick and note below)	93

SHORE USAGE (TICK)	
FIELD STUDY	94
RECREATION	95
BEACH FISHING	96
BAIT DIGGING	97
SHELLFISH COLLECTION	98
AQUACULTURE	99
MOORING	100 ✓
WATERSPORT	101
OTHER (tick and note below)	102

AMENITY (TICK)	
ATTRACTIVE BEACH	103
LOCAL RESORT	104
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PUBLIC FACILITIES	106

OTHER DATA RECORDED	
PHOTOGRAPHS: M-A	107 ✓
C-U	108
WATER ANALYSIS	109
SEDIMENT ANALYSIS	110
SPECIMENS COLLECTED	111
ALGAL CHECKLIST	112
ANIMAL CHECKLIST	113
OTHER (tick and note below)	114

INTERTIDAL HABITAT RECORD

SITE NAME

SITE NO. 14

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118	✓	✓				
LOWER MIDSHORE	119	✓	✓				
LOWER SHORE	120		✓				
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125	✓					
LG. SLATES (128-256 mm)	126	✓3					
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143		3				
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154	3					
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						

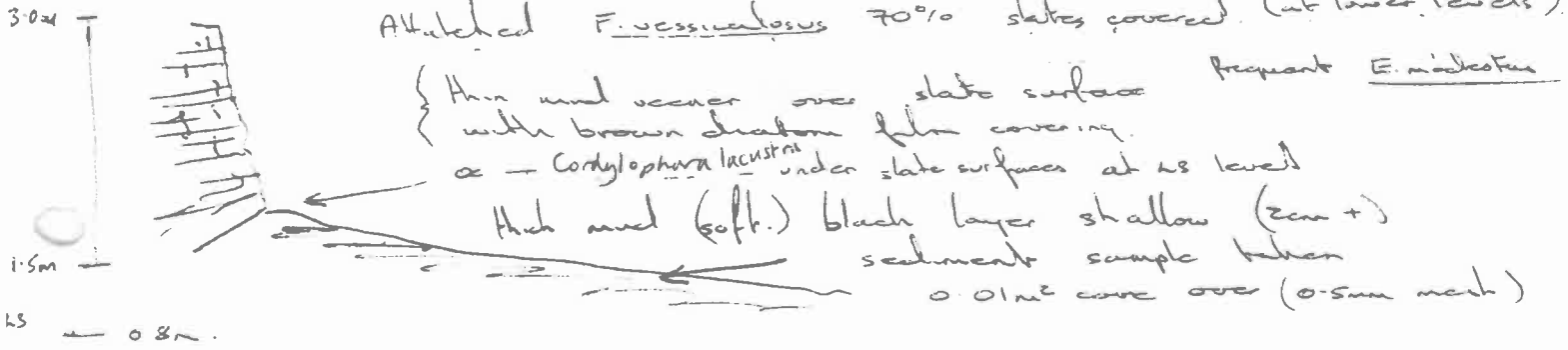
		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158						
FAUNAL TURF barnacles	159	2					
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK slate with crevices	169	2					
TERRACES	170						
LEDGES	171						
ROCK WALLS slates	172	3					
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (BUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192		3				
SMOOTH	193		3				
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201	2					
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 24

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 24

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

H1. Broken slate wall 1.5 - 3.0m above c.o with
alt F. vesiculosus 60 - 70% cover
under slate surfaces E. modesustus
S balanus balanoides,
surface diatom film on thin mud veneer covering slates
ly numbers of ? Sycotne under slate surfaces (LMS)

H2. below 1.5m. Muddy sediment soft deep sink
shallow black layer (2cm +)
(Seal sample taken 0.01m² core over 0.5mm mesh)

INTERTIDAL RECORDING SHEET

This check list is based on the format [illegible] categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC [illegible] and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The [illegible] in these sheets are covered by similar headings except that the type of [illegible] present and its [illegible] on outline for each habitat and is to be described in the blank [illegible] end of the [illegible] which would normally be included in the description of a [illegible] including [illegible] and annual rainfall are not [illegible] included on the [illegible] numbers for each category [illegible] on the sublittoral habitat record sheet.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS – PLANTS

(Not including species sampled from sediments)

SITE NAME: S OF PENTILLIE QUAY (W) GRID REFERENCE: SX 412 644

DATE: 27/04/86 NAME OF RECORDER: MDH

KEY TO HABITAT COLUMNS:

1. SLATE SLAB SEA WALL · MS +3.0m above CD
2. " " " " LMS +1.5m "
3.
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.						
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.						
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa						
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum						
Ceramium shuttleworthianum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dumontia incrassata						
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum						
Gigartina acicularis						
Gigartina stellata						
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						
Hildenbrandia sp.						
Hypoglossum woodwardii						
Laurencia hybrida						
Laurencia pinnatifida						
Lomentaria articulata						
Lomentaria clavellosa						
Membranoptera alata						
Mesophyllum lichenoides						
Palmaria palmata						
Plumaria elegans						
Polyides rotundus						
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa						
Polysiphonia nigrescens						
Polysiphonia urceolata						
Polysiphonia sp.						
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)						
Rhodophyta indet. (pink)						
Scytosiphon lomentaria						
Porphyra sp.						
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
PHAEOPHYTA						
Ascophyllum nodosum						
Bifurcaria bifurcata						
Cladostephus spongiosus						
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.	O	O				

	1	2	3	4	5	6
Fucus serratus		T				
Fucus spiralis						
Fucus vesiculosus	A	A				
Halidrys siliquosa						
Halopteris scoparia						
Himanthalia elongata						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochrolenca						
Laminaria saccharina						
Laminaria sp. (sporlings)						
Pelvetia canaliculata						
Phaeophyta indet. (filam.)						
Pilayella littoralis						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Chlorophyta indet. (filam.)						
Cladophora pellucida						
Cladophora sp.						
Cladostephus spongiosus						
Codium fragile tomentosoides						
Codium tomentosum						
Enteromorpha sp. (p)						
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera noltii						
Zostera augustifolia						
Zostera marina						
LICHENS						
Calloplaca marina						
Calloplaca thallincola						
Grey lichens						
Lecanora atra						
Lichina confinis						
Lichina pygmaea						
Ochrolechia parella						
Verrucaria maura						
Verrucaria mucosa						
Xanthoria parietina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: S OF PENTILLIE QUAY (LT) GRID REFERENCE: SX 412644

DATE: 27/04/86 NAME OF RECORDER: MDH.

KEY TO HABITAT COLUMNS:

1. SLATE SLAB WAL MS 3.0m above CD
2. SLATE SLAB WALL. MS 1.5m above CD
3.
4.
5.
6.

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
Scypha compressa						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Ophlitaspongia seriata						
COELENTERATA:HYDROZOA						
Cava squamata						
Dynamena pumila						
Laomedea flexuosa						
Tubularia larynx						
Cordylophora lacustris		F				
COELENTERATA:ACTINIAE						
Actinia equina						
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina						
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Cirratulus cirratus						
Eulalia viridis						

	1	2	3	4	5	6
Lanice conchilega						
Pomatoceros sp. (p)						
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids						
Spirorbinidae - on rock						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus						
Chthamalus montagui						
Chthamalus stellatus						
Elminius modestus	F	A				
Semibalanus balanoides						
Verruca stroemia						
CRUSTACEA:ISOPODA						
Idotea sp. (p)						
CRUSTACEA:AMPHIPODA						
Amphipoda indet.						
Gammarus sp.						
Hyale nilsoni						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						

	1	2	3	4	5	6
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
INSECTA						
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria						
Gibbula umbilicalis						
Hydrobia ulvae						
Littorina 'saxatilis' (crowded)		0				
Littorina littorea						
Littorina mariae						
Littorina neglecta						
Littorina neritoides						
Littorina obtusata						
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata						
Nucella lapillus						
Patella aspera						
Patella depressa						
Patella vulgata						
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Bowerbankia imbricata						
Cerastoderma edule						
Hiatella arctica						
Mytilus edulis						
Ostrea edulis						
BRYOZOA						
Alcyonidium gelatinosum						
Alcyonidium hirsutum						
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida						
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						

	1	2	3	4	5	6
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botryllus schlosseri						
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86

RECORD NO.:

SITE NAME: Neil Point West Shore SITE NO.: 25

SURVEY AREA: SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

5 X 4 3 6 6 1 3 TO

RECORDER: J.J. Moore DATE: 2 1 D 0 4 M 8 6 Y

SITUATION (TICK ONE ONLY)	
OPEN SEA (1 km offshore)	1
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5 ✓
INTERTIDAL EXTENT (m)	6

COASTAL TYPE (TICK)	
HEADLAND	7
'LINEAR COAST'	8
LARGE BAY (2 km)	9
SMALL BAY	10
SPIT/BAR	11
OFFSHORE SMALL ISLAND	12
AMONGST ROCKS/ISLETS	13
SOUND/NARROWS	14
SHALLOW RAPIDS	15
SEA LOCH	16
ESTUARY/MARINE INLET	17 ✓
LINEAR BEACH	18
POCKET BEACH	19 ✓
SALTMARSH	20
COASTAL LAGOON	21
HARBOUR	22
SEA CAVE	23
WRECK	24
OTHER (tick and note below)	25

ASPECT (TICK)	
NORTH	26
NORTHEAST	27
EAST	28 ✓
SOUTHEAST	29
SOUTH	30
SOUTHWEST	31
WEST	32
NORTHWEST	33

COASTAL HEIGHT (TICK)	
LOW	34
MODERATE	35 ✓
HIGH	36
MIXED HEIGHTS	37

COASTAL BACKING (TICK)	
SAND DUNES	38
LOW CLIFF	39
MODERATE CLIFF	40 ✓
HIGH CLIFF	41
SALTMARSH	42
MACHAIR	43
DUNE/MACHAIR	44
SEA WALL	45
SHINGLE RIDGE	46
GRASSLAND	47
OTHER (tick and note below)	48

OFFSHORE FEATURES (TICK)	
ISLANDS	49
REEFS	50
BREAKWATER	51
SANDBANKS	52
SHOAL	53

WAVE EXPOSURE (TICK)	
VERY EXPOSED (prevailing wind and swell)	54
EXPOSED (prevailing wind)	55
SEMI-EXPOSED (strong wind frequent)	56
SHELTERED (strong wind rare)	57
VERY SHELTERED (fetch 20 km)	58
EXTREMELY SHELTERED (fetch 3 km)	59 ✓

MAX. TIDAL STREAM STRENGTH (TICK)	
VERY STRONG (6 k+)	60
STRONG (3-6 k)	61
MOD. STRONG (1-3 k)	62 ✓
WEAK (1 k)	63
VERY WEAK (negligible)	64

SALINITY REGIME (TICK)	
NORMAL (around 34°/oo)	65
VARIABLE (30°/oo+)	66 ✓
LOW (30°/oo)	67
FRESHWATER STREAM	68
SALINITY MEASURED	69
NOT KNOWN	70

ROCK TYPE (TICK)	
IGNEOUS	71
LIMESTONES	72
HARD SEDIMENTARIES	73
SOFT SEDIMENTARIES	74
METAMORPHICS	75
FRIABLE SLATE/SHALES	76 ✓
NOT KNOWN	77
OTHER (tick and note below)	78

SITE INFORMATION (TICK)	
HABITAT VARIETY	79
SPECIES ABUNDANT	80
SPECIES ABSENT	81
SPECIES AT OR NEAR LIMIT	82
SPECIES RICHNESS (gd, av, poor)	83
PREVIOUS STUDY AREA	84
ORNITH. INTEREST (type?)	85
SEAL HAUL OUT/ BREEDING AREA	86
POLLUTED (type?)	87
VERY CLEAN	88
FRAGILE	89
THREATENED	90
MNR,NNR,LNR, SSSI NEARBY	91
SEWAGE/INDUSTRIAL OUTFALL NEAR	92
OTHER SOURCES OF DISTURBANCE (tick and note below)	93

SHORE USAGE (TICK)	
FIELD STUDY	94
RECREATION	95
BEACH FISHING	96
BAIT DIGGING	97
SHELLFISH COLLECTION	98
AQUACULTURE	99
MOORING	100
WATERSPORT	101
OTHER (tick and note below)	102

AMENITY (TICK)	
ATTRACTIVE BEACH	103
LOCAL RESORT	104
POPULAR	105
PUBLIC FACILITIES	106

OTHER DATA RECORDED	
PHOTOGRAPHS: B-A	107 ✓
C-U	108
WATER ANALYSIS	109
SEDIMENT ANALYSIS	110
SPECIMENS COLLECTED	111 ✓
ALGAL CHECKLIST	112
ANIMAL CHECKLIST	113
OTHER	114

INTERTIDAL HABITAT RECORD

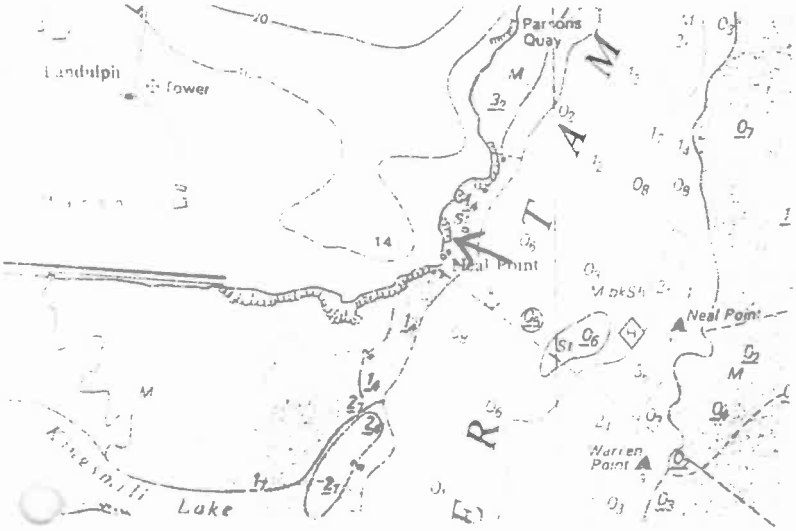
SITE NAME Neil Point West Shore SITE NO. 25

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118	.					
LOWER MIDSHORE	119	✓					
LOWER SHORE	120	✓					
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143	3					
BLACK LAYER (note depth)	144	<1cm					
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
Leaf detritus		1					
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
COLLINS RED ALGAE	155						
COLLINS GREEN ALGAE	156						
ALGAE	157						

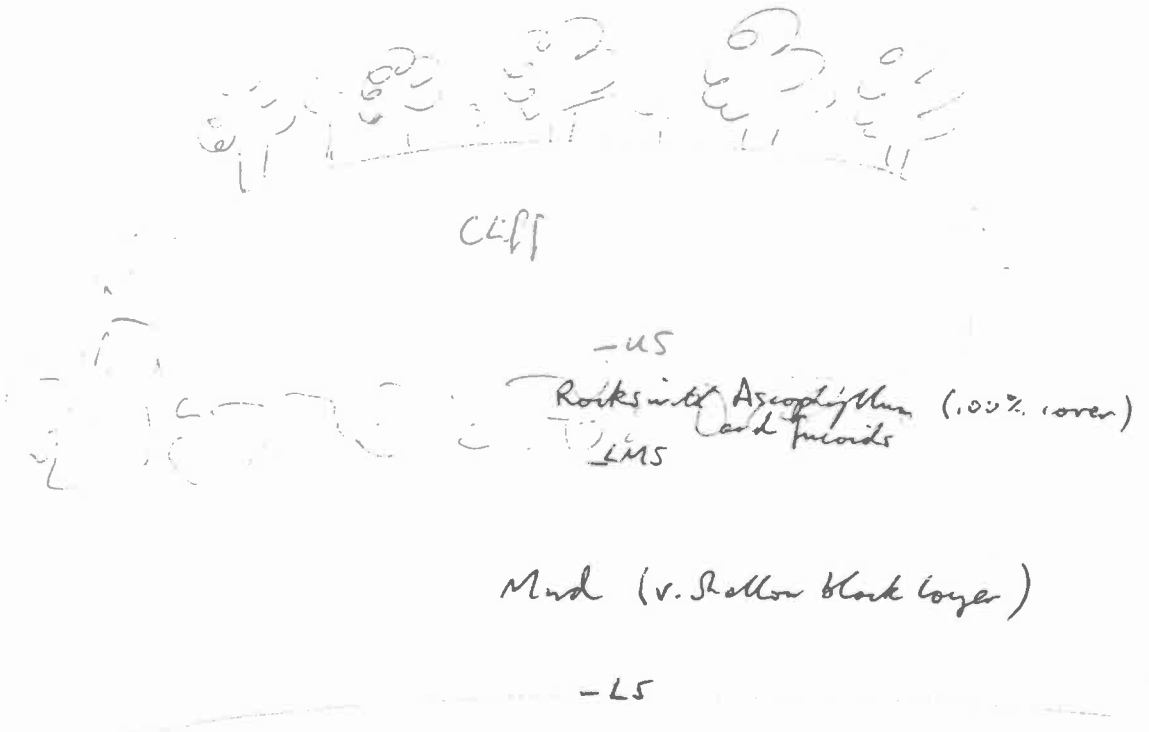
		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165	✓					
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192	3					
SMOOTH	193	2					
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
OTHER	204						

SITE NO.: 25

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 25

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Station 1 - LS to LMS Mudflat - Deep mud, black layer <1cm below surface (dense black anoxic) Hard bottom at c.12cm depth.
Sample taken at +1.0m - 0.01m² / 0.5mm sieve

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed [illegible] and replaces the NCC pebble and rock shore recording sheets developed by the MBA/NHA Intertidal Survey Unit and used in 1985. The detailed descriptions [illegible] are designed for similar habitats except that the emphasis is on the variety present and the [illegible] for each habitat or biotope described [illegible] habitat at the [illegible] [illegible] [illegible]

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: N SHORE BELOW TAMAR BRIDGE SITE NO.: 26

SURVEY AREA: PLYMOUTH SOUND. SEA AREA:

OS GRID REF.:	E - W	N - S	E - W	N - S
	SX	433	589 TO	

RECORDER: M. Hannan / K. Hiscock DATE: 27 D 04 M 86 Y

SITUATION (TICK ONE ONLY)		
OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓?
INTERTIDAL EXTENT (m)	6	5 5m

COASTAL TYPE (TICK)		
HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)		
NORTH	26	
NORTHEAST	27	
EAST	28	✓
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)		
HIGH	34	
MODERATE	35	✓
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)		
SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
DUNE/MACHAIR	44	
SEA WALL	45	✓
SHINGLE RIDGE	46	
GRASSLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)		NA
ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)		
VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)		
NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	
LOW (30°/oo)	67	✓
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)		
IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	✓
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)		
HABITAT VARIETY	79	
SPECIES ABUNDANT	80	
SPECIES ABSENT	81	
SPECIES AT OR NEAR LIMIT	82	
SPECIES RICHNESS (gd, av, poor)	83	
PREVIOUS STUDY AREA	84	
ORNITH. INTEREST (type?)	85	
SEAL HAUL OUT/ BREEDING AREA	86	
POLLUTED (type?)	87	
VERY CLEAN	88	
FRAGILE	89	
THREATENED	90	
MNR,NNR,LNR, SSSI NEARBY	91	
SEWAGE/INDUSTRIAL OUTFALL NEAR	92	
OTHER SOURCES OF DISTURBANCE (tick and note below)	93	
sewage outfall nearby		

SHORE USAGE (TICK)		
FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	✓
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	✓
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)	
ATTRACTIVE BEACH	103
LOCAL RESORT	104
POPULAR	105
PUBLIC FACILITIES	106

OTHER DATA RECORDED		
PHOTOGRAPHS: W-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	✓
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

SITE NAME

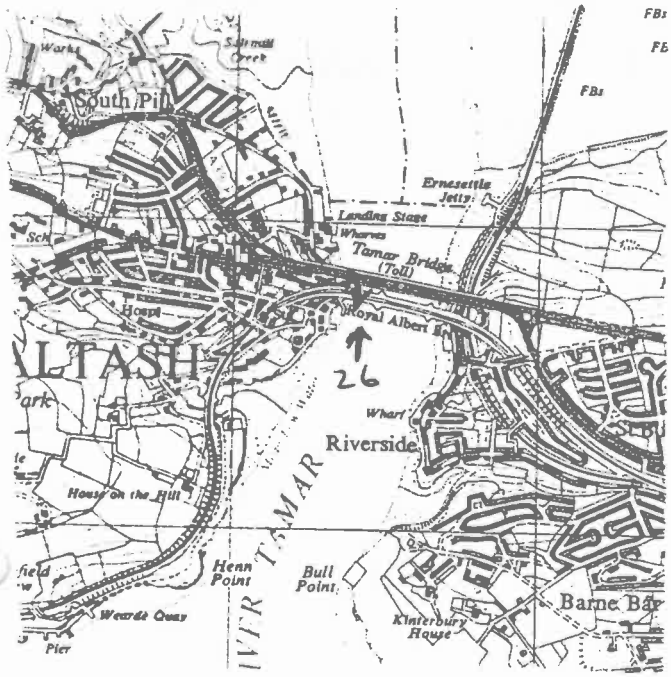
SITE NO. 25

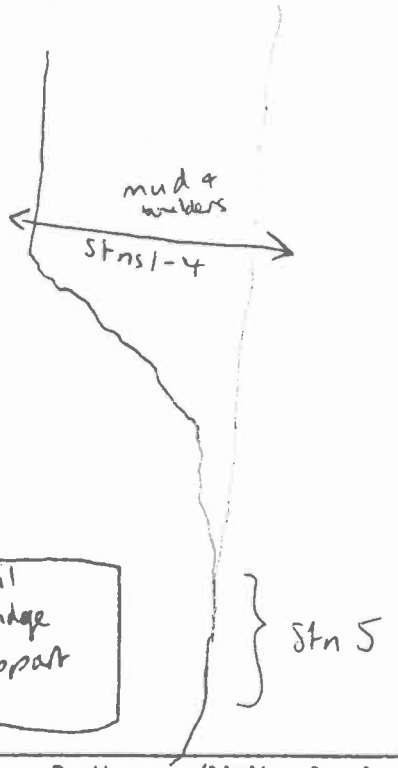
		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117	✓					
MIDSHORE	118	✓					
LOWER MIDSHORE	119	✓	✓		✓		
LOWER SHORE	120		✓	✓	✓	✓	
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122					3	
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124		3	3		1	
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126	3	2	2			
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129			2			
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143				3		
BLACK LAYER (note depth)	144				2cm+		
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154	3	3	2			
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						

		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158						
FAUNAL TURF (Barnacle)	159	2	2	2	.		
FAUNAL BED (Mussel)	160			2			
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK (Bedrock)	168						
BROKEN ROCK	169			3			
TERRACES	170						
LEDGES	171						
ROCK WALLS	172	3					
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181		3	3			
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187	2	2	2			
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192				3		
SMOOTH	193				3		
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197				1		
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201	2			2		
GREEN ALGAE	202	1					
UNATTACHED ALGAE	203						
FAUNAL BED	204						

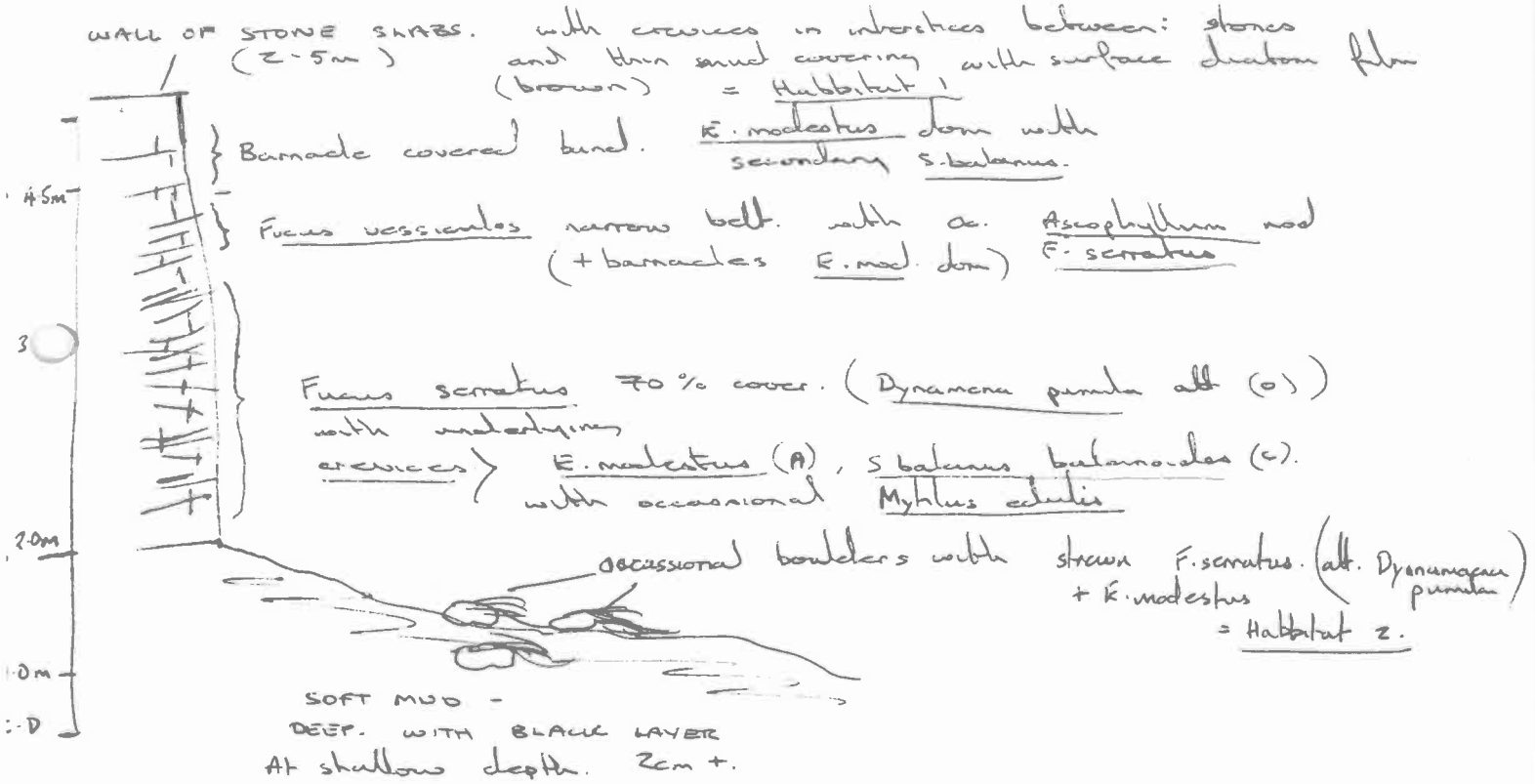
SITE NO.: 25

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



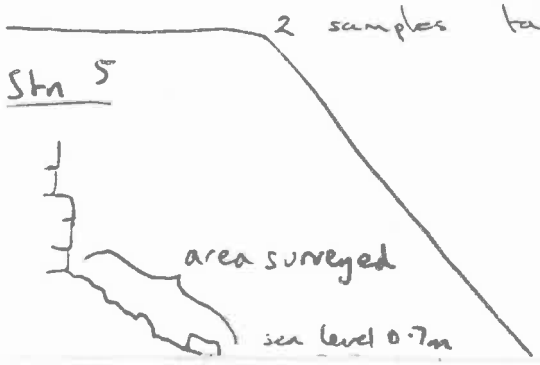


SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



2 samples taken LWS 2.0m 0.01m² core over 0.5mm mesh.
NS 1.0m " " " " "

- very little was macrofaunal content
some small worms



SITE NO.: 25

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

1-3 Vertical wall of stone slabs at ca + 2 to 5m. below road bridge

4. ~~Stone~~ Small boulders on mud flat at ca. 1 – 2m.

5. Lower shore rocks including bedrock and boulders at + 0.7 – 1.0m below rail bridge dominated by patchy *Mytilus edulis* and *Fucus serratus*.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in these sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. [illegible] normally be [illegible] the description of a survey area including prevailing wind, time [illegible] and annual [illegible] used on the form numbers for each category do not [illegible] on the sublittoral habitat record sheet.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: W SHORE BELOW TAMAR BRIDGE (26) GRID REFERENCE: SX 433 588

DATE: 27/04/86 NAME OF RECORDER: MD Hannan / K. Hiscock

KEY TO HABITAT COLUMNS:

1. VERTICAL WALL OF STONE SLABS at ca + 2-5m (below road bridge) } UMS 4.5m
2. " " " " " " " " " " " } MS 3.0m
3. " " " " " " " " " " " } LMS 2.0m.
4. small boulders on mudflat at ca 1-2m.
5. LOWER SHORE ROCKS INCLUDING BEDROCK AND BOULDERS AT + 0.7m - 1.0m. (below road bridge).
6.

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.						
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.					F	
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
tenella caespitosa						
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum						
Ceramium shuttleworthianum						
Ceramium sp.					O	
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dumontia incrassata						
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum						
Gigartina acicularis						
Gigartina stellata						
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						

	1	2	3	4	5	6	
Hildenbrandia sp.							
Hypoglossum woodwardii					F		
Laurencia hybrida							
Laurencia pinnatifida							
Lomentaria articulata							
Lomentaria clavellosa							
Membranoptera alata							
Mesophyllum lichenoides	:						
Palmaria palmata							
Plumaria elegans							
Polyides rotundus							
Polyneura hilliae							
Polysiphonia brodiaei							
Polysiphonia lanosa	O						
Polysiphonia nigrescens							
Polysiphonia urceolata							
Polysiphonia sp.							
Rhodophyta indet. (filam.)							
Rhodophyta indet. (dk. red)							
Rhodophyta indet. (pink)							
Scytosiphon lomentaria							
Porphyra sp.							
BACILLARIOPHYCEAE							
Bacillariophyceae indet.					A		
PHAEOPHYTA							
Ascophyllum nodosum	P	O					
Bifurcaria bifurcata							
Cladostephus spongiosus							
Chorda filum							
Colpomenia peregrina							
Cystosiera nodicaulis							
Desmarestia viridis							
Ectocarpoidea indet.		O	O	·	O		

	1	2	3	4	5	6
Fucus serratus	O	F	A	F	C	
Fucus spiralis						
Fucus vesiculosus	F	O				
Halidrys siliquosa						
Halopteris scoparia						
Himanthalia elongata						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochrolenca						
Laminaria saccharina						
Laminaria sp. (sporlings)						
Pelvetia canaliculata						
Phaeophyta indet. (filam.)						
Pilayella littoralis						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Chlorophyta indet. (filam.)						
Cladophora pellucida						
Cladophora sp.						
Cladostephus spongiosus						
Codium fragile tomentosoides						
Codium tomentosum						
Enteromorpha sp. (p)						
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera noltii						
Zostera augustifolia						
Zostera marina						
LICHENS						
Calloplaca marina						
Calloplaca thallincola						
Grey lichens						
Lecanora atra						
Lichina confinis						
Lichina pygmaea						
Ochrolechia parella						
Verrucaria maura						
Verrucaria mucosa						
Xanthoria parietina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS
(Not including species sampled from sediments)

SITE NAME: W SHORE BELOW TAMAR BRIDGE (26) GRID REFERENCE: SX 433 582

DATE: 27/04/86 NAME OF RECORDER: MOHammam / K Hiscock

KEY TO HABITAT COLUMNS:

1. VERTICAL WALL OF STONE SLABS at ca 2-5m. (below road bridge) } UMS 4 S
2. " " "

	1	2	3	4	5	6
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
INSECTA						
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria						
Gibbula umbilicalis						
Hydrobia ulvae						
Littorina 'saxatilis' (crevices)	F					
Littorina littorea						
Littorina mariae						
Littorina neglecta						
Littorina neritoides						
Littorina obtusata						
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata						
Nucella lapillus						
Patella aspera						
Patella depressa						
Patella vulgata						
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Bowerbankia imbricata						
Cerastoderma edule						
Hiatella arctica						
Mytilus edulis (in crevices of rock)		O	O		C	
Ostrea edulis						
Modiolus phaseolinus					×2	
BRYOZOA						
Alcyonidium gelatinosum						
Alcyonidium hirsutum						
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida					⊖	
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						
Barbarina imbricata					F	

	1	2	3	4	5	6
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botryllus schlosseri						
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
Botryllodes leachii					O	
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: Wear Point SITE NO.: 27

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 438 618 TO

RECORDER: K Hiscock, C. Crook DATE: 27 D 04 M 86 Y

SITUATION (TICK ONE ONLY)	
OPEN SEA (1 km offshore)	1
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4 ✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5 ✓
INTERTIDAL EXTENT (m)	6

COASTAL TYPE (TICK)	
HEADLAND	7
'LINEAR COAST'	8
LARGE BAY (2 km)	9
SMALL BAY	10
SPIT/BAR	11
OFFSHORE SMALL ISLAND	12
AMONGST ROCKS/ISLETS	13
SOUND/NARROWS	14
SHALLOW RAPIDS	15
SEA LOCH	16
ESTUARY/MARINE INLET	17 ✓
LINEAR BEACH	18
POCKET BEACH	19
SALTMARSH	20
COASTAL LAGOON	21
HARBOUR	22
SEA CAVE	23
WRECK	24
OTHER (tick and note below)	25

ASPECT (TICK)	
NORTH	26
NORTHEAST	27
EAST	28 ✓
SOUTHEAST	29
SOUTH	30
SOUTHWEST	31
WEST	32
NORTHWEST	33

COASTAL HEIGHT (TICK)	
[illegible]	34
[illegible]	35 ✓
[illegible]	36
[illegible]	37

COASTAL BACKING (TICK)	
SAND DUNES	38
LOW CLIFF	39 ✓
MODERATE CLIFF	40
HIGH CLIFF	41
SALTMARSH	42
MACHAIR	43
DUNE/MACHAIR	44
SEA WALL	45
SHINGLE RIDGE	46
GRASSLAND	47 ✓
OTHER (tick and note below)	48

OFFSHORE FEATURES (TICK)	
ISLANDS	49
REEFS	50
BREAKWATER	51
SANDBANKS	52
SHOAL	53

WAVE EXPOSURE (TICK)	
VERY EXPOSED (prevailing wind and swell)	54
EXPOSED (prevailing wind)	55
SEMI-EXPOSED (strong wind frequent)	56
SHELTERED (strong wind rare)	57
VERY SHELTERED (fetch 20 km)	58
EXTREMELY SHELTERED (fetch 3 km)	59 ✓

MAX. TIDAL STREAM STRENGTH (TICK)	
VERY STRONG (6 k+)	60
STRONG (3-6 k)	61
MOD. STRONG (1-3 k)	62 ✓
WEAK (1 k)	63
VERY WEAK (negligible)	64

SALINITY REGIME (TICK)	
NORMAL (around 34°/oo)	65
VARIABLE (30°/oo+)	66
LOW (30°/oo)	67 ✓
FRESHWATER STREAM	68
SALINITY MEASURED	69
NOT KNOWN	70

ROCK TYPE (TICK)	
IGNEOUS	71
LIMESTONES	72
HARD SAND/GRANITE GRIT	73
SOFT SAND/MUD	74
[illegible]	75

FRIABLE SLATE/SHALES	76 ✓
NOT KNOWN	77
OTHER (tick and note below)	78

SITE INFORMATION (TICK)	
HABITAT VARIETY	79
SPECIES ABUNDANT	80
SPECIES ABSENT	81
SPECIES AT OR NEAR LIMIT	82
SPECIES RICHNESS (gd, av, poor)	83 Av
PREVIOUS STUDY AREA	84
ORNITH. INTEREST (type?)	85
SEAL HAUL OUT/ BREEDING AREA	86
POLLUTED (type?)	87
VERY CLEAN	88
FRAGILE	89
THREATENED	90
NNR,NNR,LNR, SSSI NEARBY	91
SEWAGE/INDUSTRIAL OUTFALL NEAR	92
OTHER SOURCES OF DISTURBANCE (tick and note below)	93

SHORE USAGE (TICK)	
FIELD STUDY	94
RECREATION	95
BEACH FISHING	96
BAIT DIGGING	97
SHELLFISH COLLECTION	98
AQUACULTURE	99
MOORING	100
WATERSPORT	101
OTHER (tick and note below)	102

AMENITY (TICK)	
ATTRACTIVE BEACH	103
LOCAL RESORT	104
POPULAR	105
PUBLIC FACILITIES	106

OTHER DATA RECORDED	
PHOTOGRAPHS: B-A	107 ✓
C-D	108
WATER ANALYSIS	109
SEDIMENT ANALYSIS	110
SPECIMENS COLLECTED	111
ALGAL QUADRATS	112 ✓
MACRO-INVERTEBRATES	113 ✓
OTHER [illegible]	114

INTERTIDAL HABITAT RECORD

SITE NAME

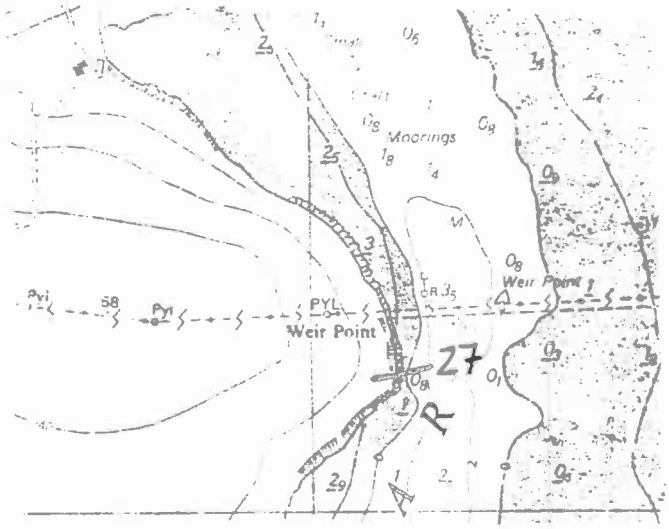
SITE NO. 27

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115	✓					
UPPER SHORE	116	✓					
UPPER MIDSHORE	117	✓					
MIDSHORE	118	✓					
LOWER MIDSHORE	119	✓					
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3					
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154	3					
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
[illegible]	[illegible]						

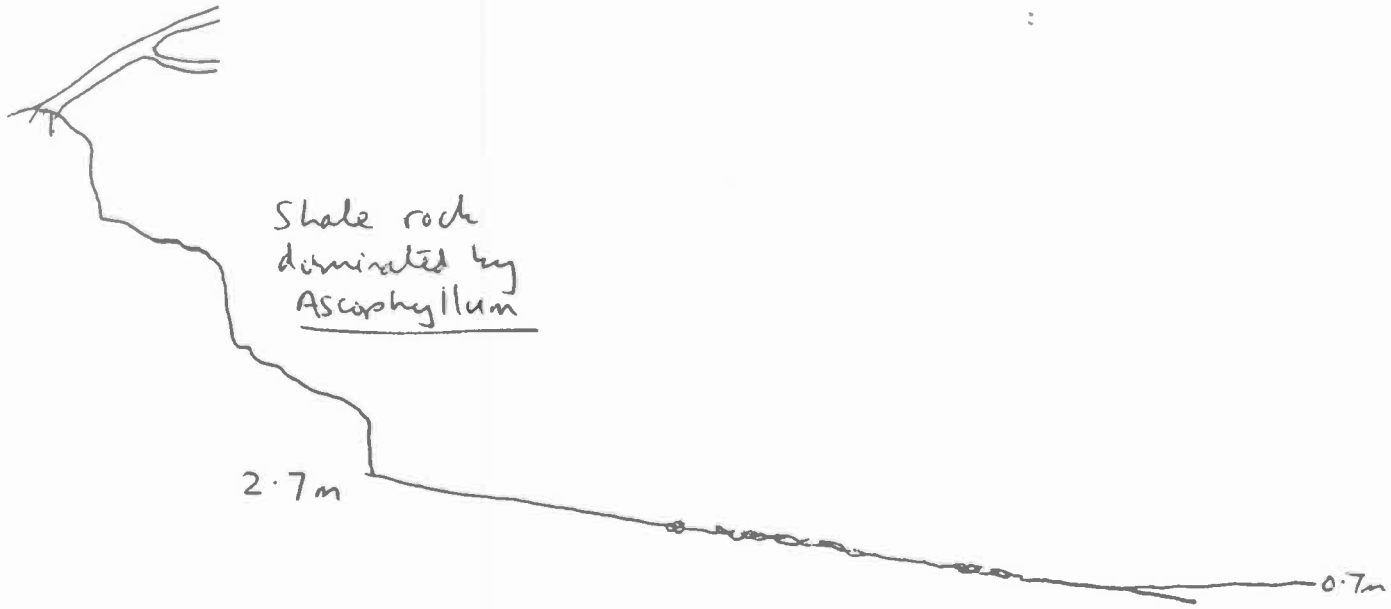
		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163	/					
STEEP (20-40°)	164	✓					
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169	3					
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192						
SMOOTH	193						
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 27

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 27

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Silty rock above mud slope at +2.7m and higher dominated by Ascophyllum.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. [illegible] the [illegible] heading except that the type of community present and [illegible] in the [illegible] [illegible] the description of a [illegible] [illegible]

27.4.86. PLYMOUTH

SHORES N. OF TAMAR BRIDGE – SPECIES

SITE 27. WIER POINT (Steeply sloping Muddy rock at +2.7m and above)

Plants

Audouinella sp. ✓
Bostrychia scorpioides (P) ✓
Catenella caespitosa (P) ✓
Polysiphonia lanosa (P) ✓
Ascophyllum nodosum (Ex) ✓
Fucus spiralis (S) ✓
Pelvetia canaliculata (A) ✓
Fucoid sporelings (F) ✓
Enteromorpha sp. (C) ✓
Angiosperms (Arrenia, grasses, saltmarsh plants) (C) – not in data base
Verrucaria maura (S) ✓
Xanthoria parietina (S) ✓

Animals

Dynamena pumila (F) ✓
Elminius modestus (A) ✓
Gammarida indet (C) ✓
Carcinus maenas (j) (O) ✓
Anurida maritima (×1) ✓
Littorina 'saxatilis' (×1) ✓
Littorina obtusata/mariae (O) ✓
Littorina littorea (×1) ✓
Mytilus edulis (×1) ✓
Arachnida indet. ~~Spider~~ (×1) ✓

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: Cargreen Quay SITE NO.: 28

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SJ x 436 626 TO

RECORDER: K Hiscock / C Hiscock DATE: 27 D 04 M 86 Y

SITUATION (TICK ONE ONLY)		
OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	
INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)		
HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)		
NORTH	26	
NORTHEAST	27	✓
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)		
HIGH	34	✓
MODERATE	35	✓
LOW	36	
BOULDER BEACH (m)	37	

COASTAL BACKING (TICK)		
SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
DUNE/MACHAIR	44	
SEA WALL	45	✓
SHINGLE RIDGE	46	
GRASSLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)		
ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)		
VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)		
NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	
LOW <30°/oo)	67	✓
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)		
IGNEOUS	71	
LIMESTONE	72	
HARD SEDIMENTARY	73	
SOFT SEDIMENTARY/MUDS	74	
FRIABLE SLATE/SHALES	75	✓
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)		
HABITAT VARIETY	79	
SPECIES ABUNDANT	80	
SPECIES ABSENT	81	
SPECIES AT OR NEAR LIMIT	82	
SPECIES RICHNESS (gd, av, poor)	83	P-M
PREVIOUS STUDY AREA	84	
ORNITH. INTEREST (type?)	85	
SEAL HAUL OUT/ BREEDING AREA	86	
POLLUTED (type?)	87	
VERY CLEAN	88	
FRAGILE	89	
THREATENED	90	
MNR,NNR,LNR, SSSI NEARBY	91	
SEWAGE/INDUSTRIAL OUTFALL NEAR	92	✓
OTHER SOURCES OF DISTURBANCE (tick and note below)	93	

SHORE USAGE (TICK)		
FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)		
ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	✓
PUBLIC FACILITIES	106	✓

OTHER DATA RECORDED		
PHOTOGRAPHS: M-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

SITE NAME

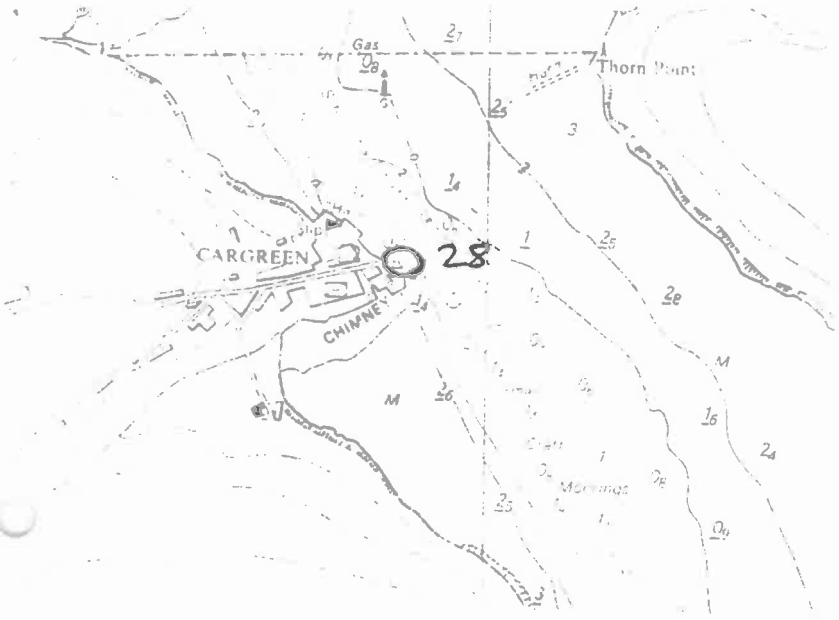
SITE NO. 28

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116	/					
UPPER MIDSHORE	117	√	/				
MIDSHORE	118		√	/			
LOWER MIDSHORE	119		√	/			
LOWER SHORE	120			√			
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3	3	3			
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124			2			
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154	3	3	3	3		
FILTOSE RED ALGAE	155						
FILTOSE GREEN ALGAE	156						
[illegible]	157						

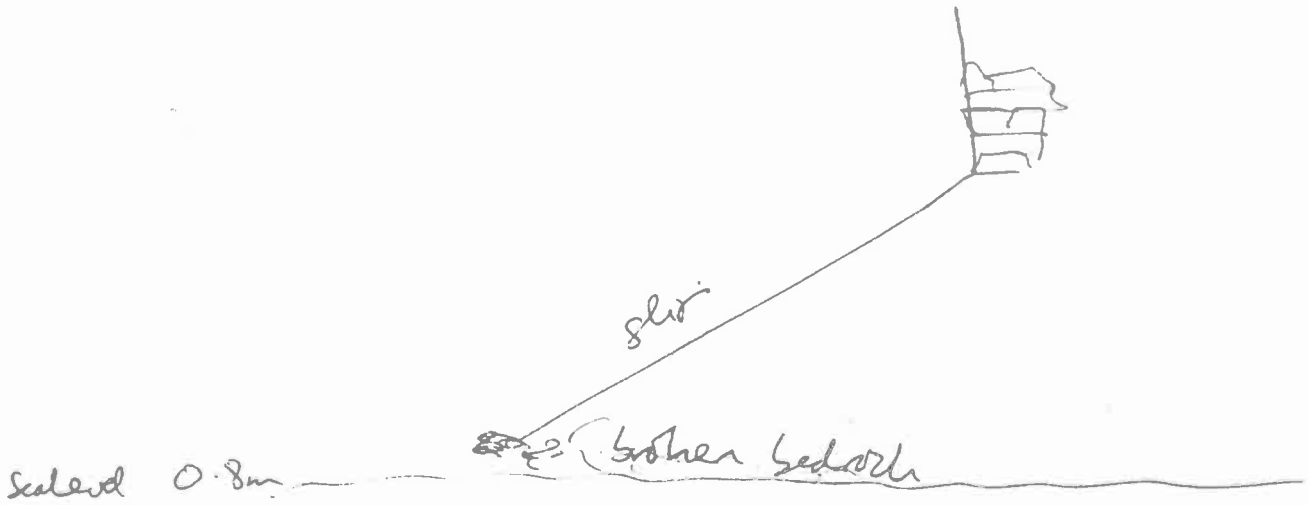
		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162	✓	✓	✓			
V. STEEP (40-80°)	163						
STEEP (20-40°)	164				✓		
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169	3	3	3	3		
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192						
SMOOTH	193						
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 28

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 28

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Broken bedrock surfaces and walls of vertical shale slabs dominated by fucoids and with abundant Elminius modestus and some Balanus ? improvisus — identified later as B. crenatus

INTERTIDAL RECORDING SHEET

This check list is based on the [illegible] categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the [illegible] [illegible] developed by the [illegible]/MBA Intertidal [illegible] Unit and used in [illegible]. [illegible] covered by similar headings except that the [illegible] community [illegible] is to be described in the [illegible]

SITE 28. CARGREEN - Broken shale rock with some boulders on the lowest shore. Rock extends from US to 0.7m 1 degree

Plants

1. Middle shore

Andouzella (F) sp.
Fucus serratus (S)
Fucus vesiculosus (F)
Fucoid spotlings (C)
Phaeophyta indet (Ero) Encrusting brown algae (O)
Verrucaria maura (C)

2. UMS/US.

Andouzella (F)
Polysiphonia lanosa
Ascophyllum nodosum (S)
Fucus vesiculosus (A)

Heather - there are four habitats here

~~DYNAMENA PUMILA~~

~~Lanosa~~

~~FLUSTRELLIDRA hispida~~

~~ALCYONIDIUM GELATINOSUM~~

Animals

3

LMS

Dynamena pumila (F)
Balanus crenatus (O)
Elminius modestus (C)
Littorina saxatilis (O)
Littorina obtusata (+1)
Mytilus edulis (O)
Gammaridae indet (F) *
Alcyonidium ? ~~polyoum~~ gelatinosum (Coll) (+1)

* Chaetogammarus marinus

~~Littorina saxatilis~~
~~Gammaridae~~
~~alcyonidae~~

4

Lower shore at c 0.8m

Balanus crenatus (O)
Elminius modestus (F)
Carcinus maenas (+1)
Mytilus edulis (O)
Flustrellidra hispida (O)
? Alcyonidium ~~polyoum~~ gelatinosum (O).

~~Fucoid spotlings~~

~~Phaeophyta~~ indet

~~L. obtusata~~.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86

RECORD NO.:

SITE NAME: Opposite South Hooe SITE NO.: 29

SURVEY AREA: Plymouth / R. Tamar SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

5 x 4 2 3 | 6 5 2 | TO | | |

RECORDER: J.J. Moore DATE: 2 7 D 0 4 M 8 6 Y

SITUATION (TICK ONE ONLY)	
OPEN SEA (1 km offshore)	1
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5 ✓
INTERTIDAL EXTENT (m)	6

COASTAL TYPE (TICK)	
HEADLAND	7
'LINEAR COAST'	8
LARGE BAY (2 km)	9
SMALL BAY	10
SPIT/BAR	11
OFFSHORE SMALL ISLAND	12
AMONGST ROCKS/ISLETS	13
SOUND/NARROWS	14
SHALLOW RAPIDS	15
SEA LOCH	16
ESTUARY/MARINE INLET	17 ✓
LINEAR BEACH	18
POCKET BEACH	19
SALTMARSH	20
COASTAL LAGOON	21
HARBOUR	22
SEA CAVE	23
WRECK	24
OTHER (tick and note below)	25

ASPECT (TICK)	
NORTH	26
NORTHEAST	27
EAST	28
SOUTHEAST	29
SOUTH	30
SOUTHWEST	31
WEST	32
NORTHWEST	33 ✓

COASTAL HEIGHT (TICK)	
HIGH	34
MODERATE	35
LOW	36 ✓
OTHER (tick and note below)	37

COASTAL BACKING (TICK)	
SAND DUNES	38
LOW CLIFF	39
MODERATE CLIFF	40
HIGH CLIFF	41
SALTMARSH	42
MACHAIR	43
DUNE/MACHAIR	44
SEA WALL	45
SHINGLE RIDGE	46
GRASSLAND	47 ✓
OTHER (tick and note below)	48

OFFSHORE FEATURES (TICK)	
ISLANDS	49
REEFS	50
BREAKWATER	51
SANDBANKS	52
SHOAL	53

WAVE EXPOSURE (TICK)	
VERY EXPOSED (prevailing wind and swell)	54
EXPOSED (prevailing wind)	55
SEMI-EXPOSED (strong wind frequent)	56
SHELTERED (strong wind rare)	57
VERY SHELTERED (fetch 20 km)	58
EXTREMELY SHELTERED (fetch 3 km)	59 ✓

MAX. TIDAL STREAM STRENGTH (TICK)	
VERY STRONG (6 k+)	60
STRONG (3-6 k)	61
MOD. STRONG (1-3 k)	62 ✓
WEAK (1 k)	63
VERY WEAK (negligible)	64

SALINITY REGIME (TICK)	
NORMAL (around 34°/oo)	65
VARIABLE (30°/oo+)	66
LOW (30°/oo)	67 ✓
FRESHWATER STREAM	68
SALINITY MEASURED	69
NOT KNOWN	70

ROCK TYPE (TICK)	
IGNEOUS	71
LIMESTONES	72
HARD SAND/MUDSTONES	73
SOFT SAND/MUDSTONES	74
HARD SLATE/SHALES	75
FRIABLE SLATE/SHALES	76 ✓
NOT KNOWN	77
OTHER (tick and note below)	78

SITE INFORMATION (TICK)	
HABITAT VARIETY	79
SPECIES ABUNDANT	80
SPECIES ABSENT	81
SPECIES AT OR NEAR LIMIT	82
SPECIES RICHNESS (gd, av, poor)	83
PREVIOUS STUDY AREA	84
ORNITH. INTEREST (type?)	85
SEAL HAUL OUT/ BREEDING AREA	86
POLLUTED (type?)	87
VERY CLEAN	88
FRAGILE	89
THREATENED	90
MNR,NNR,LNR, SSSI NEARBY	91
SEWAGE/INDUSTRIAL OUTFALL NEAR	92
OTHER SOURCES OF DISTURBANCE (tick and note below)	93

SHORE USAGE (TICK)	
FIELD STUDY	94
RECREATION	95
BEACH FISHING	96
BAIT DIGGING	97
SHELLFISH COLLECTION	98
AQUACULTURE	99
MOORING	100
WATERSPORT	101
OTHER (tick and note below)	102

AMENITY (TICK)	
ATTRACTIVE BEACH	103
LOCAL RESORT	104
POPULAR	105
PUBLIC FACILITIES	106

OTHER DATA RECORDED	
PHOTOGRAPHS: W-A	107 ✓
C-U	108
WATER ANALYSIS	109
SEDIMENT ANALYSIS	110
SPECIMENS COLLECTED	111 ✓
ALGAL CHECKLIST	112
ANIMAL CHECKLIST	113
OTHER (tick and note below)	114

INTERTIDAL HABITAT RECORD

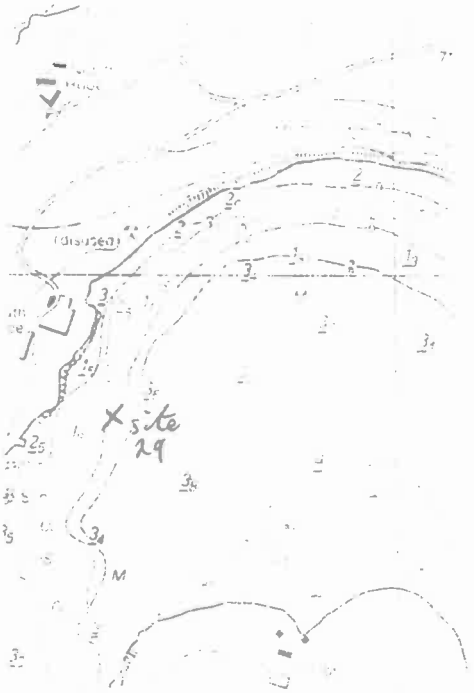
SITE NAME: Opposite South Hoe

SITE NO. 29

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118						
LOWER MIDSHORE	119	✓					
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143	3					
BLACK LAYER (note depth)	144	3-4 cm					
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
Wood/leaf detritus		2					
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165	✓					
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192	3					
SMOOTH	193	2					
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198	1					
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 29

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

SITE NO.: 29

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Smooth, soft, deep mud with blacklayer at 3-4 cm (not dense black)
Occasional dead Scrobicularia shells on surface. High leaf detrital content.
Two samples taken at +1.8m — 0.01 m² / 0.5mm sieve
— 0.1 m² / 1mm sieve
} no obvious large macrofauna

INTERTIDAL RECORDING SHEET

This check list is based on the formal and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. Features which would normally be included in the description of a survey area including prevailing wind, time of [illegible], tidal range and annual rainfall are not now included on the form. Numbers for each

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/96 RECORD NO.:

SITE NAME: South Hooe SITE NO.: 30

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

S X 421 532 TO

RECORDER: M Mccook / S Mccook DATE: 27 D 04 M 86 Y

SITUATION (TICK ONE ONLY)		
OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓
INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)		
HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)		
NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	✓
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)		
LOW	34	
MODERATE	35	✓
[illegible]	36	

COASTAL BACKING (TICK)		
SAND DUNES	38	
LOW CLIFF	39	✓
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
DUNE/MACHAIR	44	
SEA WALL	45	
SHINGLE RIDGE	46	
GRASSLAND	47	✓
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)		
ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)		
VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)		
NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	
LOW (<30°/oo)	67	✓
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)		
IGNEOUS	71	
LIMESTONES	72	
HARD SEDIMENTARY	73	
SOFT SEDIMENTARY	74	
[illegible]	75	
FRIABLE SLATE/SHALES	76	✓
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)		
HABITAT VARIETY	79	
SPECIES ABUNDANT	80	
SPECIES ABSENT	81	
SPECIES AT OR NEAR LIMIT	82	
SPECIES RICHNESS (gd, av, poor)	83	POOR
PREVIOUS STUDY AREA	84	
ORNITH. INTEREST (type?)	85	
SEAL HAUL OUT/ BREEDING AREA	86	
POLLUTED (type?)	87	
VERY CLEAN	88	
FRAGILE	89	
THREATENED	90	
MNR,NNR,LNR, SSSI NEARBY	91	
SEWAGE/INDUSTRIAL OUTFALL NEAR	92	
OTHER SOURCES OF DISTURBANCE (tick and note below)	93	

SHORE USAGE (TICK)		
FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)		
ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED		
PHOTOGRAPHS: B-A	107	✓
C-D	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and [illegible]	114	
[illegible]	115	

INTERTIDAL HABITAT RECORD

SITE NAME

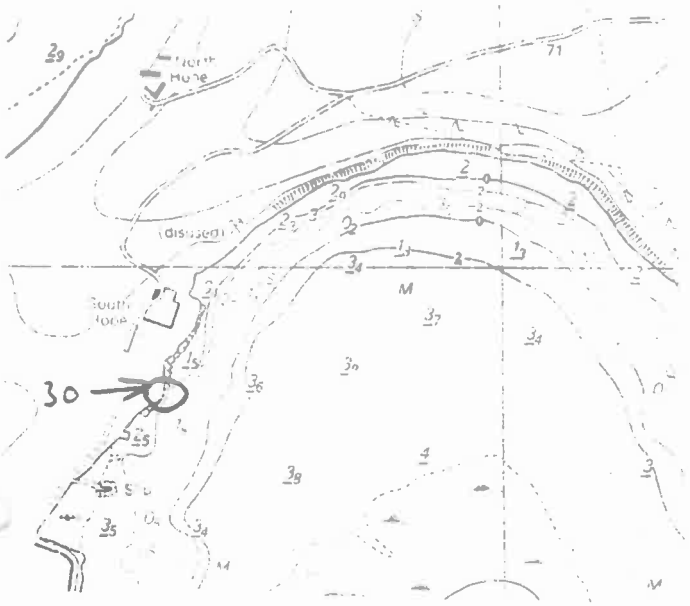
SITE NO. 30

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115	✓					
UPPER SHORE	116	✓					
UPPER MIDSHORE	117	✓					
MIDSHORE	118	✓					
LOWER MIDSHORE	119	✓					
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3					
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154	3					
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL [illegible]	157						

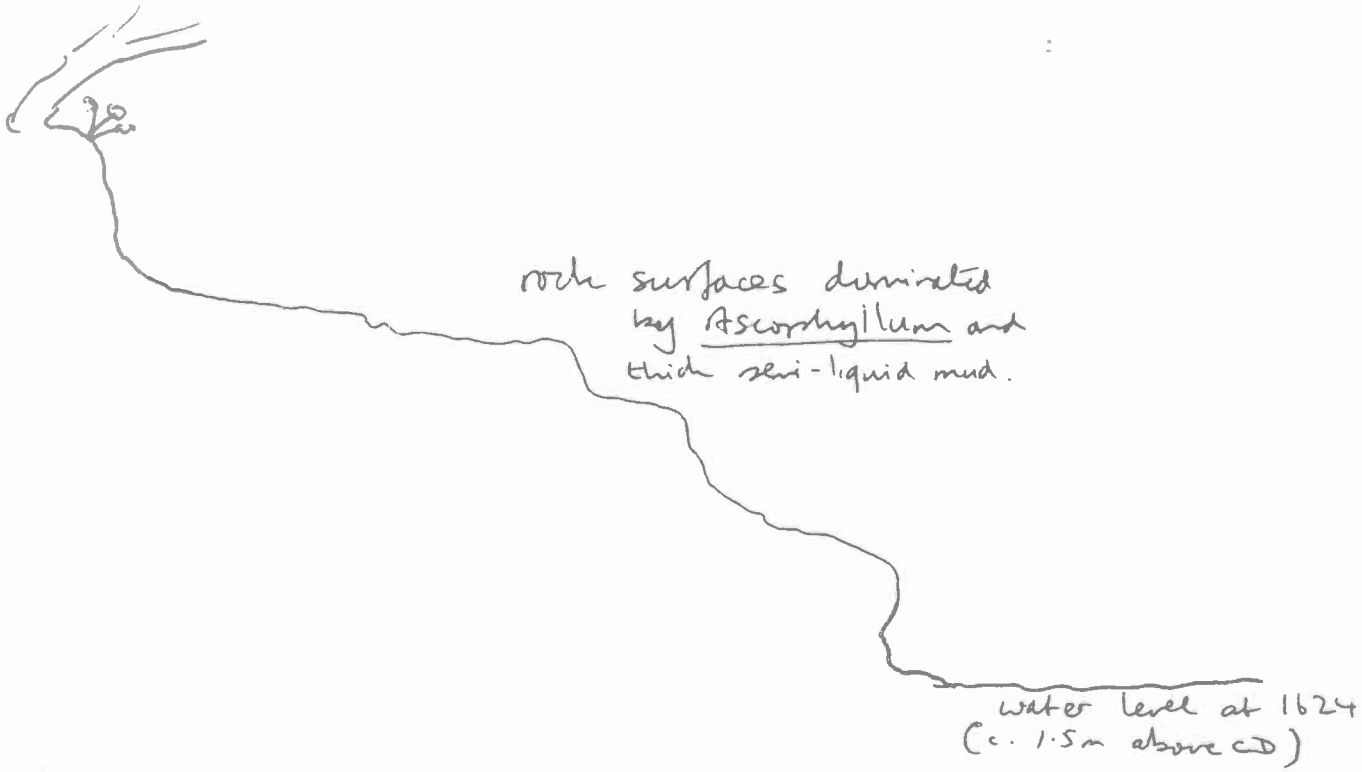
		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164	✓					
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169	3					
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192						
SMOOTH	193						
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
ANIMAL BED	204						

SITE NO.: 30

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 30

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Bother rock slope dominated by fucoids but with mud of the upward facing rock coated by semi-liquid mud. Some steeply sloping, vertical and overhanging surfaces on the lower shore mainly clear of mud. Barnacles frequent a clear rocks on overhangs abundant.

INTERTIDAL RECORDING SHEET

This check list is based on the [illegible] categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sec[illegible] for rocky shore records by [illegible] by the SMBA MBA Intertidal Survey Unit and used in 1985. The categ[illegible] in the boxes and colours by [illegible] mean you do not find the given community [illegible] and its lower [illegible] Please [illegible] [illegible] [illegible]

SITE 30 SOUTH HOLE (surveyed at 1624)

Shore to LMS

Fucus vesiculosus (S) ✓

?encrusting brown (C)

Ascophyllum nodosum (S) ✓ [Plaiosa absent]

Audouinella sp. (O) ✓

Fucoid sporelings (A) ✓

Enteromorpha (F) ✓

Fucus spiralis (S) ✓

Pelvetia (A) ✓

Bostrychia (F) ✓

Verrucaria maura (C) ✓

Caloplaca marina (F) ✓

Balanus crenatus (F) ✓

Elminius modestus (C) ✓

(C)

Hyale nilssoni (coll) ✓ (F on US)

* Chaetogammarus marinus ✓

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: N of Tinsel SITE NO.: 31

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 421 643 TO

RECORDER: K Hiscock / S. Hiscock DATE: 27 D 04 M 86 Y

SITUATION (TICK ONE ONLY)	
OPEN SEA (1 km offshore)	1
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4 ✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5
INTERTIDAL EXTENT (m)	6

COASTAL TYPE (TICK)	
HEADLAND	7
'LINEAR COAST'	8
LARGE BAY (2 km)	9
SMALL BAY	10
SPIT/BAR	11
OFFSHORE SMALL ISLAND	12
AMONGST ROCKS/ISLETS	13
SOUND/NARROWS	14
SHALLOW RAPIDS	15
SEA LOCH	16
ESTUARY/MARINE INLET	17 ✓
LINEAR BEACH	18
POCKET BEACH	19
SALTMARSH	20
COASTAL LAGOON	21
HARBOUR	22
SEA CAVE	23
WRECK	24
OTHER (tick and note below)	25

ASPECT (TICK)	
NORTH	26
NORTHEAST	27
EAST	28
SOUTHEAST	29
SOUTH	30
SOUTHWEST	31
WEST	32
NORTHWEST	33 ✓

COASTAL HEIGHT (TICK)	
[illegible]	34
CLIFF/CRAG	35 ✓
[illegible]	36
OTHER (tick and [illegible]	

COASTAL BACKING (TICK)	
SAND DUNES	38
LOW CLIFF	39 ✓
MODERATE CLIFF	40
HIGH CLIFF	41
SALTMARSH	42
MACHAIR	43
DUNE/MACHAIR	44
SEA WALL	45
SHINGLE RIDGE	46
GRASSLAND	47
OTHER (tick and note below)	48

OFFSHORE FEATURES (TICK)	
ISLANDS	49
REEFS	50
BREAKWATER	51
SANDBANKS	52
SHOAL	53

WAVE EXPOSURE (TICK)	
VERY EXPOSED (prevailing wind and swell)	54
EXPOSED (prevailing wind)	55
SEMI-EXPOSED (strong wind frequent)	56
SHELTERED (strong wind rare)	57
VERY SHELTERED (fetch 20 km)	58
EXTREMELY SHELTERED (fetch 3 km)	59 ✓

MAX. TIDAL STREAM STRENGTH (TICK)	
VERY STRONG (6 k+)	60
STRONG (3-6 k)	61
MOD. STRONG (1-3 k)	62 ✓
WEAK (1 k)	63
VERY WEAK (negligible)	64

SALINITY REGIME (TICK)	
NORMAL (around 34°/oo)	65
VARIABLE (30°/oo+)	66
LOW (<30°/oo)	67 ✓
FRESHWATER STREAM	68
SALINITY MEASURED	69
NOT KNOWN	70

ROCK TYPE (TICK)	
IGNEOUS	71
LIMESTONE	72
HARD [illegible]	73
SOFT SA[illegible]	74

FRIABLE SLATE/SHALES	76 ✓
NOT KNOWN	77
OTHER (tick and note below)	78

SITE INFORMATION (TICK)	
HABITAT VARIETY	79
SPECIES ABUNDANT	80
SPECIES ABSENT	81
SPECIES AT OR NEAR LIMIT	82
SPECIES RICHNESS (gd, av, poor)	83 AW
PREVIOUS STUDY AREA	84
ORNITH. INTEREST (type?)	85
SEAL HAUL OUT/ BREEDING AREA	86
POLLUTED (type?)	87
VERY CLEAN	88
FRAGILE	89
THREATENED	90
MNR,NNR,LNR, SSSI NEARBY	91
SEWAGE/INDUSTRIAL OUTFALL NEAR	92
OTHER SOURCES OF DISTURBANCE (tick and note below)	93

SHORE USAGE (TICK)	
FIELD STUDY	94
RECREATION	95
BEACH FISHING	96
BAIT DIGGING	97
SHELLFISH COLLECTION	98
AQUACULTURE	99
MOORING	100
WATERSPORT	101
OTHER (tick and note below)	102

AMENITY (TICK)	
ATTRACTIVE BEACH	103
LOCAL RESORT	104
POPULAR	105
PUBLIC FACILITIES	106

OTHER DATA RECORDED		
PHOTOGRAPHS:	W-A	107 ✓
	C-U	108
WATER ANALYSIS		109
SEDIMENT ANALYSIS		110
SPECIMENS COLLECTED		111
ALGAL CHECKLIST		112 ✓
ANIMAL CHECKLIST		113 ✓
OTHER (tick and [illegible]		
[illegible]		114

INTERTIDAL HABITAT RECORD

SITE NAME

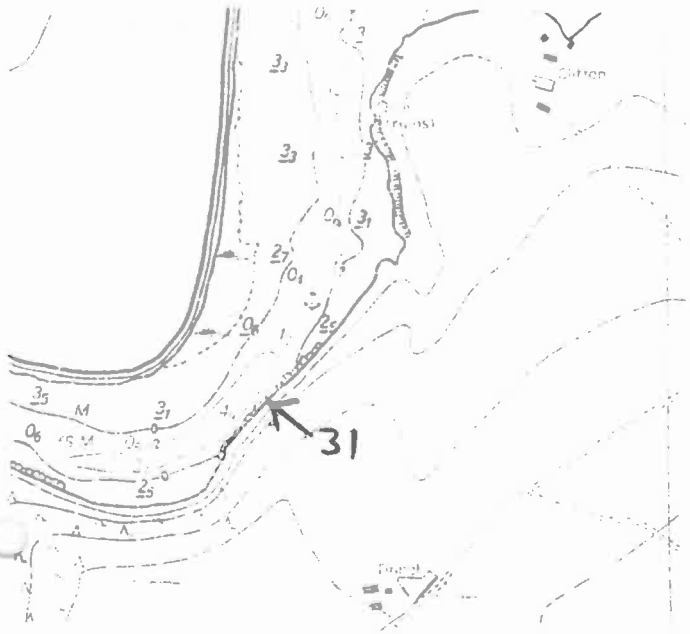
SITE NO. 31

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116	✓					
UPPER MIDSHORE	117	✓					
MIDSHORE	118	✓					
LOWER MIDSHORE	119						
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3					
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154	3					
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						

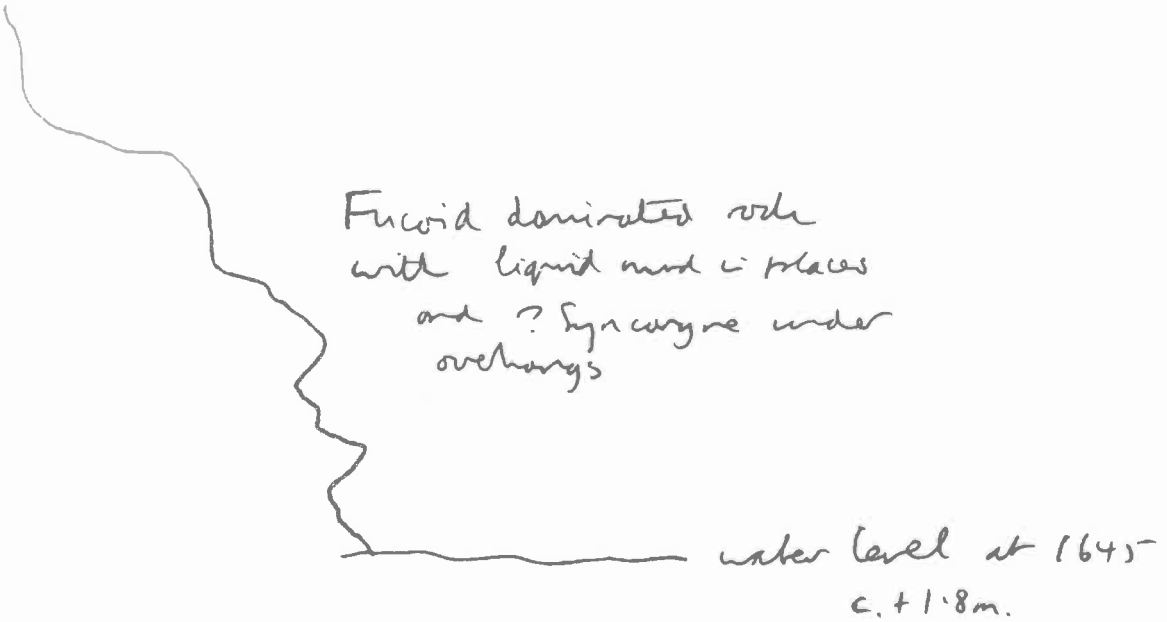
		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163	✓					
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169	3					
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below) avlwg	189	2					
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192						
SMOOTH	193						
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 31

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 31

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Broken steeply sloping rock dominated by fucoids with some *Elminius modestus* present and large amounts of an unidentified alternate hydroid (? *Syncoryne* sp.) under overhangs

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1965 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA [illegible] Unit and used in [illegible]. The [illegible] in these sheets are covered by similar headings except [illegible] the type of community present and its cover has not been defined for each habitat and is to be described [illegible] section at the [illegible] and normally be included in the description [illegible] including prevailing wind, [illegible], tidal range and [illegible] are not now included [illegible]

SITE 31 ROCKY SHORE N. OF TUNNEL — Shore to LMS

[Peluzha, F. spirale + Bostrychia absent]

F. vesiculosus (A) ✓
Ascophyllum (A) ✓
Sertiorophora — upper shore zone ✓
Audouinella ✓

~~(not thoroughly studied for animals but a hydroid — ? Symmorphosis — present — eg amounts under overhanging rocks)~~

Elminius modestus ✓
Nereis diversicolor × A ✓
Cordylophora lacustris × C under overhangs ✓

(no gammarids)

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN AREAS

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: North Hooe SITE NO.: 32

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 425 661 TO

RECORDER: K.M. Hiscock / S.M. Hiscock DATE: 27 D 04 M 86 Y

SITUATION (TICK ONE ONLY)		
OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	
INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)		
HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)		
NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	✓
NORTHWEST	33	

COASTAL HEIGHT (TICK)		
[illegible]	34	
[illegible]	35	✓
[illegible]	36	
[illegible]	[illegible]	
[illegible]	[illegible]	

COASTAL BACKING (TICK)		
SAND DUNES	38	
LOW CLIFF	39	✓
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
DUNE/MACHAIR	44	
SEA WALL	45	
SHINGLE RIDGE	46	
GRASSLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)		
ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)		
VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)		
NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	
LOW (<30°/oo)	67	✓
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)		
IGNEOUS	71	
LIMESTONE	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
[illegible]	[illegible]	

FRIABLE SLATE/SHALES	76	✓
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)		
HABITAT VARIETY	79	
SPECIES ABUNDANT	80	
SPECIES ABSENT	81	
SPECIES AT OR NEAR LIMIT	82	
SPECIES RICHNESS (gd, av, poor)	83	Poor
PREVIOUS STUDY AREA	84	
ORNITH. INTEREST (type?)	85	
SEAL HAUL OUT/ BREEDING AREA	86	
POLLUTED (type?)	87	
VERY CLEAN	88	
FRAGILE	89	
THREATENED	90	
MNR,NNR,LNR, SSSI NEARBY	91	
SEWAGE/INDUSTRIAL OUTFALL NEAR	92	
OTHER SOURCES OF DISTURBANCE (tick and note below)	93	

SHORE USAGE (TICK)		
FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)		
ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED		
PHOTOGRAPHS: A-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
FLORA CHECKLIST	112	✓
FAUNAL CHECKLIST	113	✓
[illegible]	[illegible]	
[illegible]	[illegible]	

INTERTIDAL HABITAT RECORD

SITE NAME

SITE NO. 32

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116	✓					
UPPER MIDSHORE	117	✓					
MIDSHORE	118	✓					
LOWER MIDSHORE	119						
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3					
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124	1					
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
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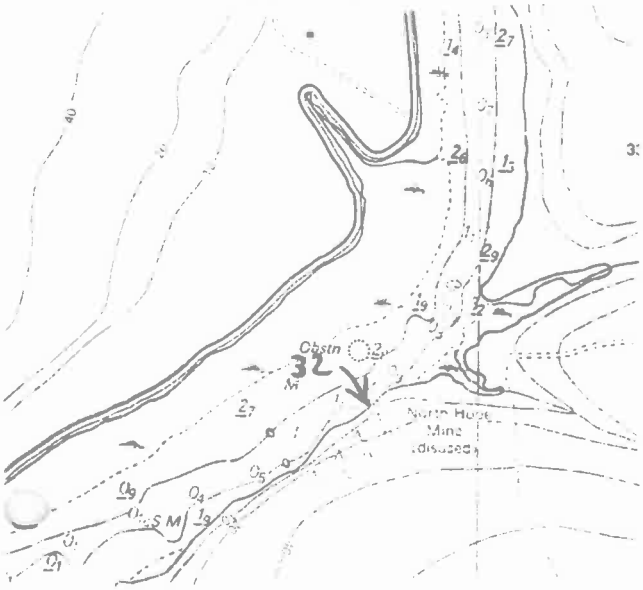
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154	3					
FOLIOSE RED ALGAE	155	1					
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						

		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164	✓					
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168	3					
BROKEN ROCK	169	3					
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192						
SMOOTH	193						
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 32

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

SITE NO.:

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Steeply sloping broken bedrock with some shale boulders. Liquid mud on some surfaces. Dominated by Fucus vesiculosus.

(sea level c. 2.4m above CD)

INTERTIDAL RECORDING SHEET

This check list is based on the [illegible] in the Subtittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment [illegible] by the SMBA/MBA Intertidal Survey Unit and used in 1985. The [illegible] similar headings except that the type of community present and its [illegible] be described in the [illegible] section at the end of the [illegible] [illegible] not now included [illegible]

SITE 32 NORTH HOOE - Broken bedrock to MS

Fucus vesiculosus
Enteromorpha - upper shore zone
Cyanophyta indet Blue greens on US rock
Bacillariophyceae indet Diatoms on mud ~~at~~ rock
&

Cordylophora lacustris
Nereis diversicolor ×A - mud
Sphaeroma sp. ×1 *
Carcinus maenas (j) ×1
(No barnacles, no winkles, no Ascophyllum, no Carmarids)

* Sphaeroma rugicauda
Oligochaeta indet.

1. Broken bedrock MS - US Fucus vesiculosus (O) ? ✓, Cordylophora lacustris (O) ✓, Sphaeroma rugicauda (R), Oligochaeta indet. (P), Carcinus maenas (j) (R) ✓

2. Broken bedrock US Enteromorpha sp. (P) ✓, Cyanophyta indet (P), ✓
~~Bacillariophyceae indet (P)~~

3. In/on mud over rock MS. Bacillariophyceae indet (P), Nereis diversicolor (A) ✓

Cotehole Quay - stunted F. vesiculosus (C)

Calstock Road - F. vesiculosus - stunted individuals at southern end US / blue greens + diatoms alg.

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.:

SITE NAME: Torpoint SITE NO.: 33

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.:	E - W	N - S		E - W	N - S
	SX 437	545	TO	SX 441	546

RECORDER: K. M. Scott / S. M. Scott DATE: 27 D 04 M 86 Y

SITUATION (TICK ONE ONLY)		
OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓
INTERTIDAL EXTENT (m)	6	150

COASTAL TYPE (TICK)		
HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)		
NORTH	26	
NORTHEAST	27	
EAST	28	✓
SOUTHEAST	29	✓
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)		
HIGH	34	
MODERATE	35	
LOW	36	✓
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)		
SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
DUNE/MACHAIR	44	
SEA WALL	45	
SHINGLE RIDGE	46	
GRASSLAND	47	
OTHER (tick and note below) 10m	48	✓

OFFSHORE FEATURES (TICK)		
ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)		
VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	✓
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)		
NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	✓
LOW (30°/oo)	67	✓
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)		
IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	✓
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)		
HABITAT VARIETY	79	
SPECIES ABUNDANT	80	
SPECIES ABSENT	81	
SPECIES AT OR NEAR LIMIT	82	
SPECIES RICHNESS (gd, av, poor)	83	av
PREVIOUS STUDY AREA	84	
ORNITH. INTEREST (type?)	85	
SEAL HAUL OUT/ BREEDING AREA	86	
POLLUTED (type?) sewage	87	✓
VERY CLEAN	88	
FRAGILE	89	
THREATENED	90	
MNR,NNR,LNR, SSSI NEARBY	91	
SEWAGE/INDUSTRIAL OUTFALL NEAR	92	✓
OTHER SOURCES OF DISTURBANCE (tick and note below) Bait digging Stone turning	93	✓

SHORE USAGE (TICK)		
FIELD STUDY	94	
RECREATION	95	✓
BEACH FISHING	96	
BAIT DIGGING	97	✓
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	✓
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)		
ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	✓
PUBLIC FACILITIES	106	✓

OTHER DATA RECORDED		
PHOTOGRAPHS: W-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

SITE NAME Torpoint SITE NO. 33

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116	✓					
UPPER MIDSHORE	117		✓				
MIDSHORE	118						
LOWER MIDSHORE	119			✓			
LOWER SHORE	120				✓	✓	
SUBLITTORAL FRINGE	121						✓
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	2	3	3		3	2
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126	2		2	2	2	2
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129	3	2	2	3	2	3
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143		2	2			
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154	2	3	3		3	
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157				2	1	2

		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165	✓	✓	✓	✓	✓	
HORIZONTAL (5°)	166						✓
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169	3	3	3			
TERRACES	170						2
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
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ROCKKMILLS	180						
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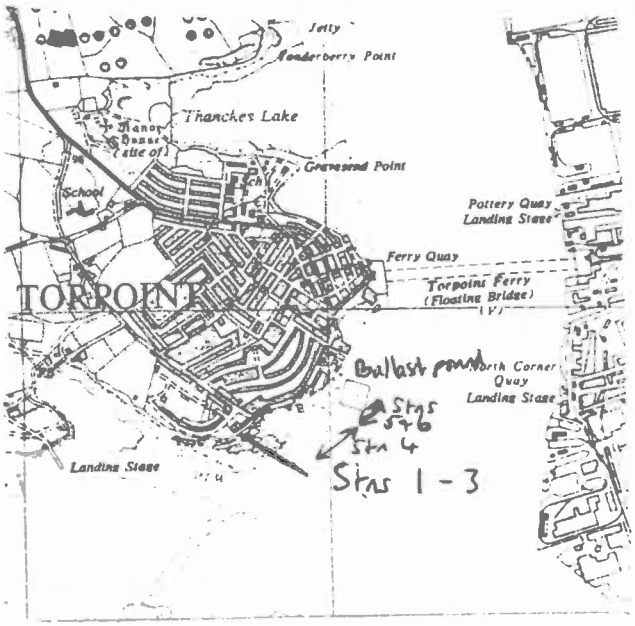
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187	2	3	3	2	1	2
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191		2	2	2		
SOFT (DEEP SINK)	192						
SMOOTH	193						
WORKED	194						
RIPPLED	195						
MOUNDS	196		2	2	2		
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 33

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



Flat-roofed store building

houses

sea wall

Largely bare shale rock with Fucus sp. and some green algae at 5.5m

strip of clayey mud

+5m

clayey sediment in shales in hummocks →

(? bait digging with rock outcrops

shale base ballast pound

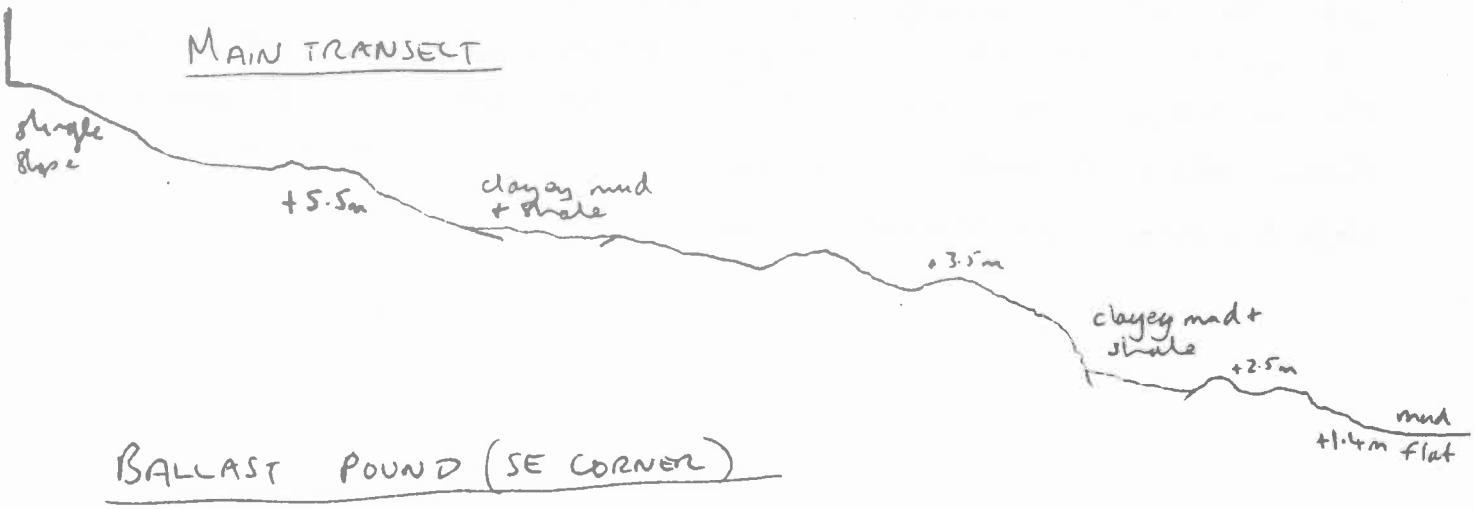
Shale rocks dominated by fucoids with clayey-shingle between

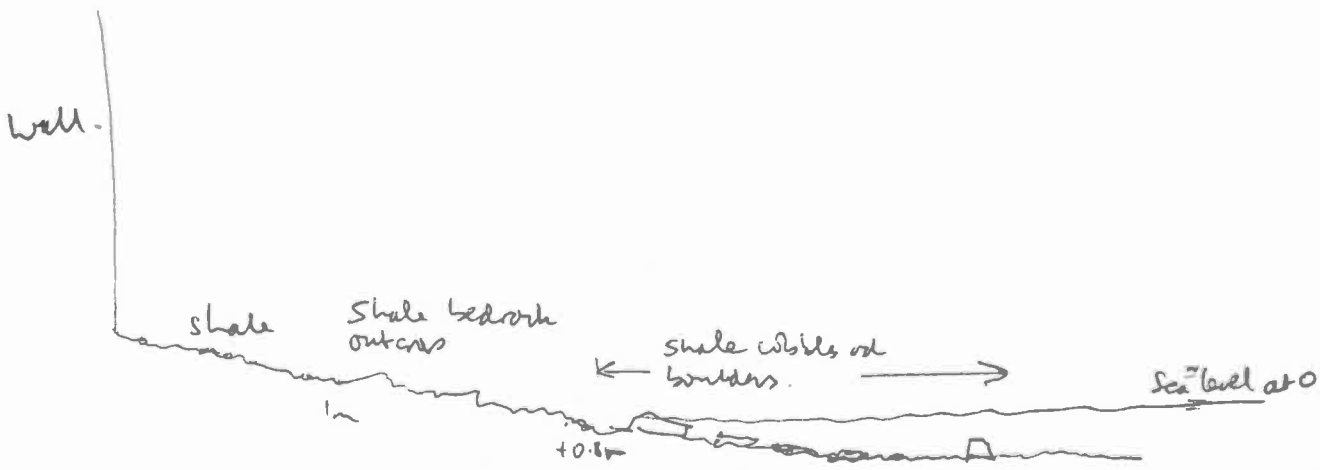
+3.5m

Predominantly clayey shingle with some rock outcrops

↓ mud flats below +1.4m.

SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).





SITE NO.: 33

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Station 1 Upper shore shale od bedrock at 5 – 5.5 m dominated by Fucus spiralis with patchy Pelvetia canaliculata and Enteromorpha sp with very few animal species present.

Station 2 Upper midshore rock ridges at 3.5 – 4 m dominated by Ascophyllum nodosum with Fucus vesiculosus, ~~at~~ Gigatina stellata and Enteromorpha sp. and with a variety of animal species present.

Station 3 Lower midshore low rock ridges at 1.5 to 2m with silty rock (but clean vertical surfaces) below dominated by Fucus serratus with abundant Gigatina stellata od a fairly wide variety of animal species.

Station 4 Lower shore shale cobbles od boulders at ca 1 m surveyed from the transect to the Ballast Pound. Algae only recorded.

Station 5 Lower shore clearish shale ridges at the south-east corner of the Ballast Pound ~~do~~ at 0.8 to 1m dominated by Fucus serratus

Station 6 Shale cobbles od boulders on the lowest shore od into the area submerged by water from 0.7 to about 0.4m with quite a rich variety of algae od animals underneath. Many of the boulders had been recently turned over od left upside-down. Rocks below sea level (at about +0.4m) were encrusted with Halichondria and Hymeniacidon

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Publitteral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in these sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. Features which would normally be included in the description [illegible] including [illegible] time [illegible] range and [illegible] Numbers for each category do not [illegible] with those of the [illegible] habitat record [illegible]

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: TORPOINT, SITE 33 GRID REFERENCE: _____

DATE: 27.4.86 NAME OF RECORDER: S. Hiscock

KEY TO HABITAT COLUMNS:

1. Upper shore bedrock + shingle/shale at +5M. Algal abundance low bedrock
2. Upper middle shore low rock ridges with mud + shale between at +3.5m.
3. Lower middle shore low rock ridges with mud between at 1.5–2M.
4. Lower shore, algae on stones at 1M; from transect site to ballast pond.
5. Lower shore below ballast pond 1m.
6. Stones + boulders at 0.4 -0.8 below ballast pond.

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						F
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.						
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.			F	F	F	S
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						C
Callophyllis laciniata						
Catenella caespitosa	F					
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum					F	R
Ceramium shuttleworthianum						
Ceramium sp.			O	F		
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dumontia incrassata			R		R	
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum		F				
Gigartina acicularis						
Gigartina stellata		C	A		O	
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						

	1	2	3	4	5	6
Hildenbrandia sp.		F				
Hypoglossum woodwardii					R	O
Laurencia hybrida						
Laurencia pinnatifida						
Lomentaria articulata						
Lomentaria clavellosa				O		F
Membranoptera alata						
Mesophyllum lichenoides	:					
Palmaria palmata					R	
Plumaria elegans						
Polyides rotundus						
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa		C				
Polysiphonia nigrescens						
Polysiphonia urceolata					O	
Polysiphonia sp.						O
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)						
Rhodophyta indet. (pink)		O			F	
Scytosiphon lomentaria						
Porphyra sp.						
Nitophyllum punctatum						R
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
Colonial diatoms					F	S
PHAEOPHYTA						
Ascophyllum nodosum		S				
Bifurcaria bifurcata						
Cladostephus spongiosus						
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.		C		O	F	

	1	2	3	4	5	6
Fucus serratus		O	Ex	F	S	
Fucus spiralis	Ex					
Fucus vesiculosus		C				
Halidrys siliquosa						
Halopteris scoparia						
Himanthalia elongata						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochrolenca						
Laminaria saccharina						
Laminaria sp. (sporlings)						
Pelvetia canaliculata	C					
Phaeophyta indet. (filam.)						
Pilayella littoralis						
Saccorhiza polyschides						
Sargassum muticum						
Fucoid sporlings	C	O	F			
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Chlorophyta indet. (filam.)						
Cladophora pellucida						
Cladophora sp.						
Cladostephus spongiosus						
Codium fragile tomentosoides						
Codium tomentosum						
Enteromorpha sp. (p)	C	C		O		
Ulva sp. (p)			R		F	F
ANGIOSPERMAE						
Zostera noltii						
Zostera augustifolia						
Zostera marina						
LICHENS						
Calloplaca marina						
Calloplaca thallincola						
Grey lichens						
Lecanora atra						
Lichina confinis						
Lichina pygmaea						
Ochrolechia parella						
Verrucaria maura	O					
Verrucaria mucosa						
Xanthoria parietina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Torpoint (33) GRID REFERENCE: SX 437 545 – 441 546

DATE: 27.4.86 NAME OF RECORDER: K. Hiscock

KEY TO HABITAT COLUMNS:

1. US bedrock and shale shingle at +5 to 5.5 m (Abundance for bedrock)
2. UMS low rock ridges with muddy shale between at +3.5 to 4 m.
3. LMS low rock ridges with mud between at +1.5 to 2 m.
4. ~~Lower Shore shingle~~ shale stones from ~~[illegible]~~ transect site to Ballast pound at +1m
5. ~~Lower~~ LS shale ridges below ballast pound at +0.8 to -1m.
6. LS shale stones and boulders at +0.4 to 0.8m below Ballast pound

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						C
Scypha ciliata						O
Scypha compressa						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						P
Halichondria panicea			×1		R	~~F~~
Hemimycale columella						
Hymeniacidon perleve (coll.)		?O	?O		F	F
Myxilla incrustans						
Ophlitaspongia seriata						
Porifera indet (slimy yellow)					O	
Myxilla sp (charreted, cream)						×1
Cliona sp.						×1
COELENTERATA:HYDROZOA						
Clava squamata					F	
Dynamena pumila		F			C	
Laomedea flexuosa						
Tubularia larynx						
COELENTERATA:ACTINIAE						
Actinia equina						
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						×1
Corynactis viridis						
Sagatia elegans						
Urticina felina						
Actiniae indet					×1	
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Cirratulus cirratus		F	O			
Eulalia viridis						

	1	2	3	4	5	6
Lanice conchilega						
Pomatoceros sp. (p)		O	F		C	F
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids			O		C	
Spirorbinidae - on rock		O	F			
Terebellidae indet.						
Polydora sp					O	F
Aphroditidae indet						×1
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus			O		O	C
Balanus improvisus						
Balanus perforatus						
Chthamalus montagui						
Chthamalus stellatus						
Elminius modestus	R	F	C		C	
Semibalanus balanoides			F			
Verruca stroemia						
CRUSTACEA:ISOPODA						
Idotea sp. (p)						
CRUSTACEA:AMPHIPODA						
Amphipoda indet.						
Gammarus sp. *		C	O		O	
Hyale nilsoni	O	P				
* Chaetogammarus marinus		●				
Apherusa jurinei		P				
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas		O	×1			R
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						

	1	2	3	4	5	6
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
INSECTA						
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata						O
Gibbula cineraria						C
Gibbula umbilicalis		x				
Hydrobia ulvae						
Littorina 'saxatilis'	O					
Littorina littorea	x	O	F			
Littorina mariae					x	
Littorina neglecta						
Littorina neritoides						
Littorina obtusata		Ae	F			
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata						
Nucella lapillus						
Patella aspera						
Patella depressa						
Patella vulgata	x		F		x	
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Bowerbankia imbricata						
Cerastoderma edule	x					
Hiatella arctica						
Mytilus edulis		x	O			
Ostrea edulis						
Heteranema squamula			O			O
BRYOZOA						
Alcyonidium gelatinosum			O		F	
Alcyonidium hirsutum						
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida					F	
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						
Bowerbankia imbricata			R			
Bryozoa indet (b.m. encr)					F	

	1	2	3	4	5	6
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						O
Botryllus schlosseri						
Ciona intestinalis						x
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						?
Styelidae indet.						
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						x

INTERTIDAL HABITAT RECORD - TRIAL VERSION 05/5.86 RECORD NO.:

SITE NAME: Cockle Bank SITE NO.: 34

SURVEY AREA: Plymouth, R. Plym SEA AREA:

OS GRID REF.: E - N

[S][X] [4][9][7][1] E [5][3][6] N [ ][ ][ ][ ] E [ ][ ][ ][ ] N

RECORDER: Jon Moore DATE: [2][2] [0][5] [8][6]

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓
INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	✓
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
PURE BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	✓
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)

CLIFF	34	
MODERATE	35	
LOW	36	✓
[illegible]	37	
[illegible]	38	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	✓
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	✓
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONE	72	
[illegible]	73	
[illegible]	74	
[illegible]	75	

FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	✓
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	✓
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	Easy

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: W-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	
ANIMAL CHECKLIST	113	
OTHER (tick and note below)	114	

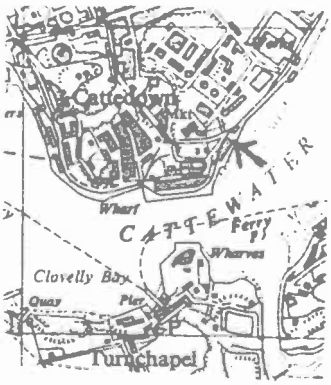
INTERTIDAL HABITAT RECORD

SITE NAME Cockle bank SITE NO. 34

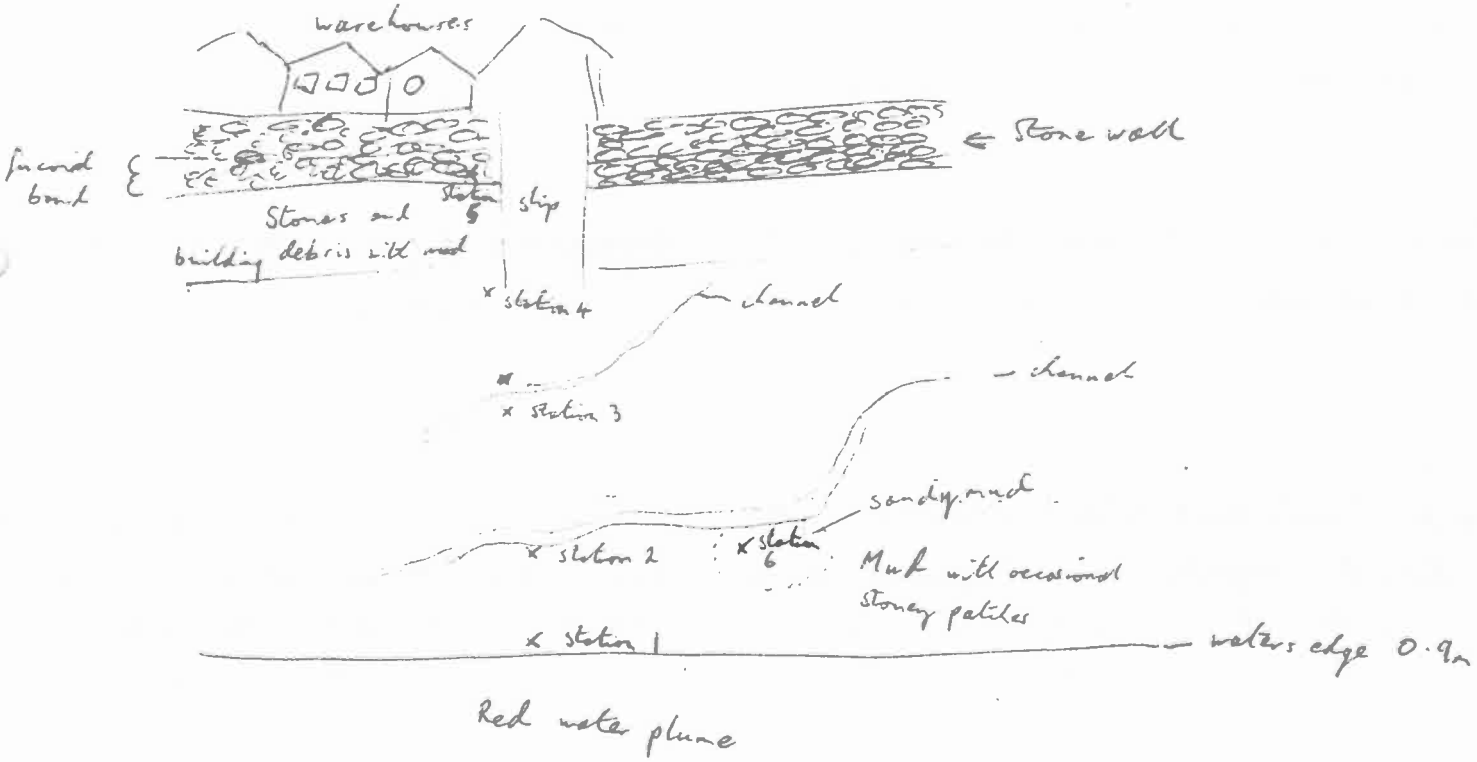
		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116					✓	
UPPER MIDSHORE	117				✓		
MIDSHORE	118			✓			
LOWER MIDSHORE	119		✓				✓
LOWER SHORE	120	✓					
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-126 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138	2	1				
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141	2	3	2	2		3
SHINGLE	142						
MUD	143	3	3	3	3		
CLAY	144						
BLACK LAYER	145	2	2	2	3		2
(note depth in cm)		<2	<2	<2	<2		<2
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148	1			1		2
OTHER (score & note type below)							
Vegetation debris	149			2			
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150				2		
CONCRETE	151				2		
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154					3	
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162					✓	
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165				✓		
HORIZONTAL (5°)	166	✓	✓	✓			✓
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171					2	
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176					3	
OVERHANG	177						
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (>1m)	183						
ROCKPOOL - SM. (<1m)	194						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191						2
SOFT (SHALLOW SINK)	192				3		
SOFT (DEEP SINK)	193	1	1	1			
SMOOTH	194	3	3	3	2		
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198				3		
SHELLS (INTACT)	199						2
OTHER (score and note type below)							
Building debris	200				3		
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202	2					2
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

SITE NO.: 34

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 34

[illegible] SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., [illegible] Name, Height on shore, and Time; and include details of samples specimens/photographs taken.)

[illegible]tion 1, Glutinous mud with some coarse granular material and sand, LS, 0.9m, 1040. [illegible]ots of visible macrofauna incl. Nepthys. Some whole shells. Blacklayer distinct and very [illegible]hallow. 0.01m² / 0.5mm and 0.1m² / 1mm samples taken.

[illegible]tion 2, Glutinous mud on surface becoming sandy at 5cm depth LMS, 1.7m. Blacklayer distinct and [illegible]2cm below surface. Brown filamentous algae and patches of diatoms on surface. One live cockle [illegible] surface. 0.01m² / 0.5mm and 0.1m² / 1mm samples taken.

[illegible]tion 3, Glutinous mud with some sand and china clay waste (pale sediment), MS, 2.8m. Blacklayer distinct and shallow. Smell of sewage in sediment. Vegetation debris present.

[illegible]tion 4, Glutinous mud with some sand. Building debris abundant, UMS, 4.5m. [illegible]urface stones with F. vesiculosus and barnacles (E. modestus & B. balanoides). One Scrobicularia pla[illegible] [illegible]reis diversicolor very abundant. Blacklayer distinct and very shallow. Abundant burrows (Nereis, [illegible]

[illegible]tion 5, Stone wall next to slipway, US. Covered in Ascoph[illegible] and F. vesiculosus. Eliminius, B. balanoides, Carcinus and Chaetogammarus.

[illegible]tion 6, Sandy bank to east of transect, LMS. Micacious sandy mud with blacklayer shallow [illegible]d distinct. Nephthys and ? spionids common. Some cockles. Concentration of small worm [illegible]bes in pools. Particles of brown fil. algae and small bits of green attached to shells. A few dead [illegible]ells on surface - Cockles, Scrobicularia and mussels. Diatoms on surface. Arenicola burrows

INTERTIDAL RECORDING SHEET

[illegible] check [illegible] is based on the format and [illegible] Sublittoral Habitat Record Sheet developed in [illegible] and replaces the [illegible] by the SMBA/[illegible] Intertidal Survey [illegible] and used in 1985. [illegible] similar [illegible] that the type of [illegible] present and its [illegible] described [illegible] of the end of the [illegible] in the description [illegible] survey area [illegible] now [illegible] on the form. [illegible] habitat record sheet.

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86 RECORD NO.:

SITE NAME: Sandbank opposite Hedges boat yard SITE NO.: 35

SURVEY AREA: Plymouth, The Laira SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 503 545 TO

RECORDER: J.J. Moore DATE: 22 D 05 M 86 Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	✓
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	✓
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	
LOW	36	✓
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	✓
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	✓
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	✓
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	Diff.

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: M-A	107	
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	
ANIMAL CHECKLIST	113	
OTHER (tick and note below)	114	

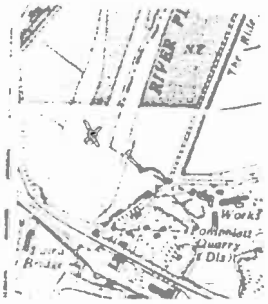
INTERTIDAL HABITAT RECORD

SITE NAME Sandbank opposite Hayden's boat yard SITE NO. 35

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118						
LOWER MIDSHORE	119	✓					
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-126 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140	3					
SANDY MUD	141						
SHINGLE	142						
MUD	143						
CLAY	144						
BLACK LAYER (note depth in cm)	145						
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148	1					
OTHER (score & note type below) China clay (white)	149	3					
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166	✓					
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177						
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (>1m)	183						
ROCKPOOL - SM. (<1m)	184						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191	2					
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193						
SMOOTH	194	2					
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198	3					
SHELLS (INTACT)	199	2					
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

SITE NO.: 35

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

SITE NO.: 35

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat name, height on shore, and Time; and include details of samples/specimens/photographs taken.)

Sandbank in middle of estuary LMS 1305 Sand with clina clay waste. Firm. Very pale. No visible black layer. Surface shells — Mya, cockles, Scrobicularia. Small spiroid tubes. Possible live Mya or other deep burrowing bivalve. Arenicola casts. Occasional live cockles. 0.01 m2 / 0.5mm sample taken. N. diversicolor occasional

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1984 for inclusion in the NCC sediment and rock shore recording sheets developed by the MBA/MBA Intertidal Survey Unit and used in 1985. The categories in these sheets are covered by similar headings except that the type of [illegible] present and its cover [illegible] each habitat and is to be [illegible] at the end of the form. [illegible] to be included in the [illegible] of a survey area [illegible] [illegible] [illegible]

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86 RECORD NO.:

SITE NAME: Sandbank near Shrecwle Sluice SITE NO.: 36

SURVEY AREA: Plymouth, Laira SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 5041 5415 TO

RECORDER: J.J. Moore DATE: D 22 · M 05 · Y 86

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	✓

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	
LOW	36	✓
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	✓
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	✓
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	✓
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	Easy

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: W-A	107	
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
FLORAL CHECKLIST	112	
ANIMAL CHECKLIST	113	
OTHER (tick and note below)	114	

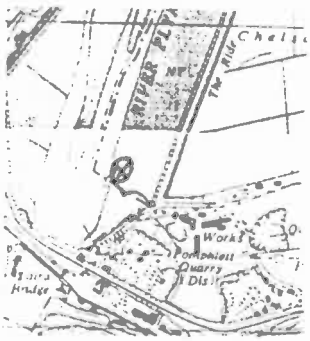
INTERTIDAL HABITAT RECORD

SITE NAME Sandbank near Blue Cycle Shop SITE NO. 36

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118						
LOWER MIDSHORE	119	✓					
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140	3					
SANDY MUD	141						
SHINGLE	142						
MUD	143						
CLAY	144						
BLACK LAYER (note depth in cm)	145						
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below) China clay	149	3					
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166	✓					
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177						
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (+1m)	183						
ROCKPOOL - SM. (¾1m)	184						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191	2					
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193						
SMOOTH	194	2					
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198	3					
SHELLS (INTACT)	199						
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

SITE NO.: 36

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

SITE NO.: 36

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on shore, and Time; and include details of samples/specimens/photographs taken.)

Sandbank near Blue Circle factory sluice LMS. Sand and china clay. v. white. firm. Lugworms, Evidence of Mya (shells) - Abundant small spionid tubes - S. plana common - Cockles rare. Occasional shallow muddy patches with numerous N. diversicolor. 0.01 m²/0.5mm sample taken.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in these sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. Features [illegible] normally be included in the description of a survey area including prevailing wind, time [illegible] are not now included on the form. [illegible] for each category [illegible] the sublittoral habitat record sheet.

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86

RECORD NO.:

SITE NAME: Point Quay SITE NO.: 37

SURVEY AREA: Plymouth, Lava SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 504 552

RECORDER: Jon Moore DATE: 22 d 05 m 86

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	✓
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	✓
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	
LOW	36	✓
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	✓
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	✓
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
METAMORPHICS	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	✓
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	Easy

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: W-A	107	
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	
ANIMAL CHECKLIST	113	
OTHER (tick and note below)	114	

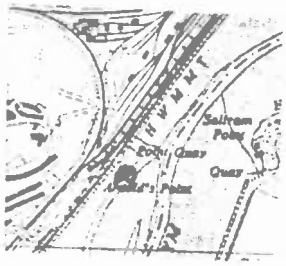
INTERTIDAL HABITAT RECORD

SITE NAME Point Quay SITE NO. 37

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118	✓					
LOWER MIDSHORE	119						
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143	3					
CLAY	144						
BLACK LAYER	145	3					
(note depth in cm)		<1					
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148	1					
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166	✓					
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177						
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (+1m)	183						
ROCKPOOL - SM. (¾1m)	184						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191						
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193	1					
SMOOTH	194	3					
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198	2					
SHELLS (INTACT)	199	1					
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

SITE NO.: 37

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

SITE NO.: 37

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on shore, and Time, and include details of samples/specimens/photographs taken.)

Glutinous mud, MS, 1330. Black layer distinct and at just under surface. Numerous burrows (*Nereis diversicolor*). Dead *S.plana* shells.
0·01m^2/0·5mm sample taken.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/IBA Intertidal Survey Unit and used in 1985. The categories in these sheets are retained by similar headings except that the type of community present and its cover has not been defined [illegible] and is to be described in the blank section at the end of the form. Features which you [illegible] used in the description of a survey area including prevailing wind, time of [illegible], [illegible] are now included on the form. Numbers in each category do not [illegible] habitat record sheet.

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86 RECORD NO.:

SITE NAME: Saltram Wood SITE NO.: 38

SURVEY AREA: Plymouth, Laira SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 5111 5517 TO

RECORDER: J.J. Moore DATE: 12 D 05 M 86 Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	
LOW	36	✓
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	✓
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	✓
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALE	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	✓
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	Diff.

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: W-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	
ANIMAL CHECKLIST	113	
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

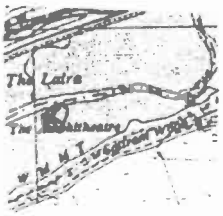
SITE NAME ~~[illegible]~~ Saltram Wood SITE NO. 38

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118	✓					
LOWER MIDSHORE	119						
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143	2					
CLAY	144	3					
BLACK LAYER	145						
(note depth in cm)							
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148	2					
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						

		STN./HABITAT 1	2	3	4	5	6
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166	✓					
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177						
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (+1m)	183						
ROCKPOOL - SM. (¾1m)	184						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191						
SOFT (SHALLOW SINK)	192	2					
SOFT (DEEP SINK)	193						
SMOOTH	194	3					
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198	3					
SHELLS (INTACT)	199	2					
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

SITE NO.: 38

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

SITE NO.: 38

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on shore, and Time; and include details of samples/specimens/photographs taken.)

Mud and Clay, MS, 14.10. Very pale sediment with black patches throughout. Scrobicularia super abundant. Cockles occasional. No defined black layer. N. diversicolor abundant. 0.01 m²/0.5mm sample taken

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and includes the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community [illegible] and its cover [illegible] defined for each habitat and is to be described in the blank section at the end of the form. [illegible] which would normally be included in the description of a survey area [illegible] tidal [illegible] are not too included in the form. [illegible] each category [illegible] hab [illegible] record sheet.

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86 RECORD NO.:

SITE NAME: N. Saltram Wood SITE NO.: 39

SURVEY AREA: Plymouth, Laira SEA AREA:

OS GRID REF.:	E - W	N - S	E - W	N - S
	SX	515	558	TO

RECORDER: Jon Moore DATE: 22 D 05 M 86 Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	
LOW	36	✓
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	✓
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	✓
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	✓
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	Diff.

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: B-A	107	✓
C-D	108	✓
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	
ANIMAL CHECKLIST	113	
OTHER (tick and note below)	114	

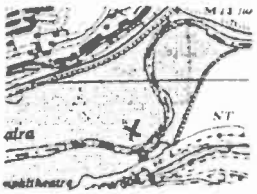
INTERTIDAL HABITAT RECORD

SITE NAME N. Saltram Wood SITE NO. 39

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117	✓					
MIDSHORE	118	✓					
LOWER MIDSHORE	119						
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143	3					
CLAY	144	3					
BLACK LAYER	145						
(note depth in cm)							
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148	2					
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166	✓					
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177						
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (+1m)	183						
ROCKPOOL - SM. (<1m)	184						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191						
SOFT (SHALLOW SINK)	192	2					
SOFT (DEEP SINK)	193						
SMOOTH	194	2					
WORKED	195	2					
RIPPLED	196						
MOUNDS	197						
BURROWS	198	3					
SHELLS (INTACT)	199	2					
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

SITE NO.: 39

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

SITE NO.: 39

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on Shore, and Time; and include details of samples/specimens/photographs taken.)

White china clay and black mud forming patchwork. MS-UMS, 1425. S. plana super abundant - Close up photos taken. N. diversicolor abundant. Smooth mud with numerous burrows. 0·01m²/0·5mm sample taken

INTERTIDAL RECORDING SHEET

This check list is based on the [illegible] and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the [illegible] and rocky shore recording sheets developed by the [illegible] Intertidal Survey Unit and used in 198[illegible]. The [illegible] are covered by similar headings except that the type of [illegible] present and the [illegible] to be described in the black [illegible] at the end of the [illegible] in the description of a survey area [illegible] the form. [illegible]

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86 RECORD NO.:

SITE NAME: E. Inside (Mens Bathing Area) SITE NO.: 40

SURVEY AREA: Plymouth SEA AREA:

NGR GRID REF.: E - W N - S E - W N - S

SX 4789 5317 to SX 4810 5317

RECORDER: K. Hiscock DATE: 22 / 05 / 86

SITUATION (TICK ONE ONLY)

OPEN SEA (>1 km offshore)	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (> 2 km)	9	✓
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	✓
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)

CLIFF	34	✓
BOULDERS	35	
[illegible]	36	
[illegible] (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below) Esplanade	48	✓

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	✓
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	✓
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	
WEAK (<1 k)	63	✓
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	✓
LOW (< 30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

GRANITE	71	✓
LIMESTONE	72	
[illegible]	73	
[illegible]	74	
[illegible]	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	av.
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	✓
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	easy

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	✓
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	✓

OTHER DATA RECORDED

PHOTOGRAPHS: W-E	107	✓
S-N	108	✓
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

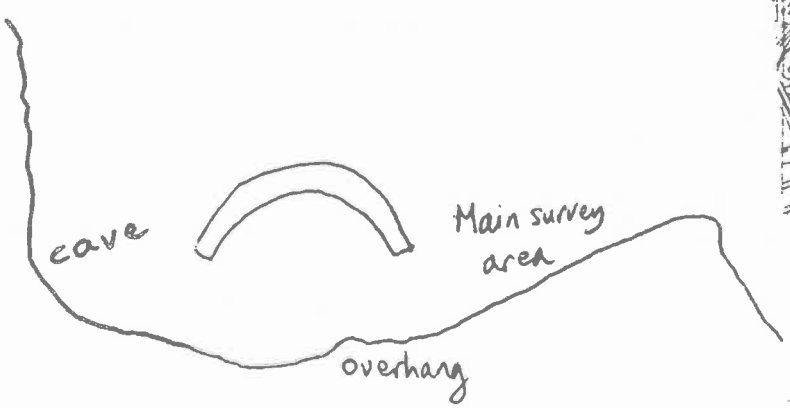
SITE NAME E. Tinside

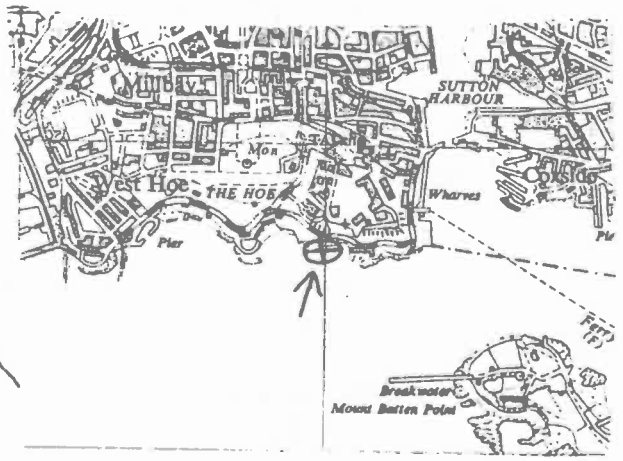
SITE NO. 40

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116	✓					
UPPER MIDSHORE	117						
MIDSHORE	118		✓	✓			
LOWER MIDSHORE	119			✓	✓		
LOWER SHORE	120					✓	✓
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3	3	3	3	3	3
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-126 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
CLAY	144						
BLACK LAYER (note depth in cm)	145						
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154				3	1	
FOLIOSE RED ALGAE	155				2	3	
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160				3 Alydea	3	3 Pendrita
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						✓
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163	✓	✓	✓	✓	✓	
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169	3	3	3	3	3	
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177						3
LARGE CAVE (MAN IN)	178						2
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181			2			
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (+1m)	183			1			
ROCKPOOL - SM. (¾1m)	184			2			
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191						
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193						
SMOOTH	194						
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198						
SHELLS (INTACT)	199						
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

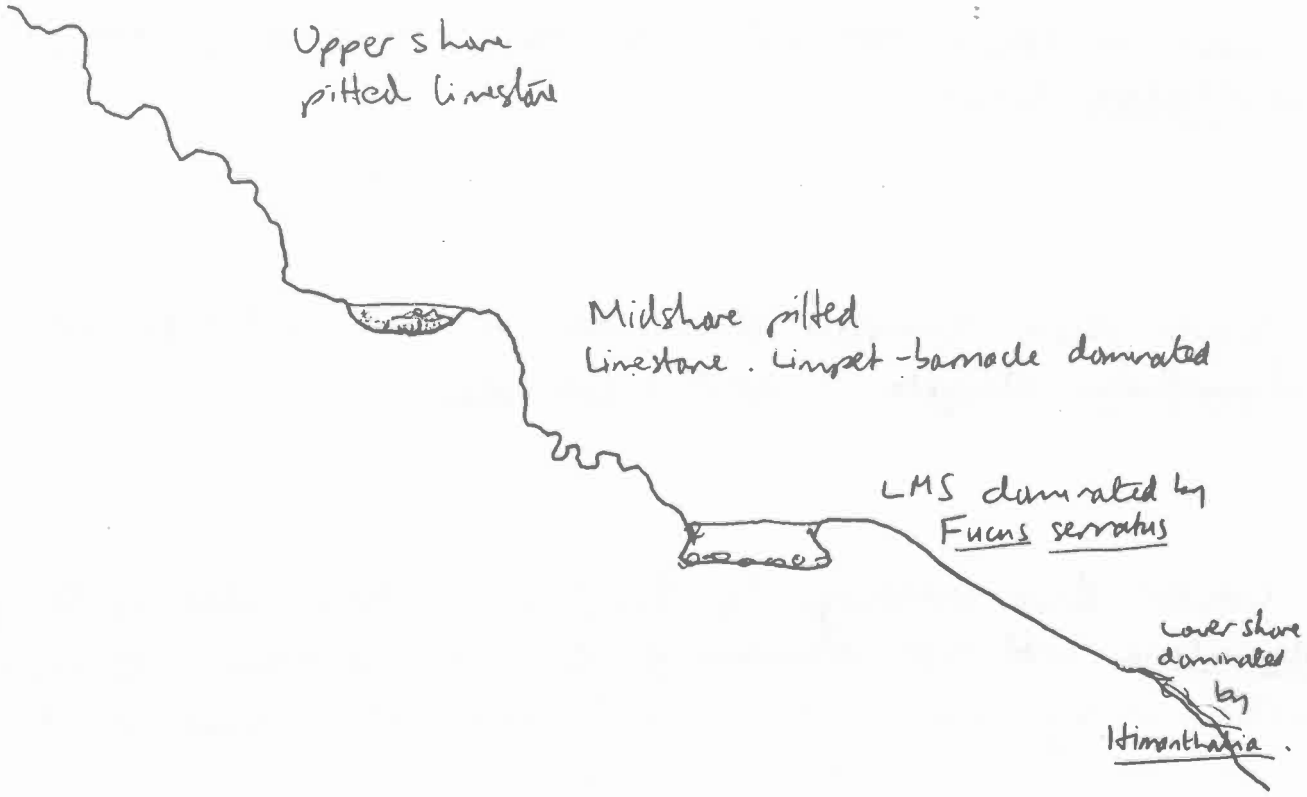
SITE NO.:

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)





SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.:

RECORD SECTION: Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on Shore, and Time; and include details of samples/specimens/photographs taken.

1. Upper shore pitted limestone with some overhangs dominated by sparse Chthamalus montagui and Patella vulgata with high abundance of small Littorinids. The barnacles formed a continuous crust except in some pockets lower on the shore.

2. Midshore pitted limestone with many small surfaces in limpet - barnacle dominated zone. Dominated by Chthamalus spp with high abundance of small littorinids. Pools of algae and some Actinia in damp pits.

3. Midshore/Lowershore pools - mostly small pools with some slightly over 1m. Some pools with cobbles - bottom and covered sides (Rock pools) and others dominated by algae but with Porydora common.

4. Lower midshore ~~to~~ broken limestone dominated by Fucus serratus and Porydora below.

5. Lower shore limestone dominated by sparse red algae and Hiranthalia elongata with Porydora below

6. Lower shore overhangs/gullies/cave dominated by Dendodoa Grossularia with high abundance of Crustia cimpera. Bivalve molluscs or some worms burying into limestone. Not a great variety of species due to domination by Dendrodoa.

INTERTIDAL RECORDING SHEET

This check list is based on the [illegible] used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the MCS [illegible] sheets developed by the SMBA/NHA Intertidal Survey Unit and used in 1986. [illegible] the coverage of [illegible] except that the type of community [illegible] the [illegible] description of [illegible] the [illegible] [illegible] [illegible]

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS
(Not including species sampled from sediments)

SITE NAME: E. Tinside (Mens Bathing Area) / GRID REFERENCE: SX 479537 – SX 480537

DATE: _____ NAME OF RECORDER: _____

KEY TO HABITAT COLUMNS:

1. VS pitted limestone, some overhangs.
2. MS pitted limestone, Limpet-Barnacle zone
3. MS/LMS pools
4. LMS limestone, Fucus serratus – Polydora
5. LS limestone, Himanthalia – Polydora
6. LS Overhangs/gullies/caves

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata					x|	F
Scypha comoressa			O			A
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea			O	F	R	F
Hemimycale columella						
Hymeniacidon perleve		R	F	O	F	F
Myxilla incrustans						
Polytaspongia seriata						
Cliona sp.			R	x|		
Metridium senile						x|
?Oscarella lobularis						R
COELENTERATA:HYDROZOA						
Clava squamata				x|		
Dynamena pumila						
Laomedea flexuosa			C			
Tubularia larynx						
Plumularia setacea			O			
COELENTERATA:ACTINIAE						
Actinia equina		F				
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus			x|			
Corynactis viridis						
Sagatia elegans						
Urticina felina			x|			

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Eulalia viridis						
Lanice conchilega						
Polydora sp.			A	A	E	
Pomatoceros sp. (p)			R	x|	x|	
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids						
Spirorbinidae - on rock						
Terebellidae indet.						
Eulalia viridis			O			
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus		R		O		
Chthamalus montagui	S	S				
Chthamalus stellatus	C	C				
Elminius modestus		O				
Semibalanus balanoides	O	C				
Verruca stroemia				x|		
CRUSTACEA:ISOPODA						
Idotea sp. (p)						

	1	2	3	4	5	6
CRUSTACEA:AMPHIPODA						
Amphipoda indet.						
Gammarus sp.						
Hyale nilssoni	x					
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas			x			
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber			x			
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botrylloides leachii			O		x	F
Botryllus schlosseri						
Ciona intestinalis						
Dendrodoa grossularia			O			E
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						O
Sidnyum elegans						
Styela clava						
Styelidae indet.						
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						

	1	2	3	4	5	6
INSECTA						
Anurida maritima	F					
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria						
Gibbula umbilicalis			O			
Hydrobia ulvae						
Littorina 'saxatilis'	S					
Littorina littorea						
Littorina mariae				O		
Littorina neglecta	C					
Littorina neritoides	F					
Littorina obtusata				F		
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata						
Nassarius incrassatus						
Nucella lapillus		O				
Ocenebra erinacea						
Patella aspera						
Patella depressa						
Patella vulgata	A	A		R		
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
Acanthochitona crinitus			x			
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Cerastoderma edule						
Heteranomia squamula				x		
Hiatella arctica				x		
Lasaea rubra						
Mytilus edulis						
Ostrea edulis						
BRYOZOA						
Alcyonidium gelatinosum						
Alcyonidium hirsutum						
Bowerbankia imbricata						
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa				O		
Flustrellidra hispida						
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						

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SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

East Trinside

INTERTIDAL SURVEYS - PLANTS

SITE NAME: (Men's Bathing) 40 GRID REFERENCE: SX 479 537 - 480 537

DATE: 22/05/86 NAME OF RECORDER: AE Little

KEY TO HABITAT COLUMNS:

1. U.S pitted limestone, some overhangs
2. [illegible] wet-barnacle zone
3. M.S/L.S pools
4. L.M.S. [illegible] Fucus [illegible] - Polydora
5. L.S. limestone Himanthalia - Polydora
6. L.S overhangs - anthers

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium			O			
Audouinella sp.						
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.		O	F			
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa						
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum			F			
Ceramium shuttleworthianum						
Ceramium sp.		O	F	C		
Chondrus crispus			F	F	F	
Chylocladia verticillata						
Corallina officinalis			C	F	C	
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dilsea carnosa						
Dumontia incrassata						
Furcellaria lumbricalis						
Gastroclonium ovatum					F	
Gelidium latifolium			F	O		
Gelidium pusillum			O	C	C	
Gigartina acicularis						
Gigartina stellata				F	C	
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						
Hildenbrandia sp.						

	1	2	3	4	5	6
Hypoglossum woodwardii						
Laurencia hybrida				C		
Laurencia pinnatifida				C	O	
Lomentaria articulata			F	C	F	
Lomentaria clavellosa						
Membranoptera alata						
Mesophyllum lichenoides			F			
Palmaria palmata			C	A		
Phyllophora traillii						
Plumaria elegans			F	F	O	
Polyides rotundus						
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa						
Polysiphonia nigrescens						
Polysiphonia urceolata						
Polysiphonia sp.			O	O		
Rhodophyta indet. (filam.)				C		
Rhodophyta indet. (dk. red)						
Rhodophyta indet. (pink)				O	O	
Scytosiphon lomentaria				O		
Porphyra sp.			O			
BACILLARIOPHYCEAE						
Bacillariophyceae indet.					O	
PHAEOPHYTA						
Ascophyllum nodosum						
Bifurcaria bifurcata						
Cladostephus spongiosus			O	O		
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.						
Fucus serratus				A	O	
Fucus spiralis						
Fucus vesiculosus						

	1	2	3	4	5	6	
Halidrys siliquosa							
Halopteris scoparia							
Himanthalia elongata			F	O	A		
Laminaria digitata			F		F		
Laminaria hyperborea							
Laminaria ochrolenca							
Laminaria saccharina							
Laminaria sp. (sporlings)							
Pelvetia canaliculata							
Phaeophyta indet. (filam.)							
Pilayella littoralis							
Saccorhiza polyschides							
Sargassum muticum							
CHLOROPHYTA							
Bryopsis hypnoides							
Bryopsis plumosa							
Chaetomorpha melagonium							
Chlorophyta indet. (filam.)							
Cladophora pellucida							
Cladophora sp.			F		O		
Cladostephus spongiosus							
Codium fragile tomentosoides							
Codium tomentosum							
Enteromorpha sp. (p)			F				
Ulva sp. (p)			C	O	F		
ANGIOSPERMAE							
Zostera noltii							
Zostera augustifolia							
Zostera marina							
LICHENS							
Calloplaca marina							
Calloplaca thallincola							
Grey lichens	O						
Lecanora atra							
Lichina confinis							
Lichina pygmaea		O					
Ochrolechia parella							
Verrucaria maura	O						
Verrucaria mucosa							
Xanthoria parietina							
Laminaria saccharina					F		
Polysiphonia ? violacea			R				
Chaetomorpha sp			O				

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SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

SITE NAME: East Tinside (mersbashing) 40 GRID REFERENCE: SX479537 - 480537

DATE: 22/05/86 NAME OF RECORDER: A E. Little

KEY TO HABITAT COLUMNS:

7 ~~1.~~ Splash zone
8 ~~2.~~ MS. pitted limestone [illegible] shade
9 ~~3.~~ Algae as substrate LMS
10 ~~4.~~ " " " LS
11 ~~5.~~ Pools LS/LMS
6.

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
✓ Audouinella sp.				P		
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
✓ Callithamnion sp.		O				
✓ Callithamnion tetragonum					P	
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa		R				
✓ Ceramium ciliatum					P	
Ceramium echionotum						
✓ Ceramium rubrum					P	
Ceramium shuttleworthianum					P	
Ceramium sp.						
✓ Chondrus crispus					P	
Chylocladia verticillata						
Corallina officinalis						
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dilsea carnosa						
Dumontia incrassata						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum						
Gigartina acicularis						
Gigartina stellata						
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						
Hildenbrandia sp.						

	1	2	3	4	5	6
Hypoglossum woodwardii						
✓ Laurencia hybrida					P	
Laurencia pinnatifida		O				
Lomentaria articulata						
Lomentaria clavellosa						
Membranoptera alata						
Mesophyllum lichenoides						
✓ Palmaria palmata					P	
Phyllophora traillii						
Plumaria elegans						
Polyides rotundus						
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa						
Polysiphonia nigrescens						
Polysiphonia urceolata						
✓ Polysiphonia sp.					P	
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)						
Rhodophyta indet. (pink)						
Scytosiphon lomentaria						
Porphyra sp.			O	O		
✓ Polysiphonia ?violacea					?P	
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
PHAEOPHYTA						
Ascophyllum nodosum						
Bifurcaria bifurcata						
Cladostephus spongiosus						
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
✓ Desmarestia viridis					P	
Ectocarpoidea indet.						
Fucus serratus						
Fucus spiralis						
Fucus vesiculosus						

site BB 40 (2)

	1	2	3	4	5	6
Halidrys siliquosa						
Halopteris scoparia						
Himanthalia elongata						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochrolenca						
Laminaria saccharina						
Laminaria sp. (sporlings)						
Pelvetia canaliculata						
Phaeophyta indet. (filam.)			C	O		
Pilayella littoralis						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa					P	
Chaetomorpha melagonium						
Chlorophyta indet. (filam.)						
Cladophora pellucida						
Cladophora sp.						
Cladostephus spongiosus						
Codium fragile tomentosoides						
Codium tomentosum						
Enteromorpha sp. (p)		O				
Ulva sp. (p)		O			P	
Monostroma sp.					P	
ANGIOSPERMAE						
Zostera noltii						
Zostera augustifolia						
Zostera marina						
Festuca rubra	F					
Plantago maritima	O					
LICHENS						
Calloplaca marina	F					
Calloplaca thallincola	O					
Grey lichens	O					
Lecanora atra						
Lichina confinis						
Lichina pygmaea						
Ochrolechia parella						
Verrucaria maura	O					
Verrucaria mucosa						
Xanthoria parietina	O					

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86

RECORD NO.:

SITE NAME: West Hoe (Millbay Pier-RNMC) SITE NO.: 41

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 471 536 TO SX 473 536

RECORDER: H. Hayslack DATE: 22 D 05 M 86

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	✓
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	✓
SOUTH	30	✓
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MEDIUM	35	✓
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below) Hotels	48	✓

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	✓
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	✓
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	
WEAK (1 k)	63	✓
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	✓
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	✓
METAMORPHIC	72	✓
HARD SEDIMENTARY	73	
SOFT SEDIMENTARY	74	
MIXED	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	✓
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	easy

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	✓
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	✓

OTHER DATA RECORDED

PHOTOGRAPHS: V-A	107	
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
FLORAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)		

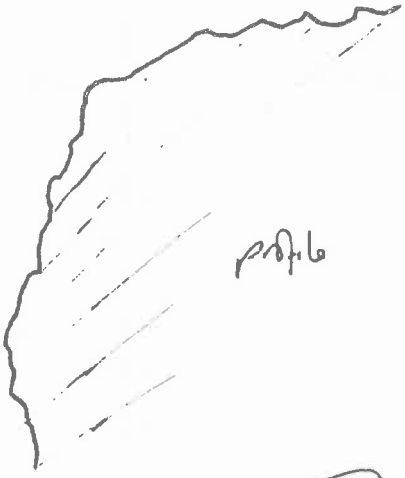
INTERTIDAL HABITAT RECORD

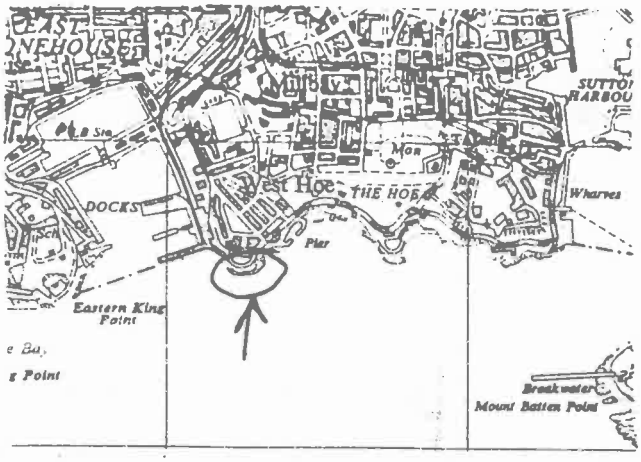
SITE NAME West Hoe SITE NO. 41

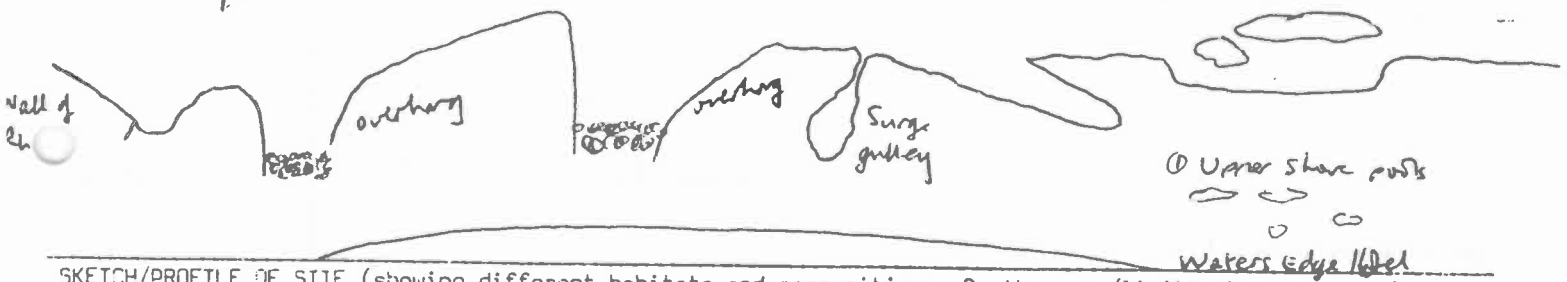
		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116	✓	✓				
UPPER MIDSHORE	117			✓	✓	·	
MIDSHORE	118				✓		
LOWER MIDSHORE	119				✓	✓	
LOWER SHORE	120					✓	✓
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3	3	3	3	3	3
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
CLAY	144						
BLACK LAYER (note depth in cm)	145						
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161	·					✓
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164			✓	✓		
SHALLOW (20°)	165					✓	
HORIZONTAL (5°)	166	✓	✓				
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169	2	2	2	2	2	2
TERRACES	170						
LEDGES	171						
ROCK WALLS	172					2	2
OPEN GULLIES	173					2	
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						2
OVERHANG	177						
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (±1m)	183						
ROCKPOOL - SM. (<½1m)	184	2					
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188					·	
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191						
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193						
SMOOTH	194						
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198						
SHELLS (INTACT)	199						
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

SITE NO.:

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)







SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

SITE NO.:

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on shore, and Time: and include details of samples/specimens/photographs taken.)

1. Upper shore broken limestone rock platform below Drakes View Hotel with pools about 1m across and as much as 30cm deep colonised by a fairly high abundance of Littorina littorea with Gibbula umbilicalis and Monodonta lineata present. One plant of Sargassum muticum.

2. Upper shore broken limestone rock below Waters Edge Hotel. The furthest east along this shore where Pelvetia canaliculata occurred.

3. West side of this area. Upper shore steep broken coarser ~~sand~~ facies in limestone, Lichina pygmaea Abundant. (Slightly higher Verrucaria maura common only on this coarser material.)

4. Broken limestone rock steeply sloping below upper shore dominated by limpets and barnacles with a high abundance of small littorinids and with Lasaea rubra present.

5. Surge gulley East of Drakes View Hotel with coarser sed rock at base (only abundant crustose algae were found here) Dominated by Scypha ~~and~~ Grantia Plumaria elegans

6. Lower shore overhangs (limestone rock) with high density of Balanus perforatus and various dark colour morphs of Botrylloides leachii. Rock sample collected to reveal high abundance of boring bivalves with Polydora and some other worms.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. [illegible] sheets are covered by similar headings except that the type of community present and [illegible] cover [illegible] for each habitat [illegible] is to be described in the blank section at the end of the form. [illegible] be included in the description of a survey [illegible] [illegible] now included [illegible] [illegible] sublittoral [illegible]

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: West Hoe (Millbay Pier - RWYC) (41) ~~RWYC Millbay Pier~~ GRID REFERENCE: SX 471 536 - 473 536

DATE: 22.5.86 NAME OF RECORDER: K. Hiscock

KEY TO HABITAT COLUMNS: ADDITIONAL/DIFFERENT TO SITE 40 ONLY

1. US pools below Drakes View Hotel
2. US Pelvetia below Waters Edge Hotel
3. UMS coarser ~~limestone~~ rock barnacle - Lichina pygmaea
4. ~~Surge gullery~~ Shore below Waters Edge Hotel
5. Surge gullery
   LS overhangs

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
Scypha compressa						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea						
Hemimycale columella						
Hymeniacidon perleve	O					
[illegible]illa incrustans						
Ophlitaspongia seriata						
Microciona atrasanguinea						<1
Oscarella lobularis						O
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila						
Laomedea flexuosa						
Tubularia larynx						
COELENTERATA:ACTINIAE						
Actinia equina	O					
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						F
Corynactis viridis						
Sagatia elegans						
Urticina felina						

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Eulalia viridis						
Lanice conchilega						
Polydora sp.	C					
Pomatoceros sp. (p)						
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids						
Spirorbinidae - on rock						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus				C	A	
Chthamalus montagui						
Chthamalus stellatus						
Elminius modestus						
Semibalanus balanoides						
Verruca stroemia						
CRUSTACEA:ISOPODA						
Idotea sp. (p)						

	1	2	3	4	5	6
CRUSTACEA:AMPHIPODA						
Amphipoda indet.						
Gammarus sp.						
Hyale nilssoni						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						O
Sidnyum elegans						
Styela clava						
Styelidae indet.						
CHORDATA:PISCES						
Blennius pholis	O					
Pholis gunnellus						

	1	2	3	4	5	6
INSECTA						
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria						
Gibbula umbilicalis	F					
Hydrobia ulvae						
Littorina 'saxatilis'						
Littorina littorea	C					
Littorina mariae						
Littorina neglecta						
Littorina neritoides						
Littorina obtusata						
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata	O					
Nassarius incrassatus						
Nucella lapillus						
Ocenebra erinacea						
Patella aspera						
Patella depressa						
Patella vulgata	C					
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Cerastoderma edule						
Heteranomia squamula						
Hiatella arctica						
Lasaea rubra				F		
Mytilus edulis	>I					
Ostrea edulis						
BRYOZOA						
Alcyonidium gelatinosum						
Alcyonidium hirsutum						
Bowerbankia imbricata						
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida						
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

SITE NAME: West Hoe (Millbay Pier - RWYC) 41 GRID REFERENCE: SX 471 536 - 473-536

DATE: 22/05/86 NAME OF RECORDER: H.E. Little

KEY TO HABITAT COLUMNS:

1. U, S pools below Drakes View Hotel
2. " " Pelvetia zone below Waters Edge Hotel
3. UMS Coarse Rock Larnacle - Lichina pygmaea
4. ( ) Not recorded.
5. Surge gullen (coarser sed rock)
6. Lower shore overhangs

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium					F	
Audouinella sp.						
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.					P	
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa		O				
Ceramium ciliatum					P	
Ceramium echionotum						
Ceramium rubrum	A				Fe	
Ceramium shuttleworthianum						
Ceramium sp.						F
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis	O					
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dilsea carnosa						
Dumontia incrassata	F				F	
Furcellaria lumbricalis						
Gastroclonium ovatum					O	
Gelidium latifolium						
Gelidium pusillum					C	
Gigartina acicularis						
Gigartina stellata					F	
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						
Hildenbrandia sp.						

	1	2	3	4	5	6
Hypoglossum woodwardii						
Laurencia hybrida					O	
Laurencia pinnatifida					F	O
Lomentaria articulata					C	F
Lomentaria clavellosa						
Membranoptera alata						
Mesophyllum lichenoides					F	
Palmaria palmata					C	C
Phyllophora traillii						
Plumaria elegans					A	C
Polyides rotundus						
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa						
Polysiphonia nigrescens						
Polysiphonia urceolata						
Polysiphonia sp.						
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)						
Rhodophyta indet. (pink)					F	
Scytosiphon lomentaria	F					
Porphyra sp.						
[illegible]					Fe	
BACILLARIOPHYCEAE						
Bacillariophyceae indet.					F	F
PHAEOPHYTA						
Ascophyllum nodosum						
Bifurcaria bifurcata						
Cladostephus spongiosus					F	O
Chorda filum	?O					
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.						
Fucus serratus					O	
Fucus spiralis		C				
Fucus vesiculosus						

	1	2	3	4	5	6
Halidrys siliquosa						
Halopteris scoparia						
Himanthalia elongata					F	
Laminaria digitata						
Laminaria hyperborea					R	
Laminaria ochrolenca						
Laminaria saccharina					r	
Laminaria sp. (sporlings)					F	C
Pelvetia canaliculata		C				
Phaeophyta indet. (filam.)					r	F
Pilayella littoralis						
Saccorhiza polyschides						
Sargassum muticum	R					
Leathesia difformis					Fe	
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Chlorophyta indet. (filam.)						
Cladophora pellucida						
Cladophora sp.	O				O	
Cladostephus spongiosus						
Codium fragile tomentosoides						
Codium tomentosum						
Enteromorpha sp. (p)	A	C				
Ulva sp. (p)	A				F	O
ANGIOSPERMAE						
Zostera noltii						
Zostera augustifolia						
Zostera marina						
LICHENS						
Calloplaca marina						
Calloplaca thallincola						
Grey lichens						
Lecanora atra						
Lichina confinis						
Lichina pygmaea			C			
Ochrolechia parella						
Verrucaria maura		F				
Verrucaria mucosa						
Xanthoria parietina						

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86 RECORD NO.:

SITE NAME: BOVISAND BAY BEACH SITE NO.: 42

SURVEY AREA: PLYMOUTH SOUND SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 4921 5055 (1) ____ ____ ____

RECORDER: Jon Moore DATE: 23 D 05 M 86 Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	✓
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	✓
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	
LINEAR BEACH	18	
POCKET BEACH	19	✓
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
MUDDY	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	✓
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	✓
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	
SHINGLE RIDGE	45	✓
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	✓
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	✓
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	
WEAK (1 k)	63	✓
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	✓
VARIABLE (30°/oo+)	66	
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	✓
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	Easy

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	✓
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	✓
LOCAL RESORT	104	
POPULAR	105	✓
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: B-A	107	✓
C-D	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	
ANIMAL CHECKLIST	113	
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

SITE NAME Bon. SAND BAY BEACH SITE NO. 42

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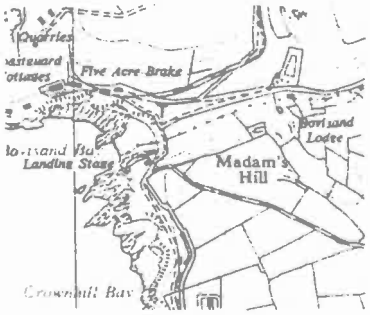
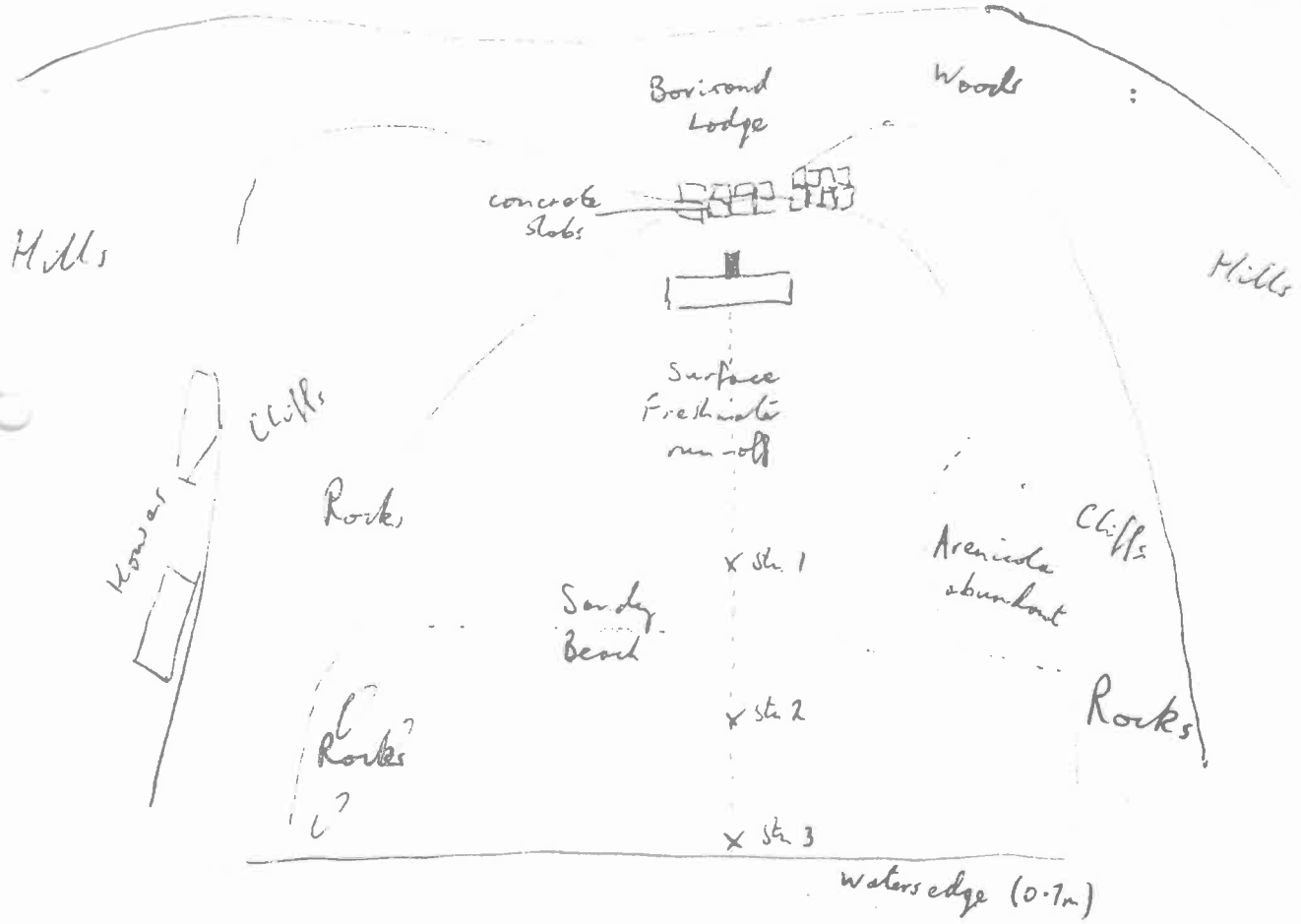
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165	✓	✓	✓			
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177						
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (÷1m)	183						
ROCKPOOL - SM. (¾1m)	184						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191	2	2	2			
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193						
SMOOTH	194	2	2	2			
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198						
SHELLS (INTACT)	199						
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

SITE NO.: 42

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 42

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on shore, and Time; and include details of samples/specimens/photographs taken.)

Stn. 1 MS, 3.0 m

Clean medium sand - Smooth and firm.

0.1 m² / 1mm and 0.01 m² / 0.5mm samples taken

Stn. 2 LMS, 1.8 m

Clean medium sand - Smooth and firm.

0.1 m² / 1mm and 0.01 m² / 0.5mm samples taken

Stn 3 LS, 0.7 m, 1030

Clean medium sand - Smooth and firm

0.1 m² / 1mm and 0.01 m² / 0.5mm samples taken

Dug over for large animals - Arenicola, rare; Nepthys cirrosa occasional, ? Nerine frequent

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC [illegible] and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover [illegible] defined for each habitat and is to be described in the [illegible] section at the end of the form. [illegible] included in the description of a survey area [illegible] prevailing wind [illegible] are not now included on the form. Numbers for each category do not [illegible] with those on the sublittoral habitat record sheet.

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86 RECORD NO.: 43

SITE NAME: BOULSAND BAY SOUTH SITE NO.: 43

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 491 505 TO

RECORDER: D. Roston DATE: 23 D 05 M 86 Y

SITUATION (TICK ONE ONLY)		
OPEN SEA (>1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	✓
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	
INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)		
HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	✓
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)		
NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	✓
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)		
HIGH	34	
MODERATE	35	✓
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)		
SAND DUNES	38	
LOW CLIFF	39	✓
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
DUNE/MACHAIR	44	
SEA WALL	45	
SHINGLE RIDGE	46	
GRASSLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)		
ISLANDS	49	
REEFS	50	
BREAKWATER	51	✓
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)		
VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	✓
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	
WEAK (1 k)	63	✓
VERY WEAK (negligible)	64	✓

SALINITY REGIME (TICK)		
NORMAL (around 34°/oo)	65	✓
VARIABLE (30°/oo+)	66	
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)		
IGNEOUS	71	
LIMESTONES	72	
HARD SANDSTONES	73	
SOFT SANDSTONES	74	
HARD SLATE/SHALES	75	✓
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)		
HABITAT VARIETY	79	
SPECIES ABUNDANT	80	
SPECIES ABSENT	81	
SPECIES AT OR NEAR LIMIT	82	
SPECIES RICHNESS (gd, av, poor)	83	
PREVIOUS STUDY AREA	84	
ORNITH. INTEREST (type?)	85	
SEAL HAUL OUT/ BREEDING AREA	86	
POLLUTED (type?)	87	
VERY CLEAN	88	
FRAGILE	89	
THREATENED	90	
MNR,NNR,LNR, SSSI NEARBY	91	
SEWAGE/INDUSTRIAL OUTFALL NEAR	92	
OTHER SOURCES OF DISTURBANCE (tick and note below)	93	

SHORE USAGE (TICK)		
FIELD STUDY	94	
RECREATION	95	✓
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)		
ATTRACTIVE BEACH	103	
LOCAL RESORT	104	✓
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED		
PHOTOGRAPHS: B-A	107	
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

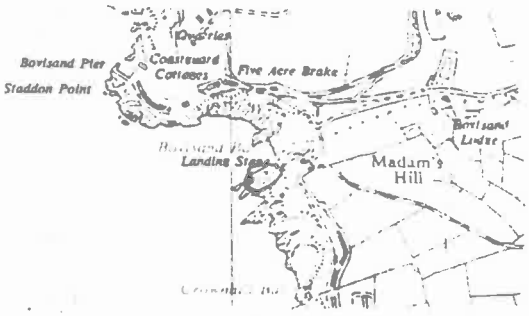
SITE NAME

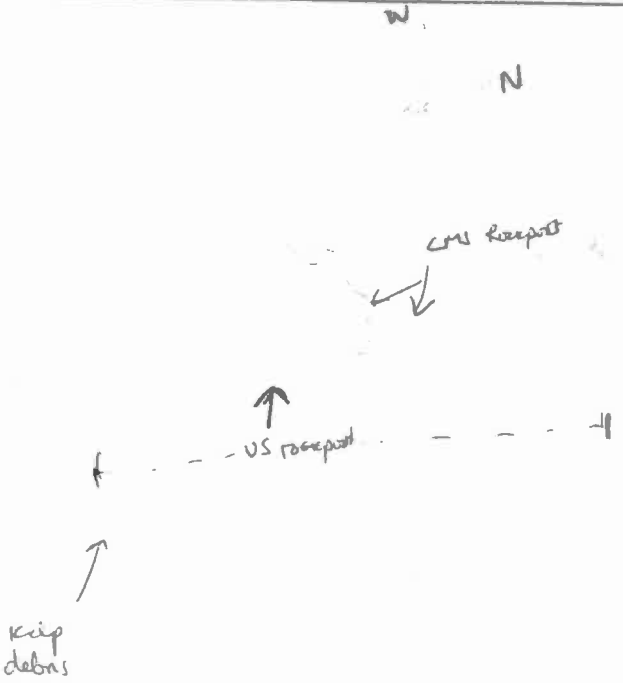
SITE NO. 43

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115	✓					
UPPER SHORE	116		✓				
UPPER MIDSHORE	117			✓			
MIDSHORE	118						
LOWER MIDSHORE	119				✓		
LOWER SHORE	120					✓	
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3	3	3	3	3	
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124					1	
LG. COBBLES (128-256 mm)	125					1	
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154		3				
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164	✓	✓	✓			
SHALLOW (20°)	165				✓	✓	
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168	3	3	3	3		
BROKEN ROCK	169				1		
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173				2	3	
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176					2	
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183	1		1	2		
MOBILE COBBLES	184				1		
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187						
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192						
SMOOTH	193						
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 43

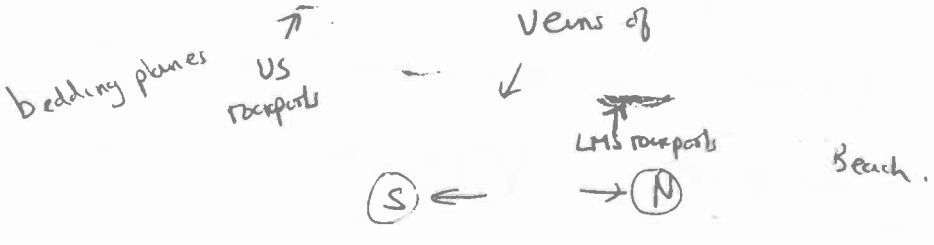
SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)

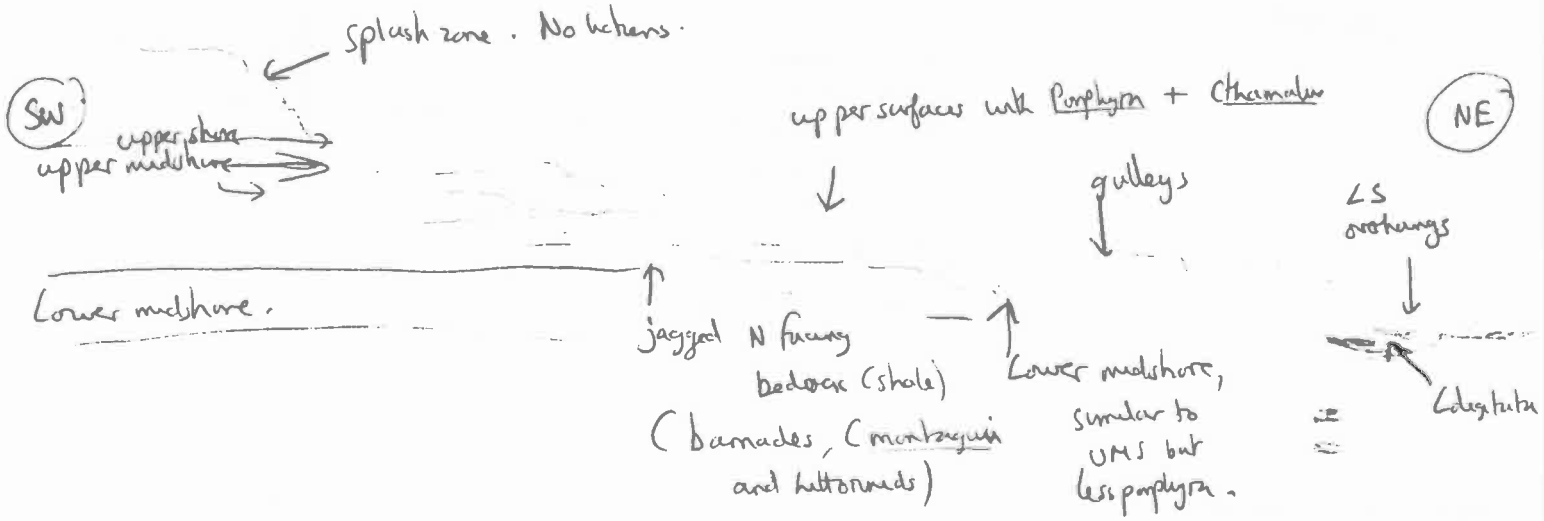




SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

TS across rocky promontory.





SITE NO.:

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

Rock promontory jutting to SW with bedding planes sloping towards SE. Steep jagged rocks on N side.

(1) Splash zone - very bare, very few plants, no lichens observed. Steep jagged slates. Mostly diatoms on N side with green algae in pools. Large nos of copepods (? Tigriopus) in pools.

(2) upper shore — a very narrow zone with just a few patches of ~~Fucoids~~ Pelvetia canaliculata confined to damp or N facing sides, plus a few L. montagui, P. vulgata + littorinids. South facing rocks bare.

(3) upper midshore. Mostly barnacle covered (largely C. montagui) with Porphyra on surface. Rockpools.

(4) Lower midshore. Barnacle dominated but with fewer Porphyra plants.

(5) Lower shore. Where rocks were flat or south facing, got barnacles (virtually all C. Stellatus) with some Semibalanus on surface, plus large limpets right down to 0.7m above CD where Corallina / Gigartina was extensively present. However, where there were deep gullies + overhangs, lower shore fucoids were present.

(6) US rockpools

see list.

(7) Rockpools.

Lower midshore pool:—



Carcinus maenas	R
patella vulgata.	A
Actinia equina	F
Gibbula umbilicalis	O
Anemone ulcata	O
Blennius pholis	R-O
Modiolus sp	R
pelta cornuta	F

Littorina fabalis	R
Actinia equina	O
Idotheia	?
Rissoa parva	F
Amphipoda	F

(8) pebbles + stones CMS

Pomatoceros triqueter	R
Spirorbis	R.
Gibbula cineraria	O
Blennius pholis	R
Asidia platycheles	O
Gammarus sp	C
Liocarcinus puber	R.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Scottish Intertidal Habitat Record Sheet developed in 1978 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/NCC Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of [illegible] present and its extent was not given for each habitat and is to be described in the plan sketch at the end of the form. Any species which would normally be found in the description of a survey area but which, prevailing conditions [illegible] numbers for each category should be recorded with [illegible] the species.

Bovisand Bay south. Sheet 1 site 43

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

SITE NAME: Bovisand Bay south (43) GRID REFERENCE: 491505

DATE: 23-5-86 NAME OF RECORDER: Jean Edwards

KEY TO HABITAT COLUMNS:

1. splash zone
2. upper shore
3. Upper midshore (Barnacles/porphyra)
4. Lower "
5. Lower shore
6. upper shore rockpools

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.						
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.						
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa						
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum						
Ceramium shuttleworthianum						
Ceramium sp.						
Chondrus crispus				F		
Chylocladia verticillata						
Corallina officinalis			F			
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dilsea carnosa						
Dumontia incrassata				O		
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum						
Gigartina acicularis						
Gigartina stellata				C	C	
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						
Hildenbrandia sp.						

	1	2	3	4	5	6
Hypoglossum woodwardii						
Laurencia hybrida						
Laurencia pinnatifida				A		
Lomentaria articulata				C		
Lomentaria clavellosa						
Membranoptera alata						
Mesophyllum lichenoides						
Palmaria palmata				F		
Phyllophora traillii						
Plumaria elegans						
Polyides rotundus						
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa						
Polysiphonia nigrescens						
Polysiphonia urceolata						
Polysiphonia sp.						
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)						
Rhodophyta indet. (pink)						
Scytosiphon lomentaria			F			
Porphyra sp.		F	S	C	O	
Heterosiphonia plumosa						
~~[illegible]~~						
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
PHAEOPHYTA						
Ascophyllum nodosum						
Bifurcaria bifurcata						
Cladostephus spongiosus						
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.						
Fucus serratus				C	C	
Fucus spiralis						
Fucus vesiculosus						

	1	2	3	4	5	6
Halidrys siliquosa						
Halopteris scoparia						
Himanthalia elongata					A	
Laminaria digitata					S	
Laminaria hyperborea						
Laminaria ochrolenca						
Laminaria saccharina					F	
Laminaria sp. (sporlings)						
Pelvetia canaliculata		C				
Phaeophyta indet. (filam.)						
Pilayella littoralis						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						C
Chlorophyta indet. (filam.)						
Cladophora pellucida		S				
Cladophora sp.						C
Cladostephus spongiosus						
Codium fragile tomentosoides						
Codium tomentosum						
Enteromorpha sp. (p)		C	C			C
Ulva sp. (p)		O	F			F
ANGIOSPERMAE						
Zostera noltii						
Zostera augustifolia						
Zostera marina						
LICHENS						
Calloplaca marina						
Calloplaca thallincola						
Grey lichens						
Lecanora atra						
Lichina confinis						
Lichina pygmaea						
Ochrolechia parella						
Verrucaria maura						
Verrucaria mucosa						
Xanthoria parietina						

Sheet 2 site 43

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

SITE NAME: Borrisand Bay South (+3) GRID REFERENCE: 691 505

DATE: 23-5-86 NAME OF RECORDER: D Ros...

KEY TO HABITAT COLUMNS:

7. Lower muddy rockpool A
8. " " " B
3.
4.
5.
6.

	7	8	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.						
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata	O					
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.						
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa						
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum						
Ceramium shuttleworthianum						
Ceramium sp.	O					
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis	A	F				
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dilsea carnosa						
Dumontia incrassata						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum						
Gigartina acicularis						
Gigartina stellata						
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						
Hildenbrandia sp.	O					

	7	8	3	4	5	6
Hypoglossum woodwardii						
Laurencia hybrida						
Laurencia pinnatifida						
Lomentaria articulata	O					
Lomentaria clavellosa						
Membranoptera alata						
Mesophyllum lichenoides						
Palmaria palmata	F	P				
Phyllophora traillii						
Plumaria elegans						
Polyides rotundus						
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa						
Polysiphonia nigrescens						
Polysiphonia urceolata						
Polysiphonia sp.						
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)						
Rhodophyta indet. (pink)	R					
Scytosiphon lomentaria	O					
Porphyra sp.						
Heterosiphonia plumosa	R					
[illegible]	R					
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
PHAEOPHYTA						
Ascophyllum nodosum						
Bifurcaria bifurcata						
Cladostephus spongiosus						
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.						
Fucus serratus	O					
Fucus spiralis						
Fucus vesiculosus						

	1	2	3	4	5	6	
Halidrys siliquosa							
Halopteris scoparia							
Himanthalia elongata	C	S					
Laminaria digitata	O	R					
Laminaria hyperborea							
Laminaria ochrolenca							
Laminaria saccharina							
Laminaria sp. (sporlings)							
Pelvetia canaliculata							
Phaeophyta indet. (filam.)							
Pilayella littoralis							
Saccorhiza polyschides							
Sargassum muticum							
Desmarestia ~~aculeata~~ viridis	P						
CHLOROPHYTA							
Bryopsis hypnoides							
Bryopsis plumosa							
Chaetomorpha melagonium							
Chlorophyta indet. (filam.)							
Cladophora pellucida							
Cladophora sp.							
Cladostephus spongiosus							
Codium fragile tomentosoides							
Codium tomentosum							
Enteromorpha sp. (p)							
Ulva sp. (p)							
ANGIOSPERMAE							
Zostera noltii							
Zostera augustifolia							
Zostera marina							
LICHENS							
Calloplaca marina							
Calloplaca thallincola							
Grey lichens							
Lecanora atra							
Lichina confinis							
Lichina pygmaea							
Ochrolechia parella							
Verrucaria maura							
Verrucaria mucosa							
Xanthoria parietina							

Sheet 1. Site 43

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Bovisand Bay South (43) GRID REFERENCE: 491 505

DATE: 23-5-86 NAME OF RECORDER: D. Rostron

KEY TO HABITAT COLUMNS:

1. Splash zone → P. canaliculata
2. Upper shore (< 1m wide)
3. Upper midshore (Barnacle / porphyra)
4. Lower midshore (No porphyra)
5. Lower shore overhangs (surfaces)
6. upper shore rockpools

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
Scypha compressa					F	
Myxilla (brick red)					R	
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea					C	
Hemimycale columella						
Hymeniacidon perleve				O	F	
Axilla incrustans						
Ophlitaspongia seriata					R	
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila					R	
Laomedea flexuosa						
Tubularia larynx						
Obelia					O	
COELENTERATA:ACTINIAE						
Actinia equina			O	F		
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus					O	
Corynactis viridis						
Sagatia elegans						
Urticina felina						

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Eulalia viridis					O	
Lanice conchilega						
Polydora sp.						
Pomatoceros sp. (p)						
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids						
Spirorbinidae - on rock						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus				R		
Chthamalus montagui		R	A	A		
Chthamalus stellatus			F	F		
Elminius modestus						
Semibalanus balanoides						
Verruca stroemia						
Tigriopus fulvus					A	A
? (Copepoda)						
CRUSTACEA:ISOPODA						
Idotea sp. (p)						

	1	2	3	4	5	6
CRUSTACEA:AMPHIPODA						
Amphipoda indet.						
Gammarus sp.						
Hyale nilssoni						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botrylloides leachii					O	
Botryllus schlosseri					C	
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans					O	
Styela clava						
Styelidae indet.						
polyclined					F	
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						

	1	2	3	4	5	6
INSECTA		R	O			
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum					O	
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria						
Gibbula umbilicalis				F		
Hydrobia ulvae						
Littorina 'saxatilis'	R	O	R			Ex
Littorina littorea						
Littorina mariae						
Littorina neglecta		O	F	O	(F)	
Littorina neritoides		F			(R)	
Littorina obtusata						
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata						
Nassarius incrassatus						
Nucella lapillus				R	R	
Ocenebra erinacea						
Patella aspera				A	A	
Patella depressa						
Patella vulgata		F	A	A	(C)	C
Patella sp.						
Patina pellucida					F	
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus					R	
Rissoa sp.					F	
MOLLUSCA:BIVALVIA						
Anomiidae indet.					R	
Cerastoderma edule						
Heteranomia squamula						
Hiatella arctica						
Lasaea rubra						
Mytilus edulis			F	O		R
Ostrea edulis						
BRYOZOA						
Alcyonidium gelatinosum						
Alcyonidium hirsutum						
Bowerbankia imbricata						
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida						
Membranipora membranacea						
Scrupocellaria reptans					R	
Umbonula littoralis					C	
Celleporina (encrusting)					D	

Sheet 2 Site 43

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS
(Not including species sampled from sediments)

SITE NAME: Boorsand Bay south (43) GRID REFERENCE: 491505

DATE: 23-5-86 NAME OF RECORDER: D Roston

KEY TO HABITAT COLUMNS:

7. Lower midshore rockpool A
8. " " " B
9. LMS pebbles (Brief look only)
4.
5.
6.

	7	8	9	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
Scypha compressa						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Polymastia seriata						
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila						
Laomedea flexuosa						
Tubularia larynx						
COELENTERATA:ACTINIAE						
Actinia equina	F	O				
Actinothoe sphyrodeta						
Anemonia viridis	O					
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina		R				

	7	8	9	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Eulalia viridis						
Lanice conchilega						
Polydora sp.						
Pomatoceros sp. (p)			R			
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids						
Spirorbinidae - on rock		R	R			
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus						
Chthamalus montagui						
Chthamalus stellatus						
Elminius modestus						
Semibalanus balanoides						
Verruca stroemia						
CRUSTACEA:ISOPODA						
Idotea sp. (p)		F				

	1	2	3	4	5	6
CRUSTACEA:AMPHIPODA						
Amphipoda indet.		F				
Gammarus sp.			C			
Hyale nilssoni						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas	R					
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber			R			
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles			O			
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
CHORDATA:PISCES						
Blennius pholis	O		R			
Pholis gunnellus						

	1	2	3	4	5	6
INSECTA						
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria			O			
Gibbula umbilicalis	O					
Hydrobia ulvae						
Littorina 'saxatilis'						
Littorina littorea						
Littorina mariae						
Littorina neglecta						
Littorina neritoides						
Littorina obtusata						
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata						
Nassarius incrassatus						
Nucella lapillus						
Ocenebra erinacea						
Patella aspera						
Patella depressa						
Patella vulgata	A					
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
Peltz carmata	F					
Russudi		F				
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Cerastoderma edule						
Heteranomia squamula						
Hiatella arctica						
Lasaea rubra						
Mytilus edulis						
Ostrea edulis						
Mollusca sp.	R					
BRYOZOA						
Alcyonidium gelatinosum						
Alcyonidium hirsutum						
Bowerbankia imbricata						
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida						
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86 RECORD NO.:

SITE NAME: Clovelly Bay Slip SITE NO.: 4K

SURVEY AREA: PLYMOUTH, CATTEWATER SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 4891 5312 TO

RECORDER: J.J. Moore DATE: 23 / 05 / 86

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	✓
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	✓
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	
LOW	36	✓
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	✓
SHINGLE RIDGE	45	✓
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	
WEAK (1 k)	63	✓
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	✓
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	
HARD SANDSTONES	73	
SOFT SANDSTONES	74	
SOFT CLAYS	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (go, av, poor)	81	
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?) Rubbish / Debris	86	✓
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	easy
Restricted Access		✓

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: B-A	107	✓
C-D	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	
ANIMAL CHECKLIST	113	
OTHER (tick and note below)	114	

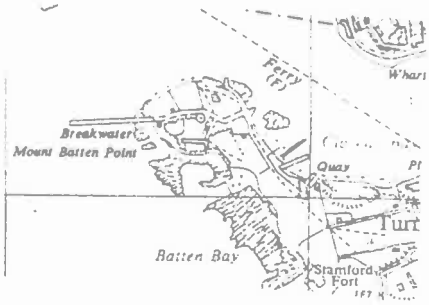
INTERTIDAL HABITAT RECORD

SITE NAME Clovelly Bay Quarry West SITE NO. 44

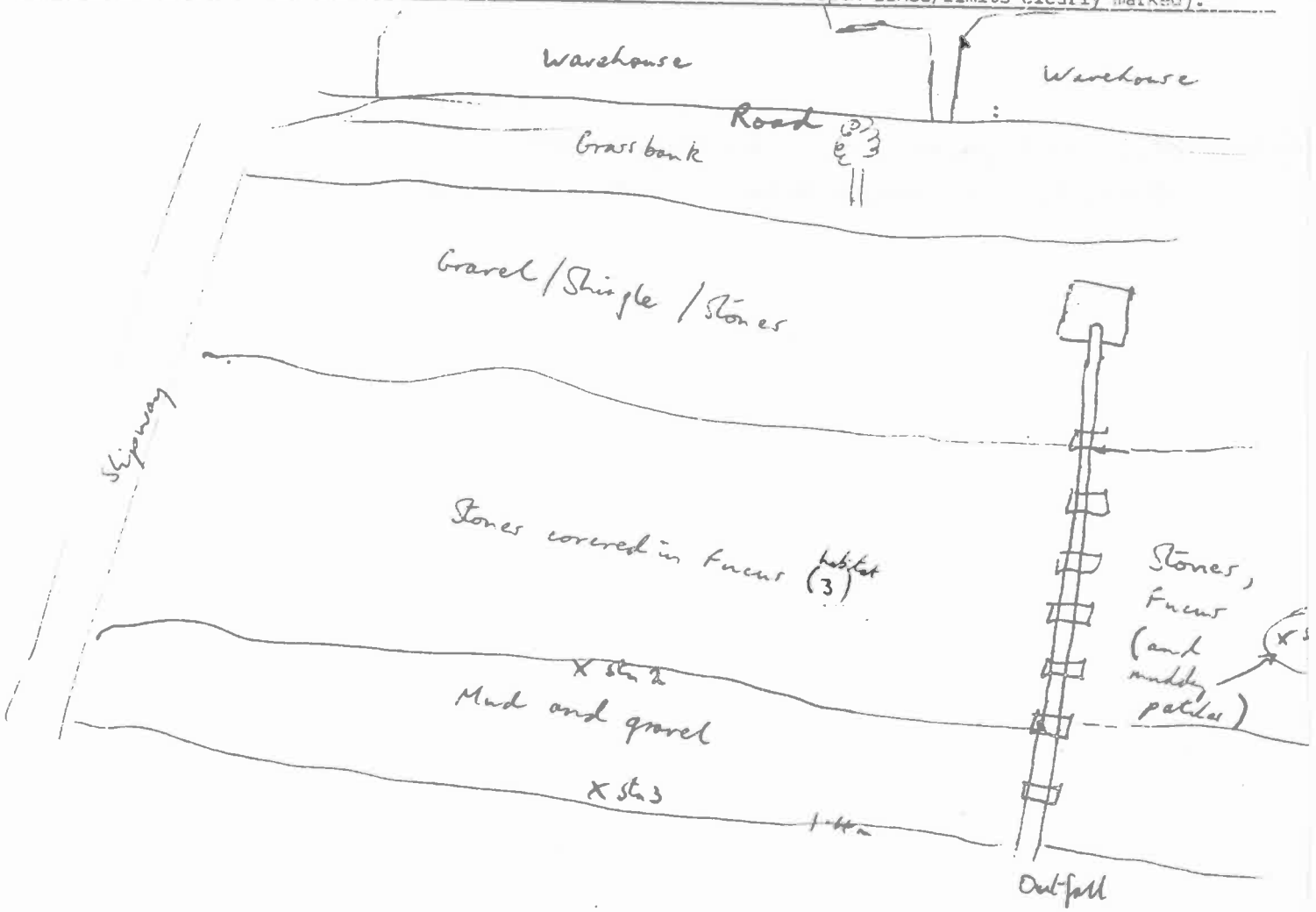
		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118	✓			✓		
LOWER MIDSHORE	119	✓	✓	✓			
LOWER SHORE	120			✓			
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-128 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131	2					
MED.&SM.PEBBLES (4-16 mm)	132	3					
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134		3				
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142			2	2		
MUD	143	2		3	3		
CLAY	144						
BLACK LAYER	145			2	2		
(note depth in cm)				<2	<2		
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below) Rhodolith/Pebbles	149	2					
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154	3					
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165	✓	✓	✓	✓		
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177						
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182	2					
ROCKPOOL - LG. (≥1m)	183						
ROCKPOOL - SM. (<1m)	184						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191	3					
SOFT (SHALLOW SINK)	192		2				
SOFT (DEEP SINK)	193			1	1		
SMOOTH	194						
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198						
SHELLS (INTACT)	199						
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

SITE NO.: 44

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks ~~etc.~~)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 44

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on shore, and Time; and include details of samples/specimens/photographs taken.)

Sta. 1 Understones and Fucus, MS-LMS. Stones covered in Fucus vesiculosus. L. littoralis and L. saxatilis common. Cirratulus common. Gammarids (Cheetogammarus?) common. Anemone indet. occasional. E. modestus common. B. balanoides frequent. Patella sp. rare. F. vesiculosus super abundant. Cigartina common.

Sta. 2 Muddy gravel, LMS. No obvious blacklayer.
0.01 m²/0.5mm sample taken.

Sta. 3 Mud with some gravel and abundant rubbish, LS to LMS. Blacklayer shallow.
0.1 m²/1mm and 0.01 m²/0.5mm samples taken. Cockles occasional.

Sta. 4 Mud and gravel, MS. Blacklayer shallow.
0.01 m²/0.5mm sample taken. Cockles occasional

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment [illegible] recording [illegible] developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories [illegible] similar headings except that the type of community present and its cover [illegible] in the blank section at [illegible] of the form [illegible] the description of a survey [illegible] [illegible] the [illegible] [illegible] [illegible] habitat record sheet.

INTERTIDAL HABITAT RECORD - TRIAL VERSION 22/4/86

RECORD NO.:

SITE NAME: Wyllavelly Bay slip SITE NO.: 45

SURVEY AREA: SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 189 333 TO

RECORDER: D Roston / J Edwards DATE: 23 D 05 M 86 Y

SITUATION (TICK ONE ONLY)	
OPEN SEA (1 km offshore)	1
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4 ✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5
INTERTIDAL EXTENT (m)	6

COASTAL TYPE (TICK)	
HEADLAND	7
'LINEAR COAST'	8
LARGE BAY (2 km)	9
SMALL BAY	10 ✓
SPIT/BAR	11
OFFSHORE SMALL ISLAND	12
AMONGST ROCKS/ISLETS	13
SOUND/NARROWS	14
SHALLOW RAPIDS	15
SEA LOCH	16
ESTUARY/MARINE INLET	17 ✓
LINEAR BEACH	18
POCKET BEACH	19
SALTMARSH	20
COASTAL LAGOON	21
HARBOUR	22
SEA CAVE	23
WRECK	24
OTHER (tick and note below)	25

ASPECT (TICK)	
NORTH	26
NORTHEAST	27 ✓
EAST	28
SOUTHEAST	29
SOUTH	30
SOUTHWEST	31
WEST	32
NORTHWEST	33

COASTAL HEIGHT (TICK)	
CLIFF	34
ESCARPMENT	35
FLAT	36 ✓
OTHER (tick and note below)	37

COASTAL BACKING (TICK)	
SAND DUNES	38
LOW CLIFF	39
MODERATE CLIFF	40
HIGH CLIFF	41
SALTMARSH	42
MACHAIR	43
DUNE/MACHAIR	44
SEA WALL	45 ✓
SHINGLE RIDGE	46 ✓
GRASSLAND	47
OTHER (tick and note below)	48

OFFSHORE FEATURES (TICK)	
ISLANDS	49
REEFS	50
BREAKWATER	51
SANDBANKS	52
SHOAL	53

WAVE EXPOSURE (TICK)	
VERY EXPOSED (prevailing wind and swell)	54
EXPOSED (prevailing wind)	55
SEMI-EXPOSED (strong wind frequent)	56
SHELTERED (strong wind rare)	57
VERY SHELTERED (fetch 20 km)	58
EXTREMELY SHELTERED (fetch 3 km)	59 ✓

MAX. TIDAL STREAM STRENGTH (TICK)	
VERY STRONG (6 k+)	60
STRONG (3-6 k)	61
MOD. STRONG (1-3 k)	62
WEAK (1 k)	63 ✓
VERY WEAK (negligible)	64

SALINITY REGIME (TICK)	
NORMAL (around 34°/oo)	65
VARIABLE (30°/oo+)	66 ✓
LOW (30°/oo)	67
FRESHWATER STREAM	68
SALINITY MEASURED	69
NOT KNOWN	70

ROCK TYPE (TICK)	
IGNEOUS	71
LIMESTONES	72
HARD SAND/MUDSTONES	73
SOFT SAND/MUDSTONES	74
HARD SLATE/SHALES	75
FRIABLE SLATE/SHALES	76
NOT KNOWN	77
OTHER (tick and note below)	78

SITE INFORMATION (TICK)	
HABITAT VARIETY	79
SPECIES ABUNDANT	80
SPECIES ABSENT	81
SPECIES AT OR NEAR LIMIT	82
SPECIES RICHNESS (gd, av, poor)	83
PREVIOUS STUDY AREA	84
ORNITH. INTEREST (type?)	85
SEAL HAUL OUT/ BREEDING AREA	86
POLLUTED (type?) Rubbish	87 ✓
VERY CLEAN	88
FRAGILE	89
THREATENED	90
MNR,NNR,LNR, SSSI NEARBY	91
SEWAGE/INDUSTRIAL OUTFALL NEAR	92
OTHER SOURCES OF DISTURBANCE (tick and note below)	93

Access easy but restricted. ✓

SHORE USAGE (TICK)	
FIELD STUDY	94
RECREATION	95
BEACH FISHING	96
BAIT DIGGING	97
SHELLFISH COLLECTION	98
AQUACULTURE	99
MOORING	100
WATERSPORT	101
OTHER (tick and note below)	102

AMENITY (TICK)	
ATTRACTIVE BEACH	103
LOCAL RESORT	104
POPULAR	105
PUBLIC FACILITIES	106

OTHER DATA RECORDED	
PHOTOGRAPHS: W-A	107 ✓
C-U	108
WATER ANALYSIS	109
SEDIMENT ANALYSIS	110
SPECIMENS COLLECTED	111 ✓
ALGAL CHECKLIST	112
ANIMAL CHECKLIST	113
OTHER (tick and note below)	114

INTERTIDAL HABITAT RECORD

SITE NAME

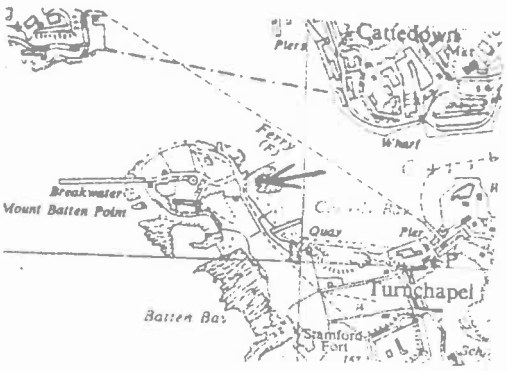
SITE NO.

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116	✓					
UPPER MIDSHORE	117		✓				
MIDSHORE	118						
LOWER MIDSHORE	119			✓			
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122		2	1			
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124		1				
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127		1				
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130		1	2			
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
BLACK LAYER (note depth)	144						
MIXTURE OF TYPES IN HABITAT	145						
KELP PLANTS	146						
WHOLE SHELLS	147						
TREE BRANCHES	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151	3					
WOOD	152						
OTHER (tick & note/ score below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154		3	3			
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						

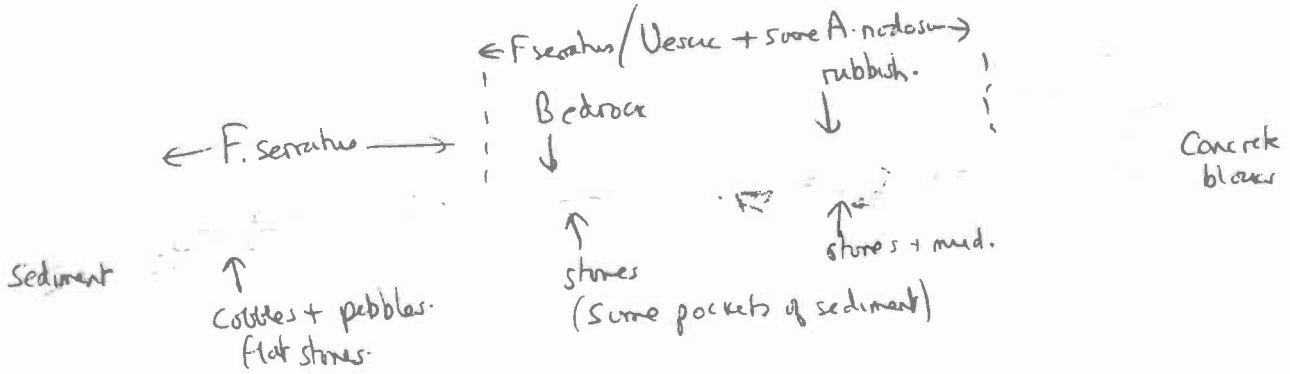
		STN./HABITAT 1	2	3	4	5	6
ALGAL CRUST	158						
FAUNAL TURF	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164	✓					
SHALLOW (20°)	165		✓	✓			
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168		2	1			
BROKEN ROCK	169		1	2			
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISSURES/CREV. (FINGERS)	176						
LARGE CAVE (MAN IN)	177						
SMALL CAVE (PUT HEAD IN)	178						
POTHOLES	179						
ROCKKMILLS	180						
TURNABLE BOULDERS	181						
ROCKPOOL - LG.	182						
ROCKPOOL - SM.	183						
MOBILE COBBLES	184						
SCOURED ROCK	185						
SAND ON ROCKS	186						
THIN SILT ON ROCKS	187		2	2			
THICK/FLOC. SILT ON ROCKS	188						
OTHER (tick & note/ score below)	189						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	190						
SOFT (SHALLOW SINK)	191						
SOFT (DEEP SINK)	192						
SMOOTH	193						
WORKED	194						
RIPPLED	195						
MOUNDS	196						
BURROWS	197						
SHELLS (INTACT)	198						
OTHER (tick & note/ score below)	199						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	200						
DIATOM FILM	201						
GREEN ALGAE	202						
UNATTACHED ALGAE	203						
FAUNAL BED	204						

SITE NO.: 45

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



(1) upper shore on concrete blocks, little variety.

(2) Upper midshore, very patchy with some areas dominated by Elminius / limpets, others by fucoids, including F vesic, A nod + F serratus. Some huge limpets!

(3) Rocks + stones under F. serratus. A variety of barnacle species present. Very large numbers of Polydora sp + Carcinus.

SITE NO.: 45

REPORT SECTION (Describe each habitat and associated community with a note of height on the shore etc.)

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank spaces at the end of the form. Features which would normally be included in the description of a survey area including prevailing wind, [illegible], tidal [illegible] included on the [illegible] for each category do not correspond with those [illegible] sheet.

Site 45

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

SITE NAME: West of Clovelly Bay slip GRID REFERENCE: 689533

DATE: 23-5-86 NAME OF RECORDER: ~~D Roston~~ / Jean Edwards.

KEY TO HABITAT COLUMNS:

1. Upper shore
2. upper midshore with mixed fucoids
3. lower midshore
4. waterline
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.						
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.						
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa						
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum		F	F	F		
Ceramium shuttleworthianum						
Ceramium sp.						
Chondrus crispus		F	F			
Chylocladia verticillata						
Corallina officinalis						
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dilsea carnosa						
Dumontia incrassata			F	O		
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum		C	C	F		
Gigartina acicularis						
Gigartina stellata	C	C	C			
Gracilaria verticillata						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						
Hildenbrandia sp.	F	F	P			

	1	2	3	4	5	6
Hypoglossum woodwardii						
Laurencia hybrida						
Laurencia pinnatifida						
Lomentaria articulata						
Lomentaria clavellosa						
Membranoptera alata						
Mesophyllum lichenoides						
Palmaria palmata						
Phyllophora traillii						
Plumaria elegans						
Polyides rotundus						
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa	F					
Polysiphonia nigrescens						
Polysiphonia urceolata						
Polysiphonia sp.		C				
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)						
Rhodophyta indet. (pink)						
Scytosiphon lomentaria				O		
Porphyra sp.						
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
PHAEOPHYTA		F				
Ascophyllum nodosum	A	F				
Bifurcaria bifurcata						
Cladostephus spongiosus		-	-	-	-	-
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.						
Fucus serratus	O	A	Ex	C		
Fucus spiralis	C					
Fucus vesiculosus	C	A		O		

	1	2	3	4	5	6
Halidrys siliquosa						
Halopteris scoparia						
Himanthalia elongata						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochrolenca						
Laminaria saccharina						
Laminaria sp. (sporlings)						
Pelvetia canaliculata						
Phaeophyta indet. (filam.)						
Pilayella littoralis						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Chlorophyta indet. (filam.)						
Cladophora pellucida						
Cladophora sp.	A					
Cladostephus spongiosus						
Codium fragile tomentosoides						
Codium tomentosum						
Enteromorpha sp. (p)	C			O		
Ulva sp. (p)	C			O		
ANGIOSPERMAE						
Zostera noltii						
Zostera augustifolia						
Zostera marina						
LICHENS						
Calloplaca marina						
Calloplaca thallincola						
Grey lichens						
Lecanora atra						
Lichina confinis						
Lichina pygmaea						
Ochrolechia parella						
Verrucaria maura						
Verrucaria mucosa						
Xanthoria parietina						

site 45

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS
(Not including species sampled from sediments)

SITE NAME: West of Clovelly Bay slip (4) GRID REFERENCE: 439533

DATE: 23-5-86 NAME OF RECORDER: D Rostron,

KEY TO HABITAT COLUMNS:

1. Upper shore on concrete stones
2. Upper midshore with mixed fucoids + Elminius patches
3. Lower midshore, F serratus dom. } NOT DISTINGUISHED HERE
4. Watershore
5.
6.

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides			O			
Scypha ciliata						
Scypha compressa						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea			O			
Hemimycale columella						
Hymeniacidon perleve		O	F			
Myxilla incrustans						
Polytaspongia seriata						
Porifera indet. (brown slimy)			C			
Halichondria sp			O			
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila						
Laomedea flexuosa						
Tubularia larynx						
COELENTERATA:ACTINIAE						
Actinia equina			R			
Actinothoe sphyrodeta			R			
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus			O			
Corynactis viridis						
Sagatia elegans						
Urticina felina						

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Eulalia viridis						
Lanice conchilega						
Polydora sp.		A	A			
Pomatoceros sp. (p)			F			
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids		R	C			
Spirorbinidae - on rock			F			
Terebellidae indet.		A	R			
Nereidae indet.			O			
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus			O			
Balanus improvisus						
Balanus perforatus						
Chthamalus montagui						
Chthamalus stellatus						
Elminius modestus		C	C			
Semibalanus balanoides		R	R			
Verruca stroemia			O			
CRUSTACEA:ISOPODA						
Idotea sp. (p)			C			

	1	2	3	4	5	6
CRUSTACEA:AMPHIPODA						
Amphipoda indet.						
Gammarus sp.		C	C			
Hyale nilssoni						
Melita palmata			C			
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas		A	A			
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri			R			
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus			O			

	1	2	3	4	5	6
INSECTA						
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria			R			
Gibbula umbilicalis						
Hydrobia ulvae						
Littorina 'saxatilis'	O	A	A*			
Littorina littorea		S	O			
Littorina mariae						
Littorina neglecta						
Littorina neritoides						
Littorina obtusata	R	F	C			
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata		O				
Nassarius incrassatus						
Nucella lapillus						
Ocenebra erinacea						
Patella aspera						
Patella depressa						
Patella vulgata		A	O			
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Anomiidae indet.			O			
Cerastoderma edule						
Heteranomia squamula						
Hiatella arctica			*			
Lasaea rubra						
Mytilus edulis			R			
Ostrea edulis						
Modiolus			C			
BRYOZOA						
Alcyonidium gelatinosum			R			
Alcyonidium hirsutum			*			
Bowerbankia imbricata						
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida						
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						
Cryptosula pallasiana			O			

* mostly dead

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86

RECORD NO.:

SITE NAME: Jennycliff Bay (SHEET 1) SITE NO.: 46

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.:	E - W	N - S	TO	E - W	N - S
	SX 491	522	TO	SX 491	521

RECORDER: K. Hiscock DATE: ____ D ____ M ____ Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	

INTERTIDAL EXTENT (m)	6	100

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	✓
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	✓
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	✓
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	✓
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	✓
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	✓
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	
WEAK (<1 k)	63	✓
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	✓
VARIABLE (30°/oo+)	66	
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	✓
HARD SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	✓
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	av.
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	easy

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	✓
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	✓
LOCAL RESORT	104	✓
POPULAR	105	✓
PUBLIC FACILITIES	106	✓

OTHER DATA RECORDED

PHOTOGRAPHS: B-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

SITE NAME

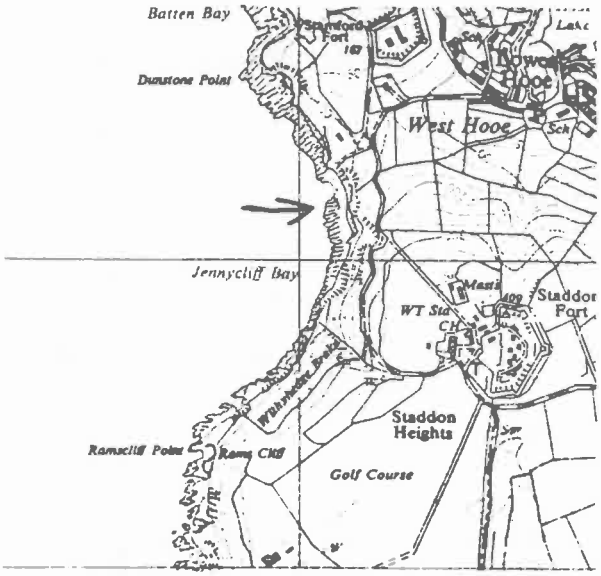
SITE NO. 46

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	114	✓					
UPPER SHORE	115		✓				
UPPER MIDSHORE	117			✓	✓		
MIDSHORE	118					✓	✓
LOWER MIDSHORE	119						
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3	3	3	3	3	3
LG. BOULDERS (500 mm+)	123			2			
SM. BOULDERS (256-500 mm)	124				2		2
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
CLAY	144						
BLACK LAYER	145						
(note depth in cm)							
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154					2	
FOLIOSE RED ALGAE	155				1		
FOLIOSE GREEN ALGAE	156						

		STN./HABITAT 1	2	3	4	5	6
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159	3					
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163	✓					
STEEP (20-40°)	164		✓				
SHALLOW (20°)	165			✓	✓	✓	✓
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169	3	3	2		2	
TERRACES	170			1		1	
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177	1					
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (±1m)	183				1	1	
ROCKPOOL - SM. (<1m)	184				3	3	
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191						
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193						
SMOOTH	194						
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198						
SHELLS (INTACT)	199						
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

SITE NO.: 46

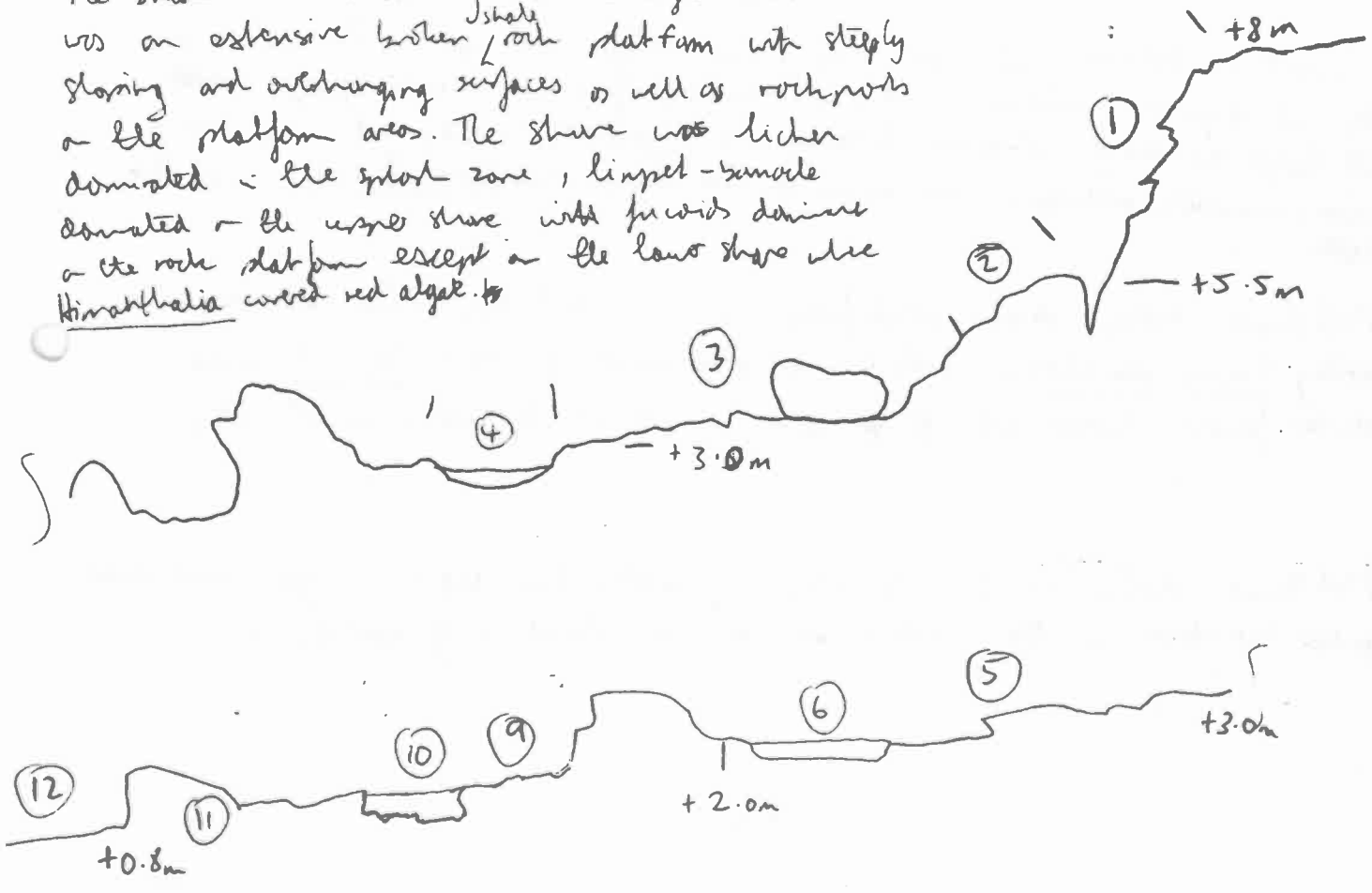
SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)





SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

The shore to the south of the shingle beach was an extensive broken shale/rock platform with steeply sloping and overhanging surfaces as well as rockpools on the platform areas. The shore was lichen dominated at the splash zone, limpet-barnacle dominated on the upper shore with fucoids dominant on the rock platform except on the lower shore where Himanthalia covered red algae.



SITE NO.: 46

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on Shore, and Time; and include details of samples/specimens/photographs taken.)

1. Sl. Broken steeply sloping shale at 5.5 to 8m colonised by rich patchy lichen flora with angiosperms at the top of the station and gastropods restricted to the lower parts of the station where Littorina neritoides and Littorina saxatilis were present in crevices

2. Upper Shore. Broken shale at 4.5 to 5.5m with patches of Pelvetia canaliculata and green filamentous algae, scattered barnacles and a high abundance of 'Littorina saxatilis'

3. Upper midshore broken shale platform and large boulders at 3.0 to 4.5m dominated by limpets and barnacles

4. Upper midshore pools at 3 to 3.5m. Pools were up to 3m across and often with angular boulders in them. Most surfaces were heavily grazed ~~with~~ with large numbers of Littorina littorea and Monodonta lineata present but sides of pools, especially overhangs, were colonised by dense Corallina officinalis and other algae.

5. Midshore broken shale platform at 2.0 to 3.0m colonised by patchy Fucus vesiculosus with a high abundance of barnacles and limpets between fucoid clumps and of ~~[illegible]~~ ~~[illegible]~~ winkles and top shells particularly amongst the fucoids

6. Midshore pools at 2.0 to 3.5m generally dominated by algae with ~~large~~ angular boulders in the bottom and a high abundance of gastropods.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC [illegible] recording sheets developed by the [illegible]/MBA Intertidal Survey Unit and used in 1985. The categories in these sheets are covered by similar headings except that the type of community present and its cover [illegible] each habitat [illegible] to be described in the blank section at the end of the form. [illegible] including prevailing [illegible] form. [illegible] the Sublittoral Habitat [illegible].

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/96

RECORD NO.:

SITE NAME: Jennycliff Bay (SHEET 2) SITE NO.: 46

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 491 522 TO SX 491 521

RECORDER:

DATE: 23 D 05 M 96 Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	✓
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	✓
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MEDIUM/LOW	35	✓
[illegible]	36	
[illegible]	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	✓
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	✓
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	✓
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (<1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	✓
VARIABLE (30°/oo+)	66	
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	✓
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	✓
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	✓
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	✓
LOCAL RESORT	104	
POPULAR	105	✓
PUBLIC FACILITIES	106	✓

OTHER DATA RECORDED

PHOTOGRAPHS: W-A	107	✓
C-D	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

SITE NAME

SITE NO. 46

		STN./HABITAT 7	8	9	10	15	12
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118	✓					
LOWER MIDSHORE	119		✓	✓	✓		
LOWER SHORE	120				1	✓	✓
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3	3	3	3	3	3
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124			1			
LG. COBBLES (128-256 mm)	125			1	2		
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
CLAY	144						
BLACK LAYER	145						
(note depth in cm)							
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155			2			
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						✓
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165			✓	✓	✓	
HORIZONTA' ' 5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169			3	3	3	
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177						3
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (+1m)	183				1		
ROCKPOOL - SM. (<1m)	184				2		
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191						
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193						
SMOOTH	194						
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198						
SHELLS (INTACT)	199						
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

SITE NO.: 46

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)

See sheet 1

SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

See sheet 1

SITE NO.: 46

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on shore, and Time; and include details of samples/specimens/photographs taken.)

~~1. MS on at~~ 7. Midshore attached to algae

8. Lower midshore attached to algae

~~9. Lower midshore rock pools generally dominated by large algae (Himanthalia and Laminaria) with angular small boulders in.~~

9. Lower midshore broken shale bedrock platform with patchy dense Fucus serratus amongst grazed bare rock.

10. Lower midshore rock pools generally dominated by large algae (Himanthalia and Laminaria) with angular small boulders in.

Lower shore broken shale bedrock dominated by Himanthalia and Laminaria digitata over 'lithothamnia' or Corallina covered rock with Gigartina and Palmaria also present. Some areas of small boulders and angular cobble with high abundance of amphipods under stones.

Lower shore overhangs <1m high north facing with silty surfaces and dominated by Dendrodoa in places.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Subtidal Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky [illegible] recording sheets [illegible] by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories [illegible] sheet [illegible] beadings except that the type of community present and its cover [illegible] described in the blank section at the end of the form. Features which [illegible] the description of a survey [illegible] including prevailing wind, [illegible] not [illegible] included in the form. [illegible] for each category do not [illegible] Habitat Record Sheet.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

46 1/4

INTERTIDAL SURVEYS - PLANTS

SITE NAME: [illegible] Bay

GRID REFERENCE: SX 491 522 to SX 491 521

DATE: [illegible]

NAME OF RECORDER: AE Little

KEY TO HABITAT COLUMNS:

1. SPLASH Broken grey shale 5.5m → 8m.
2. US " " 4.5m - 5.5
3. UMS Broken shale platform & L.G. Boulders 3 - 4.5 Limpet/Barnacles
4. UMS Pools " " 2.5-3.5m (Sargassum pools)
5. MS Broken shale " 2-3m (Fucus vesiculosus)
6. MS Pools 2-2.5m

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.						
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.						
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa						
Ceramium ciliatum						
Ceramium echionotum						
✓ Ceramium rubrum				F		
Ceramium shuttleworthianum						
✓ Ceramium sp.				O		
✓ Chondrus crispus				C	F	
Chylocladia verticillata						
✓ Corallina officinalis				C	O	
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dilsea carnosa						
✓ Dumontia incrassata	-	-	-	C	O	
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gelidium latifolium						
✓ Gelidium pusillum	-	-	O	O	C	
Gigartina acicularis						
✓ Gigartina stellata			O	-	C	
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						
Hildenbrandia sp.						

	1	2	3	4	5	6	
Hypoglossum woodwardii							
Laurencia hybrida				F	O		✓
Laurencia pinnatifida	-	-	O		C		✓
Lomentaria articulata				O			✓
Lomentaria clavellosa							
Membranoptera alata							
Mesophyllum lichenoides							
Palmaria palmata				O			✓
Phyllophora traillii							
Plumaria elegans							
Polyides rotundus							
Polyneura hilliae							
Polysiphonia brodiaei							
Polysiphonia lanosa					C		✓
Polysiphonia nigrescens				P			✓
Polysiphonia urceolata							
Polysiphonia sp.				O			✓
Rhodophyta indet. (filam.)							
Rhodophyta indet. (dk. red)					O		✓
Rhodophyta indet. (pink)			O	A	C		✓
Scytosiphon lomentaria				O			✓
Porphyra sp.				Oe			✓
BACILLARIOPHYCEAE							
Bacillariophyceae indet.							
PHAEOPHYTA							
Ascophyllum nodosum			O		C		✓
Bifurcaria bifurcata							
Cladostephus spongiosus							
Chorda filum							
Colpomenia peregrina				~~?O~~			✓
Cystosiera nodicaulis							
Desmarestia viridis							
Ectocarpoidea indet.				C			✓
Fucus serratus							
Fucus spiralis		FS					✓
Fucus vesiculosus	-	-	F		A		✓

	1	2	3	4	5	6	
Halidrys siliquosa							
Halopteris scoparia							
Himanthalia elongata				O*			
Laminaria digitata							
Laminaria hyperborea							
Laminaria ochrolenca							
Laminaria saccharina							
Laminaria sp. (sporlings)							
Pelvetia canaliculata	-	F					
Phaeophyta indet. (filam.)				C			
Pilayella littoralis							
Saccorhiza polyschides							
Sargassum muticum				F			
leathsia difformis				O			
CHLOROPHYTA							
Bryopsis hypnoides							
Bryopsis plumosa							
Chaetomorpha melagonium							
Chlorophyta indet. (filam.)		C					
Cladophora pellucida							
Cladophora sp.	-	-	-	-	O		
Cladostephus spongiosus							
Codium fragile tomentosoides							
Codium tomentosum							
Enteromorpha sp. (p)		F	F		O		
Ulva sp. (p)					O		
ANGIOSPERMAE							
Zostera noltii							
Zostera augustifolia							
Zostera marina							
LICHENS							
Calloplaca marina	C						
Calloplaca thallincola							
Grey lichens	A→F						
Lecanora atra	O→F						
Lichina confinis	F						
Lichina pygmaea							
Ochrolechia parella	A→-						
Verrucaria maura	O→R	A					
Verrucaria mucosa		-	O				
Xanthoria parietina	C→C						
Hypotychia fusca							
Festuca rubra, Plantago maritima	C→-						Chrysthum maritimum
Spergularia rupicola							
Ramalina sp.	- O						
Petalonia sp				F			
Asperococcus sp				F			
Dictyota dichotoma				O	O		

46 2 of 4

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

46 3N4

INTERTIDAL SURVEYS - PLANTS

SITE NAME: [illegible] (2 GRID REFERENCE:

DATE: NAME OF RECORDER:

KEY TO HABITAT COLUMNS:

7. [illegible] mid shore.
8. L.MS.
9. L.MS [illegible]
12. L.MS [illegible]
13. L.S. H[illegible]
16. [illegible]

	1.	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata				O		
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium		P			O	F
Audouinella sp.						
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Calliblepharis ciliata						
Calliblepharis jubata				O	O	
Callithamnion roseum						
Callithamnion sp.					O	O
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						O
Callophyllis laciniata						
Catenella caespitosa						
Ceramium ciliatum				P		
Ceramium echionotum						
Ceramium rubrum					Oe	
Ceramium shuttleworthianum						
Ceramium sp.				O	C	
Chondrus crispus			F	O	C	
Chylocladia verticillata						
Corallina officinalis			F	C	F	
Cryptopleura ramosa		O		O		
Cystoclonium purpureum			O	O	F	
Delesseria sanguinea						
Dilsea carnosa				O	O	
Dumontia incrassata			F	F	F	
Furcellaria lumbricalis				O		
Gastroclonium ovatum				C	O	
Gelidium latifolium					F	F
Gelidium pusillum				O		O
Gigartina acicularis						
Gigartina stellata			C		F	
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						
Hildenbrandia sp.						

	1	2	3	4	5	6	
Hypoglossum woodwardii				O			✓
Laurencia hybrida			F	O			✓
Laurencia pinnatifida			C		O	O	✓
Lomentaria articulata		O		F	C	O	✓
Lomentaria clavellosa			Oe	Oe	O	O	✓
Membranoptera alata							
Mesophyllum lichenoides							
Palmaria palmata		O	C		A	O	✓
Phyllophora traillii							
Plumaria elegans						O	✓
Polyides rotundus				F	F		✓
Polyneura hilliae							
Polysiphonia brodiaei							
Polysiphonia lanosa							
Polysiphonia nigrescens							
Polysiphonia urceolata						R	✓
Polysiphonia sp.						O	✓
Rhodophyta indet. (filam.)							
Rhodophyta indet. (dk. red)			A		C	F	✓
Rhodophyta indet. (pink)		O	C		A	C	✓
Scytosiphon lomentaria							
Porphyra sp.	O	C	C	C	F	O	✓
Myriogramme smithiae				?O	?O		✓
Myriogramme heterocarpa				?R	P		✓
Nitophyllum punctatum				?R			✓
BACILLARIOPHYCEAE							
Bacillariophyceae indet.							
Porphyra leucosticta		P					✓
Gymnogongrus griffithsiae					PP		✓
PHAEOPHYTA							
Ascophyllum nodosum							
Bifurcaria bifurcata							
Cladostephus spongiosus						O	✓
Chorda filum							
Colpomenia peregrina				O			✓
Cystosiera nodicaulis							
Desmarestia viridis							
Ectocarpoidea indet.						F	✓
Fucus serratus			A		E		✓
Fucus spiralis							
Fucus vesiculosus		-					

	1	2	3	4	5	6
Halidrys siliquosa						
Halopteris scoparia						
Himanthalia elongata			F	F	R	
Laminaria digitata			O		R	
Laminaria hyperborea					R	
Laminaria ochrolenca						
Laminaria saccharina					O	
Laminaria sp. (sporlings)						C
Pelvetia canaliculata						
Phaeophyta indet. (filam.)	C	F		O	F	F
Pilayella littoralis						
Saccorhiza polyschides					R	
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Chlorophyta indet. (filam.)	F					
~~Cladophora~~ pellucida						
Cladophora sp.					O	O
~~Cladostephus~~ spongiosus						O
Codium fragile tomentosoides						
Codium tomentosum						
Enteromorpha sp. (p)		O				
Ulva sp. (p)		O		-	O	
ANGIOSPERMAE						
Zostera noltii						
Zostera augustifolia						
Zostera marina						
LICHENS						
Calloplaca marina						
Calloplaca thallincola						
Grey lichens						
Lecanora atra						
Lichina confinis						
Lichina pygmaea						
Ochrolechia parella						
Verrucaria maura						
Verrucaria mucosa						
Xanthoria parietina						
Dictyota dichotoma		O				

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Jennycliff Bay (46) GRID REFERENCE: SX 49152 - 49152

DATE: 23.5.86 NAME OF RECORDER: K. Hiscock

KEY TO HABITAT COLUMNS:

1. Splash - Broken steeply sloping bedrock shale / at +5.5 to 8 m
2. US Broken shale bedrock at +4.5 to 5 m
3. UMS broken shale bedrock platform and lg boulders at +3 to 4.5 m (Limpet-barnacle)
4. UMS pools at +3.5 m
5. MS broken shale bedrock platform at +2 to 3 m (Fucus vesiculosus)
6. MS pools at +2 to 2.5 m

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
Scypha compressa						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea						
Hemimycale columella						
Hymeniacidon perleve						
[illegible]xilla incrustans						
Ophlitaspongia seriata						
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila					O	
Laomedea flexuosa					F	
Tubularia larynx						
COELENTERATA:ACTINIAE						
Actinia equina				O		
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina						

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Eulalia viridis						
Lanice conchilega						
Polydora sp.						
Pomatoceros sp. (p)				x		
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids				●	O	
Spirorbinidae - on rock						
Terebellidae indet.						
Spirorbinidae on Corallina				F		
Eulalia viridis					x	
Cirratulus cirratus						P
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus					F	
Chthamalus montagui		C	A		C	
Chthamalus stellatus			F		O	
Elminius modestus			F	O	C	
Semibalanus balanoides		F	O		O	
Verruca stroemia						
CRUSTACEA:ISOPODA						
Idotea sp. (p)						
Ligia oceanica	O	O				✓
Dynamene bidentata					x	✓

	1	2	3	4	5	6	
CRUSTACEA:AMPHIPODA							
Amphipoda indet.				F	-	F	✓
Gammarus sp.							
Hyale nilssoni					F		✓
CRUSTACEA:DECAPODA							
Cancer pagurus							
Carcinus maenas				×1	×1		✓
Galathea dispersa							
Galathea squamifera							
Galathea strigosa							
Liocarcinus puber							
Pagurus berhardus							
Palaemon serratus				O		F	✓
Pisidia longicornis							
Porcellana platycheles							
ECHINODERMATA:STELLEROIDEA							
Amphipholis squamata							
Asterias rubens							
Asterina gibbosa					×1	-	✓
Ophiothrix fragilis							
Ophiuroidea indet.						O	✓
ECHINODERMATA:ECHINOIDEA							
Psammechinus miliaris							
CHORDATA:ASCIDIACEA							
Ascidiella aspersa							
Botrylloides leachii							
Botryllus schlosseri							
Ciona intestinalis							
Dendrodoa grossularia							
Didemnidae indet.							
Didemnum maculosum							
Morchellium argus							
Sidnyum elegans							
Styela clava							
Styelidae indet.							
CHORDATA:PISCES							
Blennius pholis							
Pholis gunnellus							
Cottus scorpius					4j		✓

	1	2	3	4	5	6	
INSECTA							
Anurida maritima		F	F				✓
Insecta indet. (pupae)							
MOLLUSCA:GASTROPODA							
Polyplacophora indet.							
Calliostoma zizyphinum							
Calyptera chinensis							
Crepidula fornicata							
Gibbula cineraria							
Gibbula umbilicalis	-	-	R	F	A		
Hydrobia ulvae							
Littorina 'saxatilis'	C	S	R	-	O		
Littorina littorea	-	-	F	S	F		
Littorina mariae				P	C		
Littorina neglecta		F	F				
Littorina neritoides	F	O					
Littorina obtusata					O		
Littorina obt./mariae							
Lepidochitona cinereus							
Monodonta lineata			C	A			
Nassarius incrassatus							
Nucella lapillus				×1	F		
Ocenebra erinacea							
Patella aspera							
Patella depressa				-	C		
Patella vulgata			A	O	C		
Patella sp.							
Patina pellucida							
Trivia arctica							
Trivia monacha							
Archidoris pseudoargus							
Rissoa sp.	-	-	-	C			
MOLLUSCA:BIVALVIA							
Anomiidae indet.							
Cerastoderma edule							
Heteranomia squamula							
Hiatella arctica							
Lasaea rubra							
Mytilus edulis							
Ostrea edulis							
BRYOZOA							
Alcyonidium gelatinosum							
Alcyonidium hirsutum							
Bowerbankia imbricata							
Bryozoa indet. (encr.)							
Bugula plumosa							
Bugula turbinata							
Electra pilosa							
Flustrellidra hispida							
Membranipora membranacea							
Scrupocellaria reptans							
Umbonula littoralis					O		✓

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Jennycliff Bay (46)[2] GRID REFERENCE: SX 491522 - 491521

DATE: 23.5.86 NAME OF RECORDER: K. Hiscock

KEY TO HABITAT COLUMNS:

7. Midshore attached to algae
8. Lower midshore attached to algae
9. Lower midshore boulder shale bedrock at +1.5 to 2m. * - under boulders
10. Lower midshore rockpools at +1.5 to 2m (including mid boulders)
11. Lower shore broken shale bedrock at +0.7 to 1m.
12. Lower shore overhangs at +0.7 to 1m

	7	8	9	10	11	12	
PORIFERA:CALCAREA							
Clathrina coriacea							
Leuconia barbata							
Leucosolenia botryoides						O	✓
Scypha ciliata					×1		✓
Scypha compressa							
PORIFERA:DEMOSPONGIAE							
Amphilectus fucorum							
Dysidea fragilis							
Halichondria bowerbanki							
Halichondria panicea						O	
Hemimycale columella			R				
Hymeniacidon perleve							
Myxilla incrustans							
Sublitasponcia seriata							
Myxilla sp (with ed)					×1	R	
Porifera indet (branching)				F			✓
COELENTERATA:HYDROZOA							
Clava squamata							
Dynamena pumila			O				
Laomedea flexuosa							
Tubularia larynx							
COELENTERATA:ACTINIAE							
Actinia equina				O			✓
Actinothoe sphyrodeta							
Anemonia viridis							
Caryophyllia smithii							
Cereus pedunculatus							
Corynactis viridis							
Sagatia elegans							
Urticina felina							

	7	8	9	10	11	12	
ANNELIDA:POLYCHAETA							
Arenicola marina							
Branchiomma vesiculosum							
Eulalia viridis							
Lanice conchilega							
Polydora sp.							
Pomatoceros sp. (p)			O			O	✓
Sabella pavonina							
Spirorbinidae -							
on 'lithothamnia'			F		F		✓
Spirorbinidae -							
on Gigartina/Chondrus							
Spirorbinidae -							
on fucoids							
Spirorbinidae -							
on rock					O	C	✓
Terebellidae indet.							
Sparvius tridentatus				F			✓
Spirorbidae on Corallina				P			✓
Scale worm				×1			✓
CRUSTACEA:CIRRIPEDIA							
Balanus crenatus							
Balanus improvisus							
Balanus perforatus							
Chthamalus montagui							
Chthamalus stellatus							
Elminius modestus							
Semibalanus balanoides							
Verruca stroemia			P	C			✓
CRUSTACEA:ISOPODA							
Idotea sp. (p)							

	7	8	9	10	11	12	
CRUSTACEA:AMPHIPODA							
Amphipoda indet.			c*				
Gammarus sp.							
Hyale nilssoni							
CRUSTACEA:DECAPODA							
Cancer pagurus				x1			✓
Carcinus maenas							
Galathea dispersa							
Galathea squamifera							
Galathea strigosa							
Liocarcinus puber			x1				✓
Pagurus berhardus					x1		✓
Palaemon serratus							
Pisidia longicornis							
Porcellana platycheles				x1			✓
ECHINODERMATA:STELLEROIDEA							
Amphipholis squamata							
Asterias rubens							
Asterina gibbosa				F	x1	F	✓
Ophiothrix fragilis							
Amphipholis squamata				P			✓
ECHINODERMATA:ECHINOIDEA							
Psammechinus miliaris				x1			✓
CHORDATA:ASCIDIACEA							
Ascidiella aspersa							
Botrylloides leachii			P*				
Botryllus schlosseri			P*				
Ciona intestinalis							
Dendrodoa grossularia					F	C	
Didemnidae indet.							
Didemnum maculosum							
Morchellium argus							
Sidnyum elegans							
Styela clava							
Styelidae indet.							
Polyclinidae indet.				x1	x1	F	✓
CHORDATA:PISCES							
Blennius pholis							
Pholis gunnellus							
Cirratulus cirratus				P			
Acmaea virginea					x1		

	1	2	3	4	5	6	
INSECTA							
Anurida maritima							
Insecta indet. (pupae)							
MOLLUSCA:GASTROPODA							
Polyplacophora indet.							
Calliostoma zizyphinum					x1	R	✓
Calyptera chinensis							
Crepidula fornicata					x1		
Gibbula cineraria			F	C	O	C	
Gibbula umbilicalis							
Hydrobia ulvae							
Littorina 'saxatilis'							
Littorina littorea				C			
Littorina mariae			O				✓
Littorina neglecta							
Littorina neritoides							
Littorina obtusata			O				
Littorina obt./mariae							
Lepidochitona cinereus							
Monodonta lineata							✓
Nassarius incrassatus					x1		✓
Nucella lapillus			R				✓
Ocenebra erinacea					O	O	
Patella aspera							
Patella depressa			O				✓
Patella vulgata			A				
Patella sp.							
Patina pellucida							
Trivia arctica							
Trivia monacha							
Archidoris pseudoargus							
Gavodoris nodosa						O	✓
Nassarius reticulatus			x1				✓
Pelta cavarata			R				✓
MOLLUSCA:BIVALVIA							
Anomiidae indet.							
Cerastoderma edule							
Heteranomia squamula			C*		O		✓✓
Hiatella arctica							
Lasaea rubra							
Mytilus edulis							
Ostrea edulis							
BRYOZOA							
Alcyonidium gelatinosum							
Alcyonidium hirsutum			F				✓
Bowerbankia imbricata							
Bryozoa indet. (encr.)			C*				✓
Bugula plumosa							
Bugula turbinata							
Electra pilosa			O		F		✓
Flustrellidra hispida							
Membranipora membranacea							
Scrupocellaria reptans							
Umbonula littoralis			F*		O		✓✓

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86

RECORD NO.:

SITE NAME: Oreston Spit SITE NO.: 47

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 498 533

RECORDER: K. Hiscock DATE: 23 D 5 M 86 Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓

INTERTIDAL EXTENT (m)	6	50

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	✓
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	✓
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	✓
SEA WALL	44	✓
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	
LOW (30°/oo)	67	✓
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONE	72	✓
HARD SEDIMENTS	73	
SOFT SEDIMENTS	74	
HARD METAMORPHICS	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	Poor
NNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	Sewage Spill
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	✓
OTHER SOURCES OF DISTURBANCE (tick and note below) digging	92	✓
EASE OF ACCESS (on foot) (diff., mod., easy)	93	

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	✓
BAIT DIGGING	97	✓
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	✓

OTHER DATA RECORDED

PHOTOGRAPHS: W-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

SITE NAME

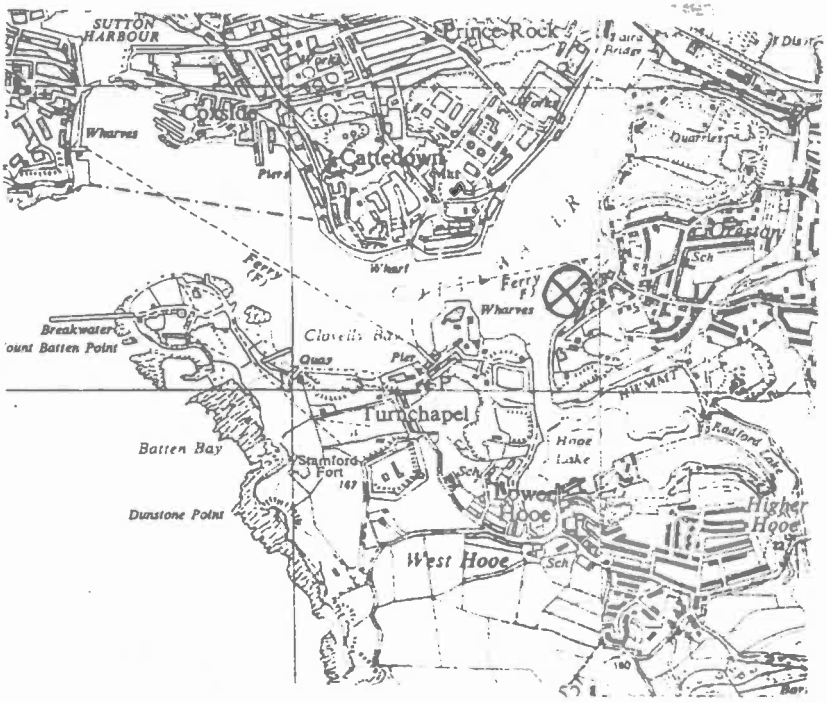
SITE NO. 47

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118						
LOWER MIDSHORE	119						
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-128 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
CLAY	144						
BLACK LAYER (note depth in cm)	145						
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177						
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (+1m)	183						
ROCKPOOL - SM. (¾1m)	184						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191						
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193						
SMOOTH	194						
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198						
SHELLS (INTACT)	199						
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

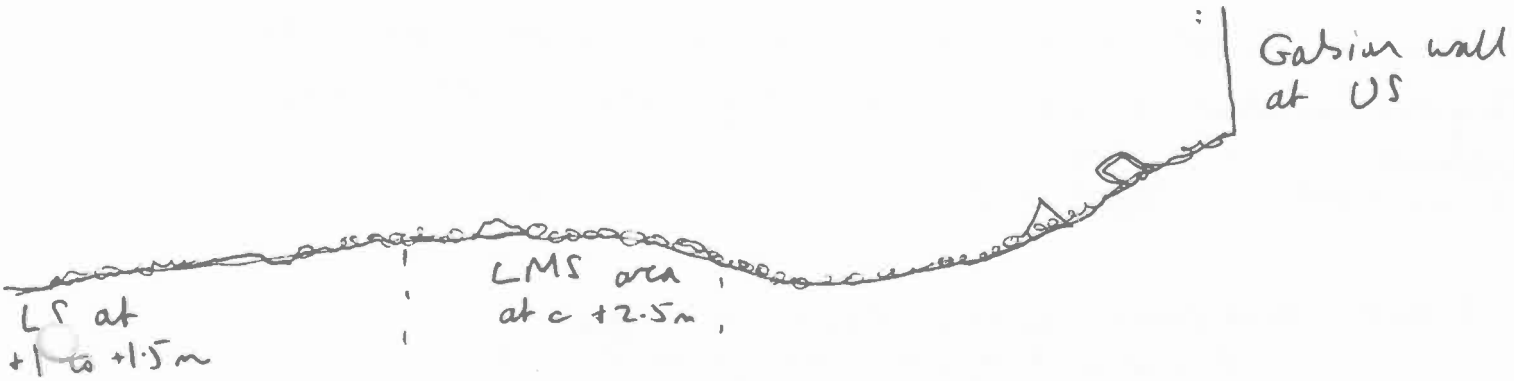
SITE NO.: 47

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks, etc.)





SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 47

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No. Habitat Name, Height on shore, and Time, and include details of samples/specimens/photographs taken.)

1. Lower shore small and large boulders on muddy mixed substrata with some bedrock at 1 to 1.5m Dominated by Fucus serratus with scattered but common barnacles on rock extensively bored by Polydora. Fine reds Callithamnion sp. were common as were filamentous phaeophyta

2. Lower shore species living on Fucus serratus
Callithamnion spp, filamentous Phaeophyta and Enteromorpha were together abundant.

3. Lower shore under boulders

4. Lower midshore boulders and some bedrock at 2 to 2.5m Angular boulders amongst heavily dug-over muddy-stony sediment. Fine algae much less common. One large boulder with encrusting pink Rhodophyta, Gigartina stellata and Audouinella sp.

5. Lower midshore species living on algae
Filamentous Phaeophyta more common than above other species less so.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the LMBA/MBA Intertidal Survey Unit and used in 1985. The categories in the sheet are covered by similar headings except that the type of community present and its [illegible] [illegible] section at the end of the form. [illegible] [illegible] for each category. [illegible] [illegible] sheet.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

47 1/2

INTERTIDAL SURVEYS - PLANTS

SITE NAME: Oreston Spit 47) GRID REFERENCE: SX498 533

DATE: 23/05/86 NAME OF RECORDER: A.E.LITTLE

KEY TO HABITAT COLUMNS:

1. L.S Sm and Lg boulders on muddy mixed substrate 1-1.5m
2. L.S Fucus serratus as substrate.
3. L.S under boulders
4. L.M.S boulders and some bedrock 2-2.5m
5. L.M.S Fucus spp as substrate
6.

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.				O		
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.	P					
Callithamnion tetragonum						
Callithamnion tetricum	?P					
Callithamnion/Antithamnion sp.	F	A			O	
Callophyllis laciniata						
Catenella caespitosa						
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum						
Ceramium shuttleworthianum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dilsea carnosa						
Dumontia incrassata						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum						
Gigartina acicularis						
Gigartina stellata				O		
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						
Hildenbrandia sp.						

	1	2	3	4	5	6
Hypoglossum woodwardii						
Laurencia hybrida						
Laurencia pinnatifida						
Lomentaria articulata						
Lomentaria clavellosa						
Membranoptera alata						
Mesophyllum lichenoides						
Palmaria palmata						
Phyllophora traillii						
Plumaria elegans						
Polyides rotundus	.					
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa						
Polysiphonia nigrescens	?O					✓
Polysiphonia urceolata						
Polysiphonia sp.						
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)				O		✓
Rhodophyta indet. (pink)	-	-	-	R		✓
Scytosiphon lomentaria						
Porphyra sp.	-	-	-	O	O	✓
BACILLARIOPHYCEAE						
Bacillariophyceae indet.	F			F		✓
PHAEOPHYTA						
Ascophyllum nodosum						
Bifurcaria bifurcata						
Cladostephus spongiosus						
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.						
Fucus serratus	A			F		✓
Fucus spiralis						
Fucus vesiculosus				C		✓

	1	2	3	4	5	6	
Halidrys siliquosa							
Halopteris scoparia							
Himanthalia elongata							
Laminaria digitata							
Laminaria hyperborea							
Laminaria ochrolenca							
Laminaria saccharina							
Laminaria sp. (sporlings)							
Pelvetia canaliculata							
Phaeophyta indet. (filam.)	F	F		F	C		
Pilayella littoralis							
Saccorhiza polyschides							
Sargassum muticum							
CHLOROPHYTA							
Bryopsis hypnoides							
Bryopsis plumosa							
Chaetomorpha melagonium							
Chlorophyta indet. (filam.)							
Cladophora pellucida							
Cladophora sp.							
Cladostephus spongiosus							
Codium fragile tomentosoides							
Codium tomentosum							
Enteromorpha sp. (p)	F			A	F		
Ulva sp. (p)	F	O		C	–		
ANGIOSPERMAE							
Zostera noltii							
Zostera augustifolia							
Zostera marina							
LICHENS							
Calloplaca marina							
Calloplaca thallincola							
Grey lichens							
Lecanora atra							
Lichina confinis							
Lichina pygmaea							
Ochrolechia parella							
Verrucaria maura							
Verrucaria mucosa							
Xanthoria parietina							
Callithamnion/Compsothamnion	O						

47 2/2

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Oreston Spit (47) GRID REFERENCE: SX 498 533

DATE: 23/5/76 NAME OF RECORDER: K.H. [illegible]

KEY TO HABITAT COLUMNS:

1. LS small and large boulders on muddy mixed substrate at +1 to 1·5m
2. LS species of Fucus vesiculosus
3. LS under boulders
4. LMS and some bedrock at +2 to 2·5m
5. LMS ~~and~~ species of Fucus
6.

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
Scypha compressa						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea						
Hemimycale columella						
Hymeniacidon perleve	F			x		
Myxilla incrustans						
Polytaspongia seriata						
Haliclona sp.			x			
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila						
Laomedea flexuosa		F	F			
Tubularia larynx						
COELENTERATA:ACTINIAE						
Actinia equina						
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina						

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Eulalia viridis						
Lanice conchilega						
Polydora sp.	S					
Pomatoceros sp. (p)	O					
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids		F				
Spirorbinidae - on rock						
Terebellidae indet.						
Cirratulus cirratus	O			C		
Nereis virens				C		
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus	F					
Balanus improvisus						
Balanus perforatus						
Chthamalus montagui						
Chthamalus stellatus						
Elminius modestus	C		F	O		
Semibalanus balanoides	F		O			
Verruca stroemia						
CRUSTACEA:ISOPODA						
Idotea sp. (p)						

	1	2	3	4	5	6
CRUSTACEA:AMPHIPODA						
Amphipoda indet.			C	A		
Gammarus sp.						
Hyale nilssoni						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas			C	C		
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						

	1	2	3	4	5	6
INSECTA						
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria						
Gibbula umbilicalis						
Hydrobia ulvae						
Littorina 'saxatilis'						
Littorina littorea			x	F		
Littorina mariae						
Littorina neglecta						
Littorina neritoides						
Littorina obtusata	F			O		
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata						
Nassarius incrassatus						
Nucella lapillus						
Ocenebra erinacea						
Patella aspera						
Patella depressa						
Patella vulgata						
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Cerastoderma edule						
Heteranomia squamula						
Hiatella arctica						
Lasaea rubra						
Mytilus edulis		·	x	R		
Ostrea edulis						
BRYOZOA						
Alcyonidium gelatinosum		C			O	
Alcyonidium hirsutum						
Bowerbankia imbricata		F				
Bryozoa indet. (encr.) (white)			F			
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida						
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86 RECORD NO.: 58

SITE NAME: Breakwater Nside W end SITE NO.: 48

SURVEY AREA: SEA AREA:

OS GRID REF.: SX E-W 467 N-S 505 TO E-W N-S

RECORDER: D. Roston / J Moore DATE: 24 D 5 M 86 Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below) BREAKWATER	25	✓

ASPECT (TICK)

NORTH	26	✓
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	
LOW	36	✓
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	✓
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	✓
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	✓
VARIABLE (30°/oo+)	66	
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	✓
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below) Concrete	78	✓

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	DIFF

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: W-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	
NORTH CHECKLIST	112	✓
ANIMAL (non-FAUNAL) LIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

SITE NAME

SITE NO.

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116	✓					
UPPER MIDSHORE	117						
MIDSHORE	118		✓				
LOWER MIDSHORE	119			✓			
LOWER SHORE	120				✓		
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123		2	3	3		
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132			1			
CLEAN GRAVEL (2-4 mm)	133			1			
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
CLAY	144						
BLACK LAYER (note depth in cm)	145						
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below) LIMESTONE BLOCKS	149	3	2				
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150			1	1		
CONCRETE	151		2	1			
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154	2	2	2			
FOLIOSE RED ALGAE	155				2		
FOLIOSE GREEN ALGAE	156						

		STN./HABITAT 1	2	3	4	5	6
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163	✓	✓	✓	✓		
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169	3	3	3	3		
TERRACES	170						
LEDGES	171						
ROCK WALLS	172	3	2	2	2		
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177			2	2		
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (+1m)	183						
ROCKPOOL - SM. ($\frac{3}{4}$1m)	184						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
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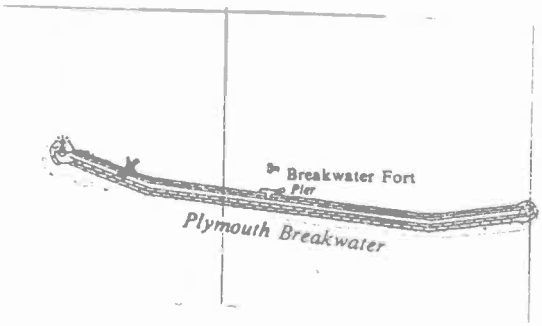
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

SITE NO.: 48

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)

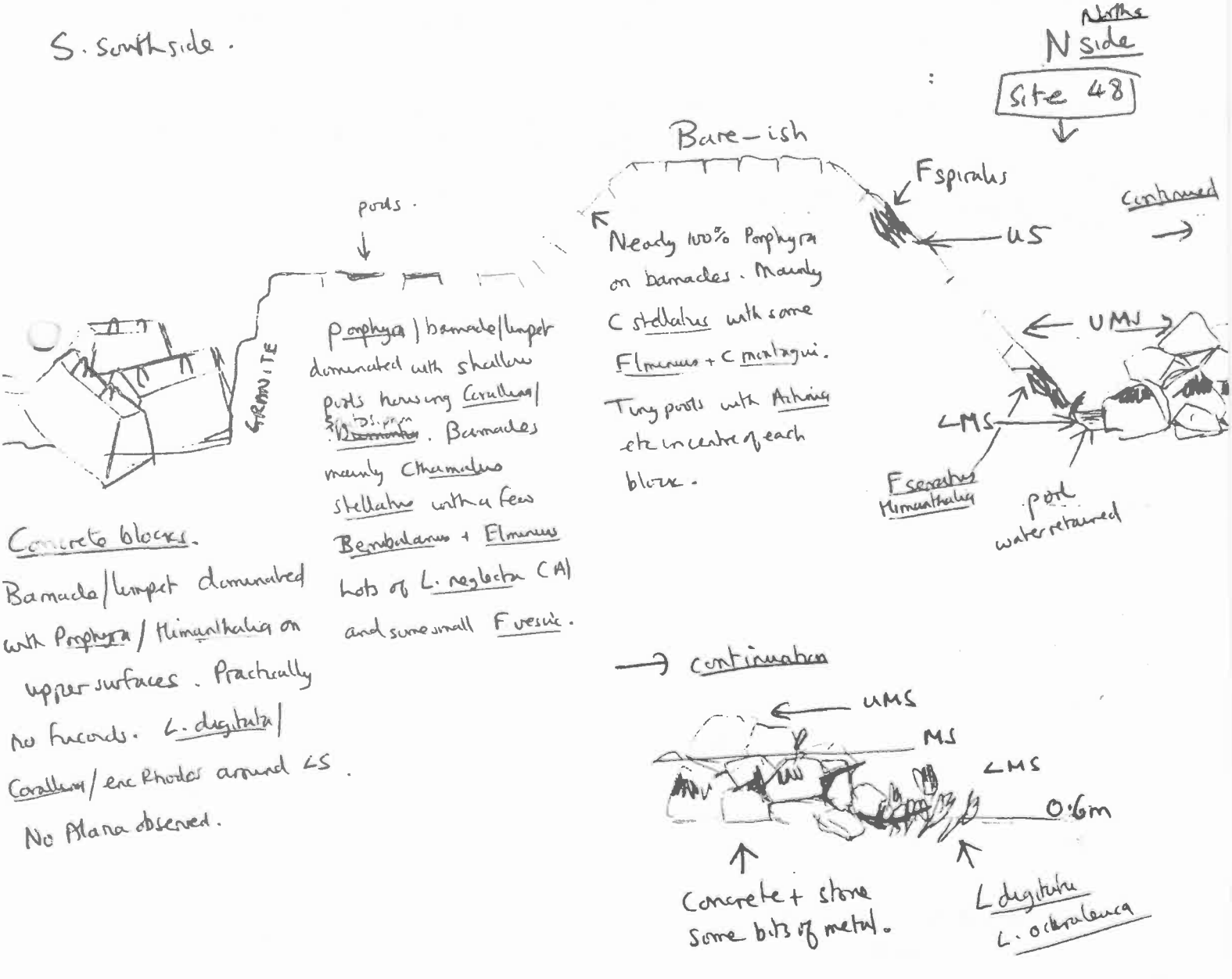


SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

S. southside.

N Side (North)

Site 48



SITE NO.: 48

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on shore, and Time; and include details of samples/specimens/photographs taken.)

US. Zone 1 On limestone blocks of wall, few species present but quite a wide zone of F. spiralis. No Pelvetia observed.

M. Zone 2. Area both on boulders + on adjacent sea wall. Patches of F vesiculosus and mixed barnacle spp. Some F serratus plants as well. Some boulders were limestone and extensively bored whilst others appeared to be of concrete.

MS Zone 3. Many 'vertical sides' and 'overhangs' found amongst the boulders. These were not particularly rich. F serratus was the dominant alga although large amounts of Porphyra and Palmaria palmata were present. Elminius was the dominant barnacle.

LS. Zone 4. Boulders and also large pieces of metal debris. Reasonable selection of Rhodophyta although Himanthalia / L digitata were dominant. Patches of L. ochraleuca just offshore.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in these sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. [illegible] description of a survey area [illegible] evailing wind, [illegible] the form. [illegible] each category is not corresponding with [illegible] sublittoral habitat record sheet.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Breakwater N side W end GRID REFERENCE: SX 467 505

DATE: 24/5/86 NAME OF RECORDER: J.J.Moore

KEY TO HABITAT COLUMNS:

1. Upper Shore breakwater
2. Mid Shore barnacle zone on boulders
3. Lower mid Shore fucoid zone on boulders
4. Lower Shore under rock boulders and cobble.
5.
6.

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata				O		
Scypha compressa			O			
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea			F	C		
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans			O	O		
Polymastia seriata						
Sorifera indet. (slimy brown)				O		
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila			C			
Laomedea flexuosa						
Tubularia larynx						
Obelia sp				O		
COELENTERATA:ACTINIAE						
Actinia equina		O				
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina						

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Eulalia viridis						
Lanice conchilega						
Polydora sp.						
Pomatoceros sp. (p)			R	O		
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids						
Spirorbinidae - on rock			C			
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus		O	O			
Balanus improvisus						
Balanus perforatus						
Chthamalus montagui		O				
Chthamalus stellatus		C	R	R		
Elminius modestus			C	O		
Semibalanus balanoides			F			
Verruca stroemia						
CRUSTACEA:ISOPODA						
Idotea sp. (p)						
Dynamene bidentata			O			

	1	2	3	4	5	6
CRUSTACEA:AMPHIPODA						
Amphipoda indet.						
Gammarus sp.		O				
Hyale nilssoni						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens				O		
Asterina gibbosa						
Ophiothrix fragilis						
Marthasterias glacialis				R		
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botrylloides leachii				O		
Botryllus schlosseri				O		
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						

	1	2	3	4	5	6
INSECTA						
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria			O			
Gibbula umbilicalis		O	O			
Hydrobia ulvae						
Littorina 'saxatilis'						
Littorina littorea						
Littorina mariae			R			
Littorina neglecta						
Littorina neritoides						
Littorina obtusata			R			
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata						
Nassarius incrassatus						
Nucella lapillus			O			
Ocenebra erinacea						
Patella aspera						
Patella depressa						
Patella vulgata	O	C	C			
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
Acanthochitona crinatus		O				
Pelta coronata			O			
Eubranchus sp.				R		
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Cerastoderma edule						
Heteranomia squamula				R		
Hiatella arctica			O			
Lasaea rubra						
Mytilus edulis		R	O			
Ostrea edulis						
BRYOZOA						
Alcyonidium gelatinosum						
Alcyonidium hirsutum						
Bowerbankia imbricata						
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida						
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis			R	O		

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86 RECORD NO.:

SITE NAME: Opposite Empacombe Quay SITE NO.: 49

SURVEY AREA: Plymouth, Millbrook Lake SEA AREA:

OS GRID REF.:	E - W	N - S	E - W	N - S
	SX 4444	5321	TO	

RECORDER: J.J. Moore DATE: 24 D 05 M 86 Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	✓
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	
LOW	36	✓
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	39	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	✓
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	✓
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	diff.

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: W-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	
ANIMAL CHECKLIST	113	
OTHER (tick and note below)	114	

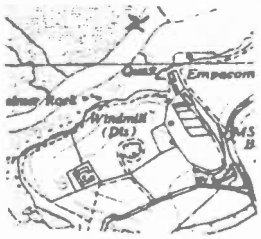
INTERTIDAL HABITAT RECORD

SITE NAME Opposite Emplacombe Quay SITE NO. 49

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118						
LOWER MIDSHORE	119						
LOWER SHORE	120	✓					
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131	1					
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143	3					
CLAY	144						
BLACK LAYER	145	1					
(note depth in cm)		<1					
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALCAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165	✓					
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177						
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (+1m)	183						
ROCKPOOL - SM. (¾1m)	184						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191						
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193	2					
SMOOTH	194	2					
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198						
SHELLS (INTACT)	199						
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

SITE NO.: 49

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks ~~etc.~~)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

SITE NO.: 49

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on shore, and Time; and include details of samples/specimens/photographs taken.)

Thick mud, fairly soft, LS, 1340. Little macrofauna. 2 specimens of Sagartiagetou undatus seen. Amphoretid sp. seen occasionally (Melinna palmata).

INTERTIDAL RECORDING SHEET

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INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86

RECORD NO.:

SITE NAME: Southdown Quay Wall SITE NO.: 50

SURVEY AREA: Plymouth, Millbrook Lake SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 43851 52175 TO

RECORDER: J.J Moore DATE: D 14 05 M 86 Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	
INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	✓
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	✓
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	
LOW	36	✓
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	✓
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	✓
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	✓
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	Easy

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: W-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

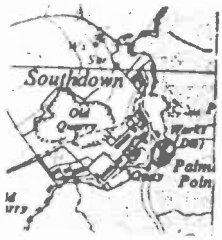
SITE NAME

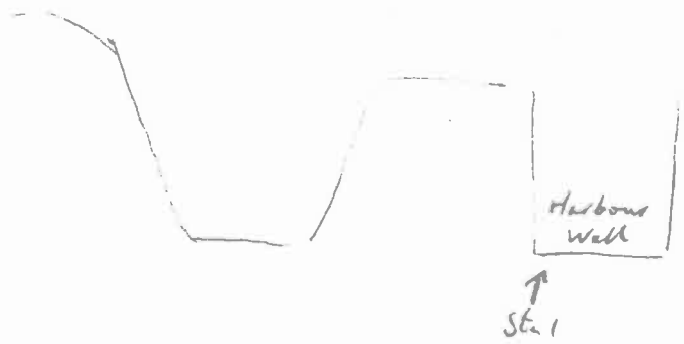
SITE NO. 50

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118	✓					
LOWER MIDSHORE	119	✓					
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	✓					
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-126 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
CLAY	144						
BLACK LAYER	145						
(note depth in cm)							
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154	1					
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162	✓					
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168	3					
BROKEN ROCK	169	1					
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176	3					
OVERHANG	177	2					
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (+1m)	183						
ROCKPOOL - SM. (<1m)	184						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191						
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193						
SMOOTH	194						
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198						
SHELLS (INTACT)	199						
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

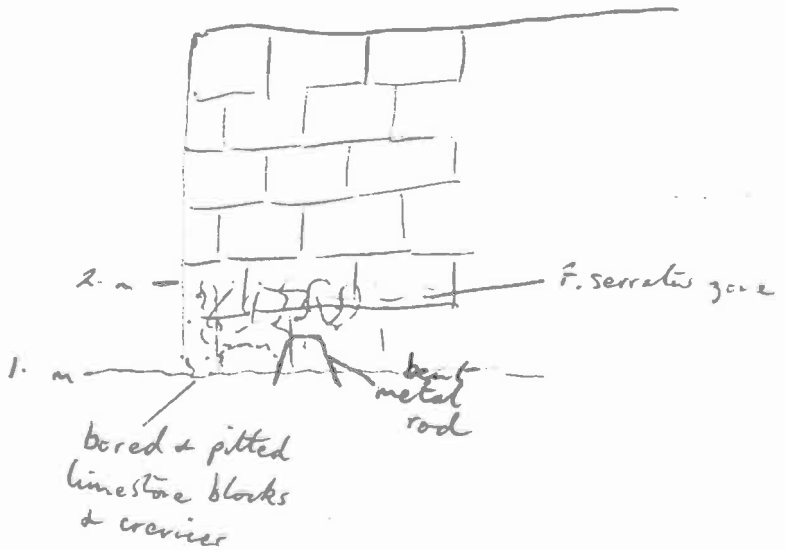
SITE NO.: 50

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks ~~etc.~~)





SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 50

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on shore, and Time; and include details of samples/specimens/photographs taken.)

Sta 1 LMS to MS, Bored and pitted Limestone blocks with crevices and overhangs where rock has broken away. Fucus serratus on ~~[illegible]~~ surface of blocks. Sponges, hydroids, bryozoans etc. in crevices and underhangs. Polydora tubes covering large areas. Hiatella bore holes occasional. Specimens of sponges, hydroids and bryozoans taken

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in these sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. [illegible] which would normally be included in the description of a survey area including prevailing wind, [illegible] tidal range [illegible] rainfall are not now included on the form. [illegible] category [illegible] with those [illegible] sublittoral habitat record sheet.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

SITE NAME: Southdown Quay wall (SW) GRID REFERENCE: Sx 4385 5275

DATE: 24/5/96 NAME OF RECORDER: D. Roston

KEY TO HABITAT COLUMNS:

1. Crevices and surface of limestone blocks at LWS
2.
3.
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.						
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.						
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa						
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum						
Ceramium shuttleworthianum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dilsea carnosa						
Dumontia incrassata						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum						
Gigartina acicularis						
Gigartina stellata						
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						
Hildenbrandia sp.						

	1	2	3	4	5	6	
Hypoglossum woodwardii							
Laurencia hybrida							
Laurencia pinnatifida							
Lomentaria articulata							
Lomentaria clavellosa							
Membranoptera alata							
Mesophyllum lichenoides							
Palmaria palmata							
Phyllophora traillii							
Plumaria elegans							
Polyides rotundus							
Polyneura hilliae							
Polysiphonia brodiaei							
Polysiphonia lanosa	O						
Polysiphonia nigrescens							
Polysiphonia urceolata							
Polysiphonia sp.							
Rhodophyta indet. (filam.)							
Rhodophyta indet. (dk. red)							
Rhodophyta indet. (pink)							
Scytosiphon lomentaria							
Porphyra sp.							
BACILLARIOPHYCEAE							
Bacillariophyceae indet.							
PHAEOPHYTA							
Ascophyllum nodosum	O						✓
Bifurcaria bifurcata							
Cladostephus spongiosus			.	.	.	.	
Chorda filum							
Colpomenia peregrina							
Cystosiera nodicaulis							
Desmarestia viridis							
Ectocarpoidea indet.							
Fucus serratus	F						✓
Fucus spiralis							
Fucus vesiculosus	O						✓

	1	2	3	4	5	6	
Halidrys siliquosa							
Halopteris scoparia							
Himanthalia elongata							
Laminaria digitata							
Laminaria hyperborea							
Laminaria ochrolenca							
Laminaria saccharina							
Laminaria sp. (sporlings)							
Pelvetia canaliculata							
Phaeophyta indet. (filam.)							
Pilayella littoralis							
Saccorhiza polyschides							
Sargassum muticum							
CHLOROPHYTA							
Bryopsis hypnoides							
Bryopsis plumosa							
Chaetomorpha melagonium							
Chlorophyta indet. (filam.)							
Cladophora pellucida							
Cladophora sp.							
Cladostephus spongiosus							
Codium fragile tomentosoides							
Codium tomentosum							
Enteromorpha sp. (p)	0						
Ulva sp. (p)							
ANGIOSPERMAE							
Zostera noltii							
Zostera augustifolia							
Zostera marina							
LICHENS							
Calloplaca marina							
Calloplaca thallincola							
Grey lichens							
Lecanora atra							
Lichina confinis							
Lichina pygmaea							
Ochrolechia parella							
Verrucaria maura							
Verrucaria mucosa							
Xanthoria parietina							

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS
(Not including species sampled from sediments)

SITE NAME: Southdown Quay Wall (SD) GRID REFERENCE: SX 4385 5275

DATE: 24/5/86 NAME OF RECORDER: J.J. Moore / D Roston

KEY TO HABITAT COLUMNS:

1. Crevices and surface of limestone blocks at LWS
2.
3.
4.
5.
6.

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
Scypha compressa						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea	O					
Hemimycale columella						
Hymeniacidon perleve	F					
Myxilla incrustans	O					
Sphlitaspongia seriata						
Chiona celata	R					
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila	O					
Laomedea flexuosa						
Tubularia larynx						
Obelia sp.	C					
COELENTERATA:ACTINIAE						
Actinia equina	O					
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina						
Metridium senile	O					

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Eulalia viridis						
Lanice conchilega						
Polydora sp.	C					
Pomatoceros sp. (p)	C					
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids						
Spirorbinidae - on rock						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus						
Chthamalus montagui						
Chthamalus stellatus						
Elminius modestus	C					
Semibalanus balanoides						
Verruca stroemia						
CRUSTACEA:ISOPODA						
Idotea sp. (p)						

	1	2	3	4	5	6
CRUSTACEA:AMPHIPODA						
Amphipoda indet.						
Gammarus sp.						
Hyale nilssoni						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas	F					
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						

	1	2	3	4	5	6
INSECTA						
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria						
Gibbula umbilicalis						
Hydrobia ulvae						
Littorina 'saxatilis'						
Littorina littorea	R					
Littorina mariae						
Littorina neglecta						
Littorina neritoides						
Littorina obtusata						
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata						
Nassarius incrassatus						
Nucella lapillus						
Ocenebra erinacea						
Patella aspera						
Patella depressa						
Patella vulgata						
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Cerastoderma edule						
Heteranomia squamula						
Hiatella arctica	O					
Lasaea rubra						
Mytilus edulis	O					
Ostrea edulis						
BRYOZOA						
Alcyonidium gelatinosum	O					
Alcyonidium hirsutum						
Bowerbankia imbricata	O					
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida						
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86 RECORD NO.:

SITE NAME: Millbrook Lake SITE NO.: 51

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.:	E - W	N - S	E - W	N - S
SX	43181	52741	TO	

RECORDER: Jon Moore DATE: 24 D 05 M 86 Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	✓
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	
LOW	36	✓
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	✓
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONE	74	
HARD SLATE/SHALE	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	✓
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	Diff.

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: B-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	
ANIMAL CHECKLIST	113	
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

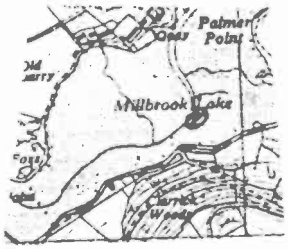
SITE NAME Millbrook Lake SITE NO. 5

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118						
LOWER MIDSHORE	119	✓					
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143	3					
CLAY	144						
BLACK LAYER	145	1					
(note depth in cm)		<1					
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						

		STN./HABITAT 1	2	3	4	5	6
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166	✓					
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177						
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (+1m)	183						
ROCKPOOL - SM. (≯1m)	184						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191						
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193	3					
SMOOTH	194	2					
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198	3					
SHELLS (INTACT)	199						
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

SITE NO.: 51

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

SITE NO.: 51

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on shore, and Time; and include details of samples/specimens/photographs taken.)

St 1 Deep soft mud with numerous *Nereis diversicolor* burrows. *Nephtys* also present. No distinct black layer due to *Nereis* burrowing activity. 0.01m²/0.5mm and 0.1m²/1mm samples taken.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in these sheets are covered by similar headings except that the type of community present and its cover [illegible] for each habitat and is to be described in the plan section at the end of the form. [illegible] included in the description of a survey site including prevailing wind, tide [illegible] are not [illegible] on the form. Numbers for each category do not [illegible] the sublittoral habitat record sheet.

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86

RECORD NO.:

SITE NAME: E of Fosse Point SITE NO.: 52

SURVEY AREA: Plymouth, Millbrook Lake SEA AREA:

OS GRID REF.:	E - W	N - S		E - W	N - S
	SX 4341	5215	TO		

RECORDER: Jon Moore DATE: D 14 M 05 Y 86

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	✓
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	
LOW	36	✓
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	✓
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	✓
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	Diff.

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: W-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	
ANIMAL CHECKLIST	113	
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

SITE NAME W. of Foss Point SITE NO. 52

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118	✓					
LOWER MIDSHORE	119						
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143	3					
CLAY	144						
BLACK LAYER	145	1					
(note depth in cm)		<1					
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166	✓					
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177						
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (+1m)	183						
ROCKPOOL - SM. (¾1m)	184						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191						
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193	3					
SMOOTH	194	2					
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198	3					
SHELLS (INTACT)	199						
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

SITE NO.: 52

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

SITE NO.: 52

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on shore, and Time; and include details of samples/specimens/photographs taken.)

Stn 1 Deep soft mud with numerous *Nereis diversicolor* burrows. No distinct black layer due to *Nereis* burrowing activity. 0.01 m² / 0.5 mm sample taken.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its [illegible] been defined for each habitat and is [illegible] described in the blank section at the end of the form. [illegible] which would normally be included in the description of a survey area including prevailing [illegible], time of [illegible], tidal [illegible] and annual rainfall are not [illegible] on the form. [illegible] for each category [illegible] with those on the Sublittoral Habitat Record Sheet.

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86 RECORD NO.:

SITE NAME: South Drakes Island SITE NO.: 53

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 468 527 TO

RECORDER: K. Hiscock DATE: 24 D 05 M 86 Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	✓
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

WEST	26	
NORTHWEST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	✓
SOUTHWEST	31	
NORTH	32	
NORTHEAST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	✓
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	✓
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	✓
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	✓
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	✓
MOD. STRONG (1-3 k)	62	
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (approx 34°/oo)	65	
VARIABLE (30°/oo+)	66	✓
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	✓
LIMESTONE/CHALK	72	
HARD SAND/MUDSTONE/SHALE	73	
SOFT SAND/MUDSTONE/SHALE	74	
SOFT SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	av.
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	diff.

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: B-A	107	✓
C-U	108	✓
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

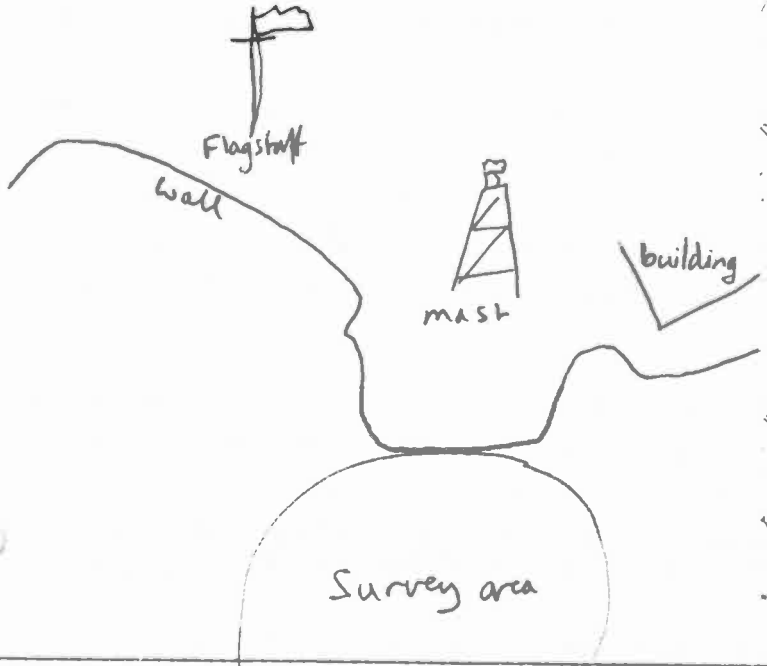
SITE NAME

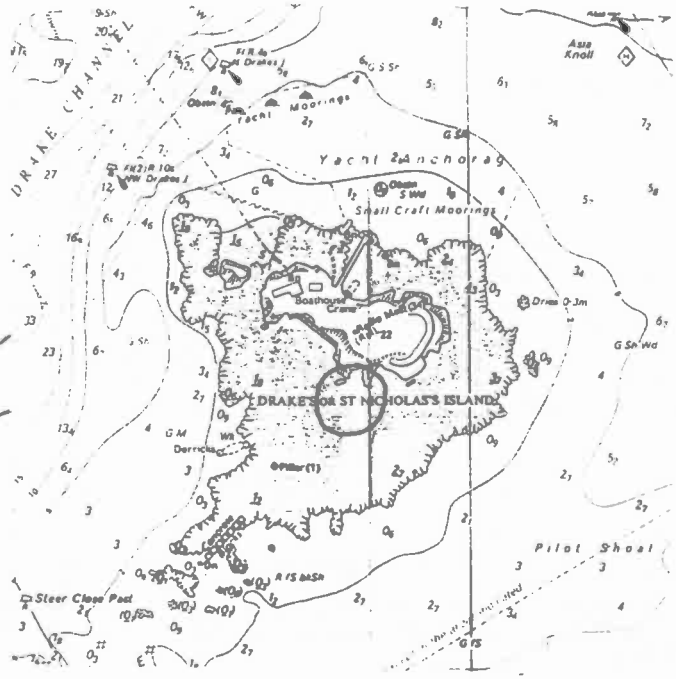
SITE NO. 53

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115	✓					
UPPER SHORE	116	✓					
UPPER MIDSHORE	117	✓			✓		
MIDSHORE	118		✓	✓	✓		
LOWER MIDSHORE	119			✓	✓	✓	
LOWER SHORE	120			✓			
SUBLITTORAL FRINGE	121				·		✓
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3	3	3	3	3	3
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125				2		
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127				2		
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131					·	
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138			2	1		2
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
CLAY	144						
BLACK LAYER (note depth in cm)	145						
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154			3		·	
FOLIOSE RED ALGAE	155			2	2	·	2
FOLIOSE GREEN ALGAE	156	1					
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161		✓			·	
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163	✓					
STEEP (20-40°)	164			✓			
SHALLOW (20°)	165				✓		
HORIZONTAL (5°)	166						✓
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169	3					
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177		3				
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181		·	2			
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (+1m)	183		2				
ROCKPOOL - SM. (¾1m)	184		2	·			
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187			2			2
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191						
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193						
SMOOTH	194						
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198						
SHELLS (INTACT)	199						
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

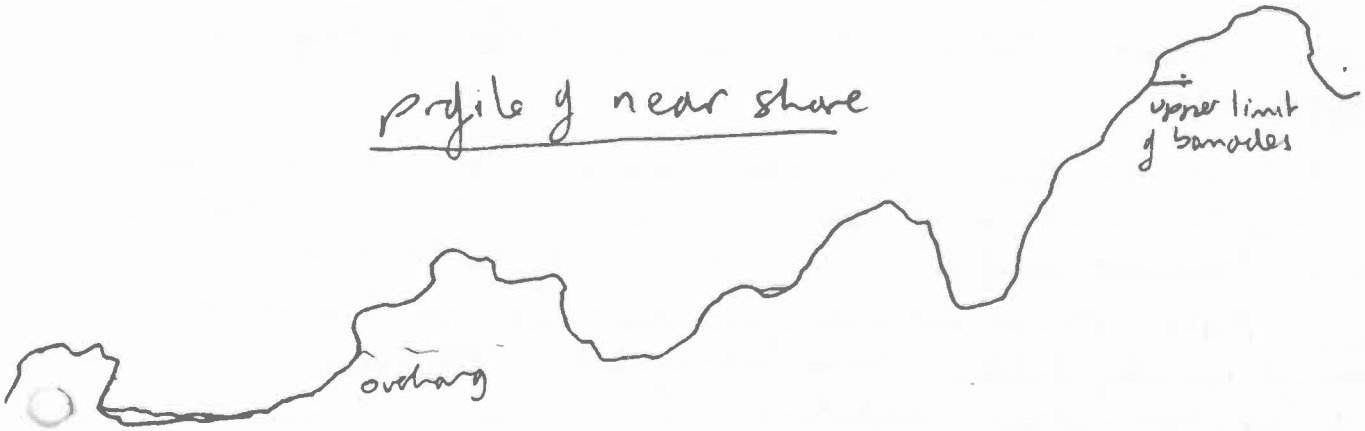
SITE NO.:

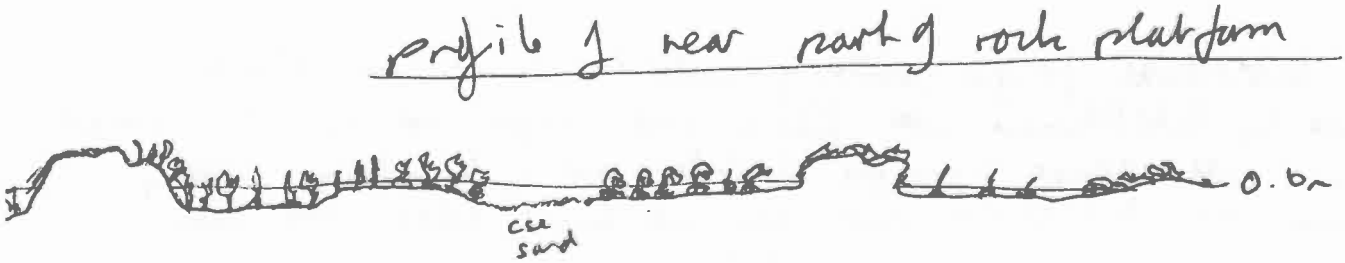
SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)





SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).





SITE NO.:

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, height on shore, and Time; and include details of samples/specimens/photographs taken.)

General description. Shores were of broken metamorphic rock with steeply sloping and overhanging areas to low water of ordinary spring tides level. However, offshore, there was a very extensive broken rock platform with areas of coarse sand, some outcrops and, at +0.6m predicted low water, much standing water over the platform. Upper shore areas were barnacle-limpet dominated and lower shore areas covered by algae. There were many pools although, on the lower shore, these were filled with large brown algae.

Station 1. Splash to midshore of broken metamorphosed bedrock with some very large boulders dominated by barnacles and limpets with patches of green algae, Lichina pygmaea on the upper shore. Verrucaria mucosa was common. There were many pools below the upper midshore generally with sparse algae, limpets and Lit.Littorina-dominated areas with large numbers of Pelta cornuta.

Station 2. Midshore to lower midshore overhangs at c 1.5 to 2.5m. coloured by several species with large patches of Balanus perforatus and some large patches of Hymeniacidon or Halichondria or Cliona, Palmaria or Laminaria scattered. Actinia was common near the tops of overhangs and Sagartia elegans below.

Station 3. Midshore to low water broken bedrock with very large boulders covered by Chthamalus and Fucus serratus and ~~barnacles~~ on the lower shore by Himanthalia or Laminaria digitata. Some sand on rock on lowest shore.

Station 4. Pools. Present over most of the shore and up to several metres across or generally shallow. Some with cobbles in the bottom and some full of large brown algae. Midshore pools mainly Lit.Littorina dominated with many Pelta cornuta.

Station 5. Grazing on algae on the lower midshore.

Station 6. Sublittoral fringe (standing water) at 0.6m. Rocks ~~with~~ covered by Lit.Littorina with fronds of red algae, ~~and~~ encrusting sponges or ascidians with dense Laminaria digitata and L. hyperborea. Many L. hyperborea had lost their fronds here and tops of stipes were tatty.

There was no Sargassum, Halidrys, Cystoseira, Bifurcaria, etc which might have been expected.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used on the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC Intertidal Rock Habitat Recording Sheet developed in the MBA/NRA Intertidal Survey Unit in the late 1970s. The [illegible] is designed as a [illegible] with the exception that the type of community present and its [illegible] are recorded on [illegible] rather than at the end of the [illegible] as in the original sheet. [illegible] Please refer to the [illegible] for [illegible]

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

SITE NAME: 63 E Jersey Island GRID REFERENCE:

DATE: NAME OF RECORDER: AELittle

KEY TO HABITAT COLUMNS:

1. [illegible]
2. MS [illegible]
3. [illegible] Fucus serratus & Laminaria saccharina 0-0.2.5
4. M S Pools
5. Algae at base of rocks, MS-LS
6. Under water infra fringe

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata			P			
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.		O			P	
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Calliblepharis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.			P	?P	P	
Callithamnion tetragonum			O		O	
Callithamnion tetricum					F	
Callithamnion/Antithamnion sp.				F	O	F
Callophyllis laciniata						
Catenella caespitosa						
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum		F		C	F	F
Ceramium shuttleworthianum						
Ceramium sp.		A				
Chondrus crispus				F		
Chylocladia verticillata						P
Corallina officinalis			C	C-A		F
Cryptopleura ramosa		O		F	F	F
Cystoclonium purpureum						
Delesseria sanguinea						
Dilsea carnosa						
Dumontia incrassata			F	F	F	O
Furcellaria lumbricalis						
Gastroclonium ovatum				F		O
Gelidium latifolium						
Gelidium pusillum		C		F		F
Gigartina acicularis						
Gigartina stellata		C	C	O	-	O
Gracilaria verrucosa						
Griffithsia coralliinoides						
Griffithsia flosculosa						
Griffithsia sp.						
Hildenbrandia sp.						

	1	2	3	4	5	6	
Hypoglossum woodwardii							
Laurencia hybrida			F				✓
Laurencia pinnatifida		F	C			O	✓
Lomentaria articulata		C	C	F	F	F	✓
Lomentaria clavellosa		C					✓
Membranoptera alata							
Mesophyllum lichenoides							
Palmaria palmata		C	F	F	C	A	✓
Phyllophora traillii							
Plumaria elegans		F	P	F		O	✓
Polyides rotundus				F		F	✓
Polyneura hilliae							
Polysiphonia brodiaei							
Polysiphonia lanosa							
Polysiphonia nigrescens				C		P	✓
Polysiphonia urceolata			P			P	
Polysiphonia sp.				C	F	F	✓
Rhodophyta indet. (filam.)							
Rhodophyta indet. (dk. red)		O	C	C		C	✓
Rhodophyta indet. (pink)		F	C	A	O	A	✓
Scytosiphon lomentaria							
Porphyra sp.		A	F	C	A	C	✓
Rhodomela confervoides						O	✓
BACILLARIOPHYCEAE							
Bacillariophyceae indet.	C						✓
PHAEOPHYTA							
Ascophyllum nodosum							
Bifurcaria bifurcata							
Cladostephus spongiosus		O	F	O		O	✓
Chorda filum							
Colpomenia peregrina							
Cystosiera nodicaulis							
Desmarestia viridis							
Ectocarpoidea indet.							
Fucus serratus							✓
Fucus spiralis							
Fucus vesiculosus							

	1	2	3	4	5	6
Halidrys siliquosa						
Halopteris scoparia						
Himanthalia elongata			A	C		F
Laminaria digitata		A	A	C		S
Laminaria hyperborea						A
Laminaria ochrolenca						P
Laminaria saccharina						C
Laminaria sp. (sporlings)						
Pelvetia canaliculata						
Phaeophyta indet. (filam.)		F		A	F	F
Pilayella littoralis						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Chlorophyta indet. (filam.)						
Cladophora pellucida						
Cladophora sp.		O				P
Cladostephus spongiosus						
Codium fragile tomentosoides						
Codium tomentosum						
Enteromorpha sp. (p)	C					
Ulva sp. (p)		O				
ANGIOSPERMAE						
Zostera noltii						
Zostera augustifolia						
Zostera marina						
LICHENS						
Calloplaca marina						
Calloplaca thallincola						
Grey lichens						
Lecanora atra						
Lichina confinis						
Lichina pygmaea						
Ochrolechia parella						
Verrucaria maura						
Verrucaria mucosa						
Xanthoria parietina						
Leathesia difformis		O				P
Pterosiphonia pinnulata				F	O	O
Chaetomorpha sp.						R

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: South Drakes Island (53) GRID REFERENCE: SX 468 527

DATE: 24/5/86 NAME OF RECORDER: K. [illegible]

KEY TO HABITAT COLUMNS:

1. Spl to MS broken bedrock with some very large boulders
2. MS to LMS. overhangs at c+1.5 to 2.5m.
3. MS to LS broken bedrock with some very large boulders
4. Pools UMS to LMS.
5. ~~Sp~~ LMS. Growing in algae
6. ~~Subl~~ Subl. fringe at +0.6m (rock platform).

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
Scypha compressa		O				
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea		C				O
Hemimycale columella	R					
Hymeniacidon perleve		C	O			F
Myxilla incrustans						
Monlitaspongia seriata						
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila		O	F			F
Laomedea flexuosa		C				O
Tubularia larynx						
? Clava sp (coll)		x1				
COELENTERATA:ACTINIAE						
Actinia equina	O	F				
Actinothoe sphyrodeta				R		
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus			x1			
Corynactis viridis						
Sagatia elegans		C				
Urticina felina						
Diadumene cincta		O				

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Eulalia viridis		O				
Lanice conchilega						
Polydora sp.		F				
Pomatoceros sp. (p)		O				O
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids						
Spirorbinidae - on rock		O				
Terebellidae indet.						
Nereis sp		x1				
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						O
Balanus improvisus						
Balanus perforatus		C				
Chthamalus montagui	S					
Chthamalus stellatus	A					
Elminius modestus	R					
Semibalanus balanoides	F					
Verruca stroemia						
CRUSTACEA:ISOPODA						
Idotea sp. (p)			O			
Campecopea hirsuta	F					

Ste 53

	1	2	3	4	5	6
CRUSTACEA:AMPHIPODA						
Amphipoda indet.						
Gammarus sp.						
Hyale nilssoni						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botrylloides leachii		O	O	-	-	F
Botryllus schlosseri		O	P			O
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
Sidnyum turbinatum		O				
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						
Pelta commata				F		

	1	2	3	4	5	6
INSECTA						
Anurida maritima	F					
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum		F	x1			O
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria		O	F			F
Gibbula umbilicalis	O	O				
Hydrobia ulvae						
Littorina 'saxatilis'	C					
Littorina littorea						
Littorina mariae						
Littorina neglecta	A					
Littorina neritoides	F					
Littorina obtusata			O			
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata	O					
Nassarius incrassatus		O				
Nucella lapillus		R				
Ocenebra erinacea		R				
Patella aspera						
Patella depressa						
Patella vulgata	A		C	P		
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
Acanthochitona crinitus		x1				
Aeolidia virginea						x1
Lepidochitona cinerara						x1
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Cerastoderma edule						
Heteranomia squamula		O				O
Hiatella arctica						
Lasaea rubra						
Mytilus edulis	O					
Ostrea edulis						
BRYOZOA						
Alcyonidium gelatinosum						
Alcyonidium hirsutum						
Bowerbankia imbricata						
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa			F			C
Flustrellidra hispida			F			
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis		O	F			C

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/85

RECORD NO.:

SITE NAME: Devil's Point

SITE NO.: 54

SURVEY AREA: Plymouth.

SEA AREA:

OS GRID REF.:	E - W	N - S		E - W	N - S
	SX	460	533	TO	

RECORDER: K.H. Scoble

DATE: 24 D 05 M 86 Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	✓
WEST	32	✓
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	✓
LOW	36	✓
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	✓
SEA WALL	44	✓
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	✓
EXTREMELY SHELTERED (fetch 3 km)	59	

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	✓
MOD. STRONG (1-3 k)	62	
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	
LOW (<30°/oo)	67	✓
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	✓
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	poor
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	easy

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	✓
BEACH FISHING	96	✓
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	✓

OTHER DATA RECORDED

PHOTOGRAPHS: W-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

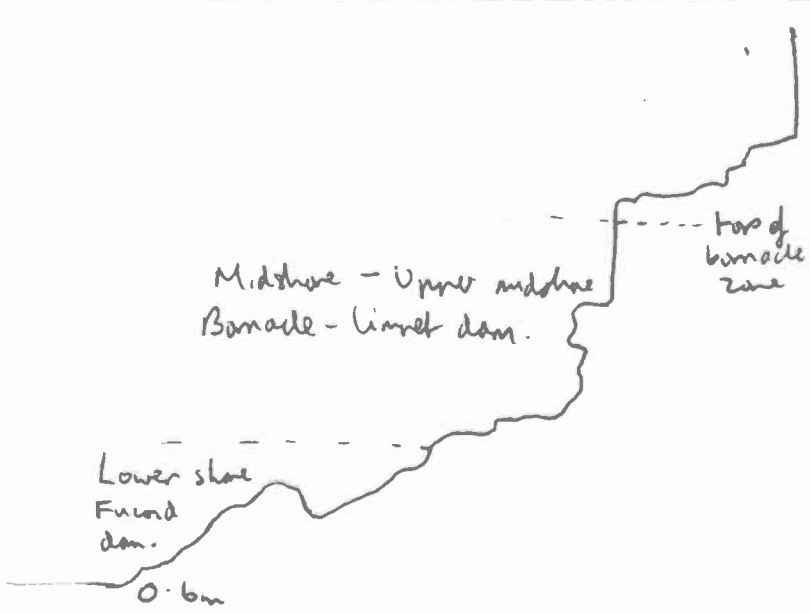
SITE NAME

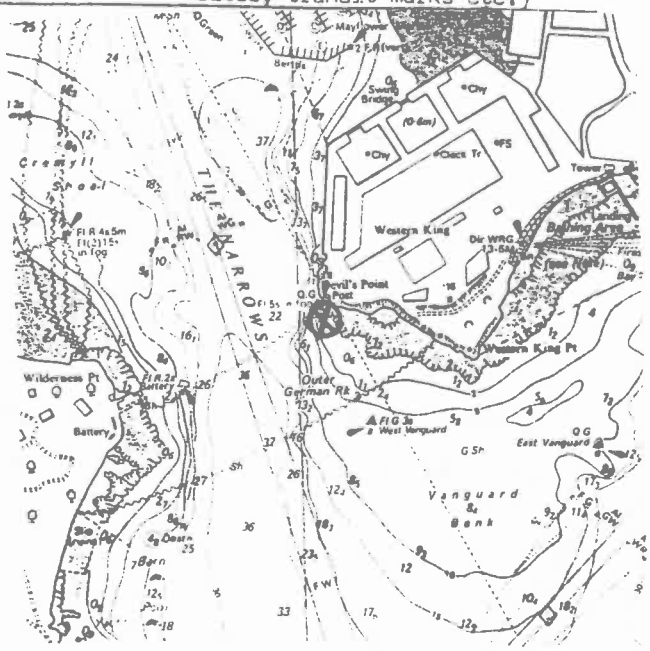
SITE NO. 34

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116	✓					
UPPER MIDSHORE	117		✓				
MIDSHORE	118		✓				
LOWER MIDSHORE	119			✓		✓	
LOWER SHORE	120				✓	✓	
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3	3	3	3	3	
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
CLAY	144						
BLACK LAYER (note depth in cm)	145						
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154			3			
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163	✓					
STEEP (20-40°)	164		✓	✓			
SHALLOW (20°)	165				✓		
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169	3	3	2	2		
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177						
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (+1m)	183						
ROCKPOOL - SM. (¾1m)	184						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191						
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193						
SMOOTH	194						
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198						
SHELLS (INTACT)	199						
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

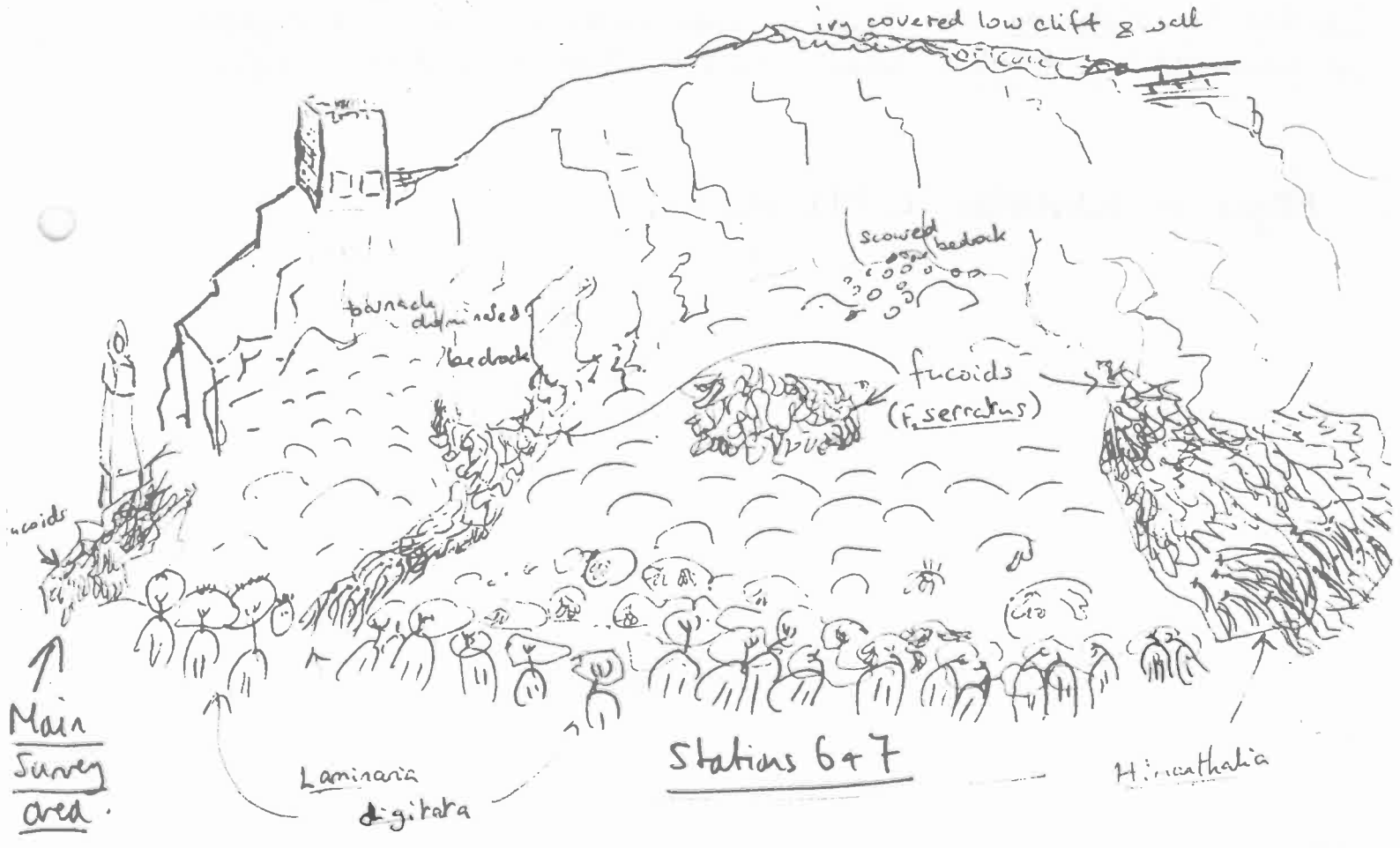
SITE NO.:

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)





SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.:

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on Shore, and Time; and include details of samples/specimens/photographs taken.)

1. Upper shore steeply sloping pitted limestone colonised by fairly dense barnacles and widely scattered patches of Lichina pygmaea and sparse Verrucaria maura. Some standing water in pits where Actinia, Patella, Littorina littorea and Mytilus found

2. Upper midshore to midshore steeps pitted limestone. Steeply sloping bedrock dominated by barnacles and limpets with some damp places

3. Lower midshore ~~[illegible]~~ limestone bedrock covered by Fucus serratus over Polydora-bored rock with a very few patches of clear bedrock where limpets and barnacles occur. One area of shore and some boulders dominated by green algae with Porphyra

4. Lower shore ~~[illegible]~~ limestone bedrock (Polydora bored). Covered by Palmaria and Gigartina with scattered Laminaria digitata and dominated by Polydora below. Some vertical or overhanging surfaces.

5. Algae as substratum, LMS and LS

INTERTIDAL RECORDING SHEET

This check list is based on the [illegible] and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC [illegible] shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover [illegible] defined for each habitat and is to be described in the blank section [illegible] of the form [illegible] in the [illegible] including [illegible] wind, [illegible] tidal range and annual rainfall are not now included on the form. Numbers for each category do not [illegible] with those on the sublittoral habitat record sheet.

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86 RECORD NO.:

SITE NAME: Devils Point SITE NO.: 54

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.:	E - W	N - S		E - W	N - S
	SX	460	533	TO	

RECORDER: K Miscock DATE: 24 D 05 M 86 Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	✓
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	/
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	✓
MACHAIR	43	
SEA WALL	44	
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	✓
EXTREMELY SHELTERED (fetch 3 km)	59	

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	✓
MOD. STRONG (1-3 k)	62	
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

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NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	
LOW (30°/oo)	67	✓
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	✓
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	av.
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	easy

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	✓
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	✓
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: W-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

SITE NAME

SITE NO. 54

		STN./HABITAT 6	7	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118						
LOWER MIDSHORE	119						
LOWER SHORE	120	✓	✓				
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123	2	2				
SM. BOULDERS (256-500 mm)	124	3	3				
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
CLAY	144						
BLACK LAYER	145						
(note depth in cm)							
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154	3	3				
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165	✓	✓				
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177						
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182	3	3				
ROCKPOOL - LG. (+1m)	183						
ROCKPOOL - SM. (¾1m)	184						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191						
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193						
SMOOTH	194						
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198						
SHELLS (INTACT)	199						
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

SITE NO.: 54

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)

See sheet 1

SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

See sheet 1

SITE NO.: 54

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No.. Habitat Name, Height on shore, and Zone; and include details of samples/specimens/photographs taken.)

6. Lower shore large & small boulders covered by red algae, Fucus serratus & Saccharina digitata.

7. Under boulders.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover have not been defined for each habitat and is to be described in the blank section at the end of the form. Features which would normally be included in the description of a survey area including prevailing wind, time [illegible], tidal range and annual rainfall are not now included on the form. Numbers for each category do not correspond with those on the Sublittoral Habitat record sheet.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

CLIFF NAME: Devil's Point 54 GRID REFERENCE:

DATE: 24/05/86 NAME OF RECORDER: A.E.Little

KEY TO HABITAT COLUMNS:

1. U.S. Steeply sloping pitted limestone
2. UMS-MS steeply sloping " "
3. L.MS. limestone (polydora)
4. L.S. limestone (polydora)
5. LSg-MS Algae as substrate
6.

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium				F		
Audouinella sp.				O	O	
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Calliblepharis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.						
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa	R					
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum					O	
Ceramium shuttleworthianum						
Ceramium sp.						
Chondrus crispus			O	F		
Chylocladia verticillata						
Corallina officinalis						
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dilsea carnosa						
Dumontia incrassata						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum			C	F		
Gigartina acicularis						
Gigartina stellata			C	A		
Gracilaria verruscosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						
Halurgrandia sp.	?P					

	1	2	3	4	5	6
Hypoglossum woodwardii						
Laurencia hybrida						
Laurencia pinnatifida						
Lomentaria articulata				F	O	
Lomentaria clavellosa				O	O	
Membranoptera alata						
Mesophyllum lichenoides						
Palmaria palmata			C	A	C	
Phyllophora traillii						
Plumaria elegans			O			
Polyides rotundus						
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa						
Polysiphonia nigrescens						
Polysiphonia urceolata						
Polysiphonia sp.						
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)			F		F	
Rhodophyta indet. (pink)			F	O	F	
Scytosiphon lomentaria						
Porphyra sp.				O	C	
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
PHAEOPHYTA						
Ascophyllum nodosum						
Bifurcaria bifurcata			O			
Cladostephus spongiosus				O		
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.						
Fucus serratus			A	C		
Fucus spiralis						
Fucus vesiculosus						

C U.S.

	1	2	3	4	5	6
Halidrys siliquosa						
Halopteris scoparia						
Himanthalia elongata				F		
Laminaria digitata				A		
Laminaria hyperborea				F		
Laminaria ochrolenca						
Laminaria saccharina				F		
Laminaria sp. (sporlings)				F		
Pelvetia canaliculata						
Phaeophyta indet. (filam.)			C	C	F	
Pilayella littoralis						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Chlorophyta indet. (filam.)						
Cladophora pellucida			O			
Cladophora sp.			C	O		
Cladostephus spongiosus						
Codium fragile tomentosoides						
Codium tomentosum						
Enteromorpha sp. (p)						
Ulva sp. (p)				F	F	
ANGIOSPERMAE						
Zostera noltii						
Zostera augustifolia						
Zostera marina						
LICHENS						
Calloplaca marina						
Calloplaca thallincola						
Grey lichens						
Lecanora atra						
Lichina confinis						
Lichina pygmaea	F					
Ochrolechia parella						
Verrucaria maura	O					
Verrucaria mucosa						
Xanthoria parietina						
Schmitziella endophloea			P			
Elachista sp			F			

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

SITE NAME: Penn Point 54 GRID REFERENCE:

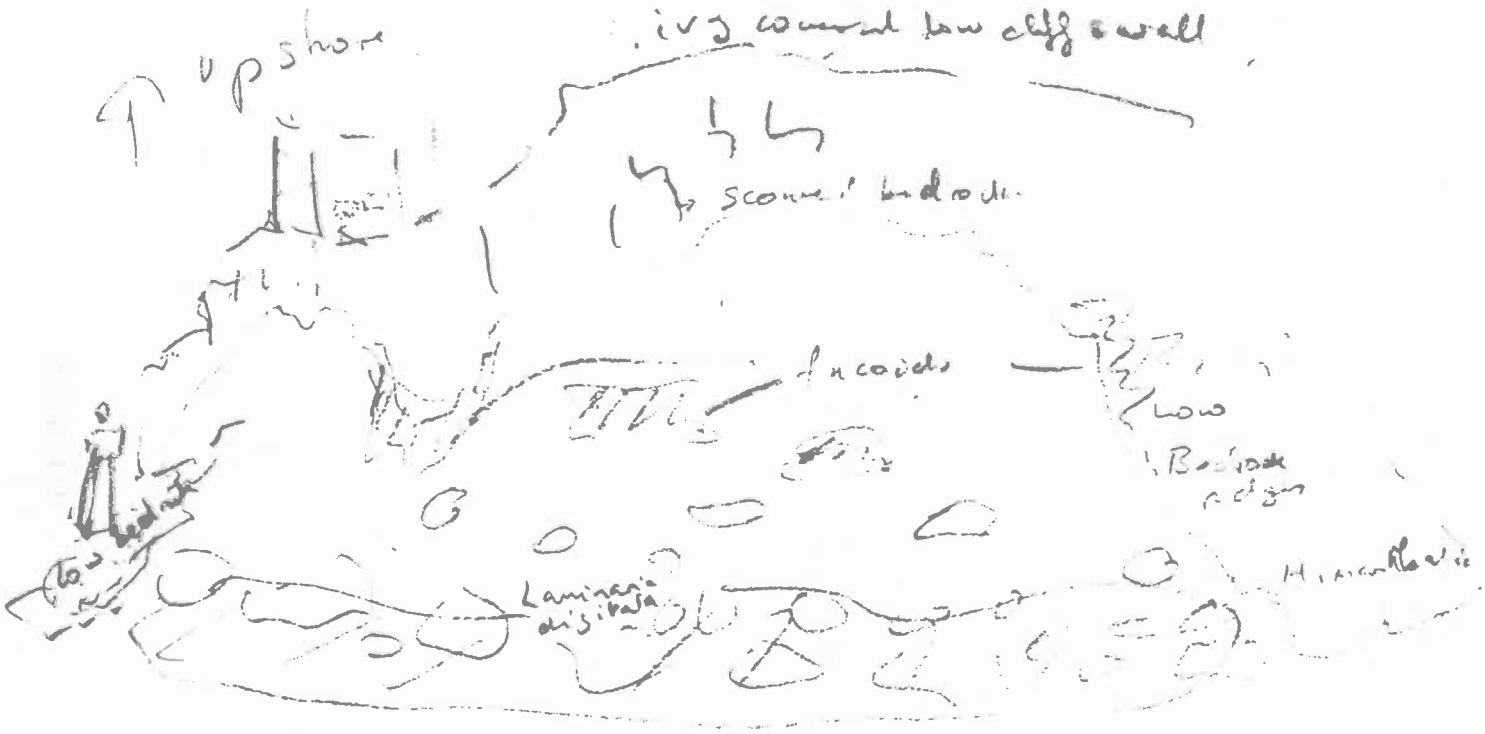
DATE: [illegible] NAME OF RECORDER: PEL

KEY TO HABITAT COLUMNS:

1. LS Boulders
2. LS V. Boulders
3.
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium	O					
Audouinella sp.						
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callithamnion ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.						
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa						
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum	O					
Ceramium shuttleworthianum						
Ceramium sp.						
Chondrus crispus						
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dilsea carnosa						
Dumontia incrassata						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum						
Gigartina acicularis						
Gigartina stellata	F					
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						
Hildenbrandia sp.						

	1	2	3	4	5	6
Hypoglossum woodwardii						
Laurencia hybrida						
Laurencia pinnatifida						
Lomentaria articulata	F					✓
Lomentaria clavellosa						
Membranoptera alata						
Mesophyllum lichenoides						
Palmaria palmata	C					✓
Polyliphora traillii						
Plumaria elegans						
Polyides rotundus	:					
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa						
Polysiphonia nigrescens						
Polysiphonia urceolata						
Polysiphonia sp.						
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)	/					✓
Rhodophyta indet. (pink)	F					✓
Scytosiphon lomentaria						
Porphyra sp.						
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
PHAEOPHYTA						
Ascophyllum nodosum						
Bifurcaria bifurcata						
Cladostephus spongiosus						
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.						
Fucus serratus	A					✓
Fucus spiralis						
Fucus vesiculosus						


upshore
ivy covered low cliff & wall
scoured bedrock
fucoids
low
Laminaria digitata

	1	2	3	4	5	6	
Halidrys siliquosa							
Halopteris scoparia							
Himanthalia elongata	–						
Laminaria digitata	A						
Laminaria hyperborea	C						
Laminaria ochrolenca							
Laminaria saccharina							
Laminaria sp. (sporlings)	F						
Pelvetia canaliculata							
Phaeophyta indet. (filam.)	c						
Pilayella littoralis							
Saccorhiza polyschides							
Sargassum muticum							
CHLOROPHYTA							
Bryopsis hypnoides							
Bryopsis plumosa							
Chaetomorpha melagonium							
Chlorophyta indet. (filam.)							
Cladophora pellucida							
Cladophora sp.							
Cladostephus spongiosus							
Codium fragile tomentosoides							
Codium tomentosum							
Enteromorpha sp. (p)							
Ulva sp. (p)							
ANGIOSPERMAE							
Zostera noltii							
Zostera augustifolia							
Zostera marina							
LICHENS							
Calloplaca marina							
Calloplaca thallincola							
Grey lichens							
Lecanora atra							
Lichina confinis							
Lichina pygmaea							
Ochrolechia parella							
Verrucaria maura							
Verrucaria mucosa							
Xanthoria parietina							

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Devil's Point (54) GRID REFERENCE: SX 460 537

DATE: 24.5.86 NAME OF RECORDER: M. Howard

KEY TO HABITAT COLUMNS:

1. US steeply sloping pitted limestone bedrock
2. UMS to MS steeply sloping pitted limestone bedrock
3. LMS limestone bedrock
4. Lower shore limestone bedrock
5. ~~Algae on~~ LMS and LS algae as a substratum
6. (Separate sheet for boulders on LS)

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata				O		
Scypha compressa						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea				O		
Hemimycale columella						
Hymeniacidon perleve		R	O	F		
Myxilla incrustans						
Polymastia seriata						
Clava sp.			R	R		
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila			C	F		
Laomedea flexuosa						
Tubularia larynx						
Tubularia indivisa				x1		
				x2		
COELENTERATA:ACTINIAE						
Actinia equina	R	O				
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina						
Metridium senile (small)			O			

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Eulalia viridis						
Lanice conchilega						
Polydora sp.			S	E		
Pomatoceros sp. (p)						
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids						
Spirorbinidae - on rock						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus			R			
Chthamalus montagui	C	F				
Chthamalus stellatus	-	F				
Elminius modestus	O	A	O			
Semibalanus balanoides		C	O			
Verruca stroemia			O			
CRUSTACEA:ISOPODA						
Idotea sp. (p)						
Campecopea hirsuta		O				

	1	2	3	4	5	6
CRUSTACEA:AMPHIPODA						
Amphipoda indet.						
Gammarus sp.						
Hyale nilssoni						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas			x	x		
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botrylloides leachii				O		
Botryllus schlosseri						
Ciona intestinalis						
Dendrodoa grossularia				O		
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						

	1	2	3	4	5	6
INSECTA						
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria						
Gibbula umbilicalis						
Hydrobia ulvae						
Littorina 'saxatilis'	A	O				
Littorina littorea	O					
Littorina mariae			F	O		
Littorina neglecta	A	C				
Littorina neritoides						
Littorina obtusata						
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata		R				
Nassarius incrassatus						
Nucella lapillus						
Ocenebra erinacea						
Patella aspera						
Patella depressa			?F			
Patella vulgata	O	A	O			
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Cerastoderma edule						
Heteranomia squamula			O	F		
Hiatella arctica (IA zonk)				F		
Lasaea rubra						
Mytilus edulis	R	O	R			
Ostrea edulis						
BRYOZOA						
Alcyonidium gelatinosum						
Alcyonidium hirsutum						
Bowerbankia imbricata						
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa					F	
Flustrellidra hispida			C			
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis			R			

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Devils Point (54) GRID REFERENCE: SX 460 533

DATE: 24.5.86 NAME OF RECORDER: K. Hiscock

KEY TO HABITAT COLUMNS:

5. LS lg and sml boulders
6. LS under boulders.
7.
8.
9.
10.

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides		x1				
Scypha ciliata		O				
Scypha compressa						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea	F	C				
Hemimycale columella						
Hymeniacidon perleve	O	O				
Myxilla incrustans						
Mycalitaspongia seriata						
Cliona sp.		F				
Porifera indet (slimy brown)		O				
?Halichona sp (see spec from Oresta)		x1				
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila						
Laomedea flexuosa		O				
Tubularia larynx						
Tubularia indivisa		F				
COELENTERATA:ACTINIAE						
Actinia equina						
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina						
Actinia fragacea		x1				

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Eulalia viridis						
Lanice conchilega						
Polydora sp.		P				
Pomatoceros sp. (p)						
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids						
Spirorbinidae - on rock						
Terebellidae indet.						
Spirorbis tridentatus		C				✓
Nereis sp.		O				✓
Scale worm		F				✓
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus		O				✓
Balanus improvisus						
Balanus perforatus						
Chthamalus montagui						
Chthamalus stellatus						
Elminius modestus						
Semibalanus balanoides						
Verruca stroemia		F				✓
CRUSTACEA:ISOPODA						
Idotea sp. (p)						

	1	2	3	4	5	6
CRUSTACEA:AMPHIPODA						
Amphipoda indet.						
Gammarus sp.						
Hyale nilssoni						
CRUSTACEA:DECAPODA						
Cancer pagurus		x1				
Carcinus maenas						
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botrylloides leachii	F	C				
Botryllus schlosseri	F	O				
Ciona intestinalis						
Dendrodoa grossularia		F				
Didemnidae indet.						
Didemnum maculosum		x1				
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						

	1	2	3	4	5	6
INSECTA						
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria						
Gibbula umbilicalis						
Hydrobia ulvae						
Littorina 'saxatilis'						
Littorina littorea						
Littorina mariae						
Littorina neglecta						
Littorina neritoides						
Littorina obtusata						
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata						
Nassarius incrassatus		xF				
Nucella lapillus						
Ocenebra erinacea						
Patella aspera						
Patella depressa						
Patella vulgata						
Patella sp.						
Patina pellucida	P					
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Cerastoderma edule						
Heteranomia squamula		F				
Hiatella arctica (juv)		C				
Lasaea rubra						
Mytilus edulis						
Ostrea edulis						
BRYOZOA						
Alcyonidium gelatinosum						
Alcyonidium hirsutum						
Bowerbankia imbricata						
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa	F					
Flustrellidra hispida						
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86

RECORD NO.:

SITE NAME: Cellar Beach SITE NO.: 55

SURVEY AREA: SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 5301 4716 TO SX 5311 4716

RECORDER: K Hiscock DATE: 25 D 05 M 86 Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	✓
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	✓
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	✓
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	✓
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	✓
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	✓
VARIABLE (30°/oo+)	66	
LOW <30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALE	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	mod

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	✓
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: W-A	107	✓
C-U	109	✓
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

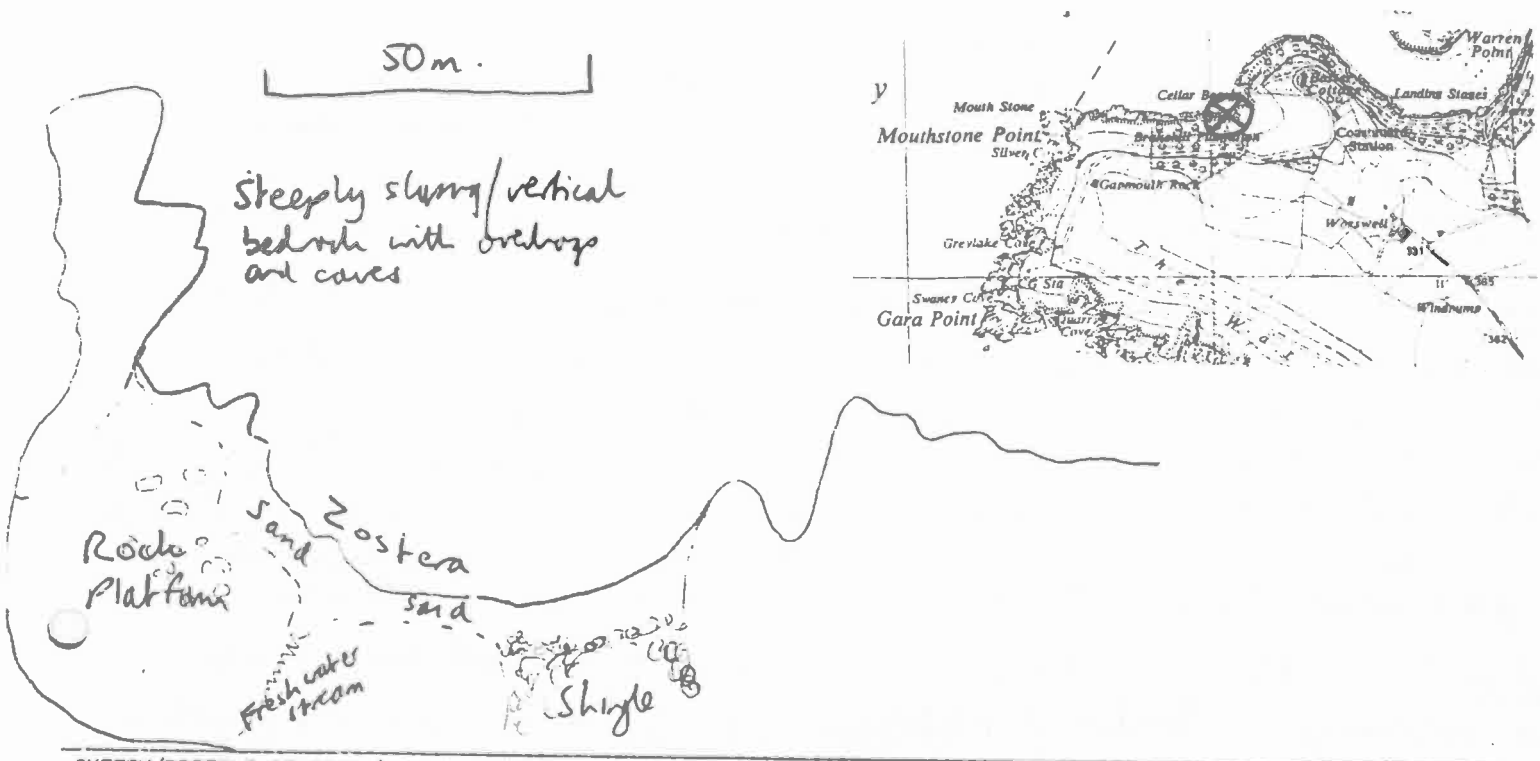
SITE NAME

SITE NO. 55

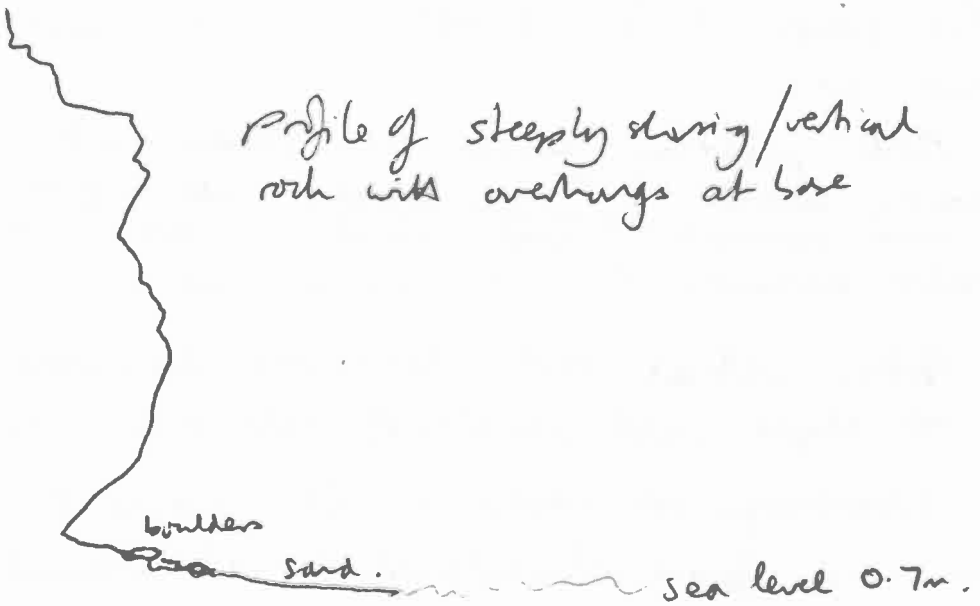
		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115	✓	✓				
UPPER SHORE	116	✓	✓	✓			
UPPER MIDSHORE	117	✓	✓	✓			
MIDSHORE	118			✓	✓	✓	
LOWER MIDSHORE	119			✓	✓	✓	
LOWER SHORE	120			✓	✓	✓	✓
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3	3	3	3	3	3
LG. BOULDERS (500 mm+)	123	2			2		
SM. BOULDERS (256-500 mm)	124	1			1		
LG. COBBLES (128-256 mm)	125	2					
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132				1		
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138				·		
FINE CLEAN SAND	139				1		
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
CLAY	144						
BLACK LAYER (note depth in cm)	145						
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below) All algae	149			✓ ✓			
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						✓
VERTICAL (80-100°)	162		✓			✓	
V. STEEP (40-80°)	163			✓			
STEEP (20-40°)	164						
SHALLOW (20°)	165	✓			✓		
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169	2	3	·	2	3	·
TERRACES	170	1					
LEDGES	171		1				
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177						3
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (+1m)	183						
ROCKPOOL - SM. (¾1m)	184		1	3			
MOBILE COBBLES	185			·			
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191						
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193						
SMOOTH	194						
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198						
SHELLS (INTACT)	199						
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

SITE NO.: 55

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 55

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on shore, and Time; and include details of samples/specimens/photographs taken.)

General Description of shore. The shore in this region included a wide range of habitat types with ~~particularly~~ rich communities under overhangs and on lower shore rocks at least. A Zostera bed was present just below sea level at 0.7m

Station 1. Broken rock platform above MS of bedrock outcrops amongst large and small boulders and cobbles. Upper shore areas were colonised by patchy Pelvetia with a high abundance of Chthamalus montagui and Littorina neglecta. The majority of this part of the shore was colonised by patchy barnacles and limpets, F. vesiculosus and Enteromorpha with a few small shallow rockpools. A freshwater stream flowed over the shore at one location

Station 2. Broken vertical rock above MS with some platforms and overhangs. Patches of ~~[illegible]~~, F. spiralis and Ascophyllum on the upper shore (mainly platforms) with patches of Catenella ~~and Laurea~~ on shaded rock. Barnacles and limpets were fairly dense. Ascophyllum nearly up to barnacle limit amongst F. spiralis.

Station 3. Pools (algae only). Shallow small pools on the shore above MS.

Station 4. Rock platform below MS. Predominantly of broken bedrock mainly covered by Fucus serratus with Gigartina and Laurencia. Protrubrant rocks barnacle - limpet dominated. Some sand patches amongst rocks extending to continuous sand at LW.

Station 5. Broken vertical rock below MS dominated by F. serratus and foliose red algae with patches of rock dominated by barnacles.

Station 6. Overhangs and caves on the lower shore below +2m. Colonised by a rich fauna characterised by Halichondria and Hymeniacidon with Cerantia compressa and, in caves, Metridium senile. Sidnyum turbinatum common in places and Sagartiogeton undatus present.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover [illegible] been defined for each habitat and is to be described in the blank section at the end of the form. [illegible] which would normally be included in the description of [illegible] including prevailing wind, time [illegible] tide [illegible] rainfall [illegible] numbers for each category [illegible] sublittoral habitat record [illegible].

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

SITE NAME: Cellar Beach [illegible]

GRID REFERENCE: SX 580476 - 531476

DATE: 25/05/76

NAME OF RECORDER: A E Little

KEY TO HABITAT COLUMNS:

1. UMS Broken bedrock and boulder platform
2. [illegible] Broken vertical rock
3. [illegible]
4. [illegible] rock & boulder platform
5. [illegible] vertical rock
6. [illegible] overhangs and caves

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						P
Antithamnion sp.						O
Apoglossum ruscifolium					R	
Audouinella sp.	F	C				F
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata				R		
Callithamnion roseum						
Callithamnion sp.						
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa		C				
Ceramium ciliatum						
Ceramium echionotum	P		P			
Ceramium rubrum		F		C	O	
Ceramium shuttleworthianum	O	C	O	F	F	
Ceramium sp.					P	
Chondrus crispus				F	O	
Chylocladia verticillata						
Corallina officinalis				F	F	
Cryptopleura ramosa						
Cystoclonium purpureum			O			
Delesseria sanguinea						
Dilsea carnosa						
Dumontia incrassata				F	F	
Furcellaria lumbricalis	P					
Gastroclonium ovatum			O	O		
Gelidium latifolium						
Gelidium pusillum	F	C	O		C	O
Gigartina acicularis						
Gigartina stellata	F	O		F	A	A
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						
Hildenbrandia sp.			C			

	1	2	3	4	5	6
Hypoglossum woodwardii					F	O
Laurencia hybrida	O	O		F	F	
Laurencia pinnatifida	C	A		A	A	
Lomentaria articulata	O	F	O	F	A	A
Lomentaria clavellosa					O	O
Membranoptera alata			P		F	O
Mesophyllum lichenoides						
Palmaria palmata			C	F	F	O
Phyllophora traillii						P
Plumaria elegans	P			O	C	A
Polyides rotundus				O		
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa						
Polysiphonia nigrescens						
Polysiphonia urceolata	P				O	P
Polysiphonia sp.	P			O		
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)	C	C		O	O	
Rhodophyta indet. (pink)	F			C		
Scytosiphon lomentaria						
Porphyra sp.	pe	pe	O			
Phyllophora [illegible]					O	O
Polysiphonia nigra	P					
Ceramium flabelligerum		P				
BACILLARIOPHYCEAE						
Bacillariophyceae indet.		C				
Gigartina ?pistillata	?P					
Porphyra leucosticta			P			
PHAEOPHYTA						
Ascophyllum nodosum		P				
Bifurcaria bifurcata						
Cladostephus spongiosus				F		
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.						
Fucus serratus	F	F		S	C	
Fucus spiralis	C	F-C				
Fucus vesiculosus	A	O				

	1	2	3	4	5	6	
Halidrys siliquosa							
Halopteris scoparia							
Himanthalia elongata							
Laminaria digitata				R	R		
Laminaria hyperborea							
Laminaria ochrolenca							
Laminaria saccharina				F			
Laminaria sp. (sporlings)	P						
Pelvetia canaliculata	P						
Phaeophyta indet. (filam.)	F	C	F	F		I	
Pilayella littoralis							
Saccorhiza polyschides							
Sargassum muticum				F	O		— more off amongst Zostera bed
Leathesia difformis			O				
Fucus ceranoides/F. vesiculosus X				R			
CHLOROPHYTA							
Bryopsis hypnoides							
Bryopsis plumosa						O	
Chaetomorpha melagonium							
Chlorophyta indet. (filam.)		C					
Cladophora pellucida							
Cladophora sp.	P	F	O	F	P		
Cladostephus spongiosus							
Codium fragile tomentosoides							
Codium tomentosum							
Enteromorpha sp. (p)	F	C	F	F			
Ulva sp. (p)	O	C	O	C	O	O	
ANGIOSPERMAE							
Zostera noltii							
Zostera augustifolia							
Zostera marina				R			
LICHENS							
Calloplaca marina							
Calloplaca thallincola							
Grey lichens							
Lecanora atra							
Lichina confinis							
Lichina pygmaea							
Ochrolechia parella							
Verrucaria maura		S-F					
Verrucaria mucosa	?O	O					
Xanthoria parietina							

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Cellar Beach (55) GRID REFERENCE: SX 530476 - 531476

DATE: 25.5.86 NAME OF RECORDER: Whitcombe

KEY TO HABITAT COLUMNS:

1. Broken rock platform above and boulders above MS
2. Broken vertical rock above MS
3. (in algae)
4. Broken rock platform and boulders below MS
5. Broken vertical rock below MS
6. LS overhangs and caves.

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						R
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						R
Scypha compressa					R	C
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea				O	F	C
Hemimycale columella						
Hymeniacidon perleve	R			O	F	C
Myxilla incrustans						
Ophlitaspongia seriata						
Suberites sp.						x1
Myxilla sp.						F
COELENTERATA:HYDROZOA						
Clava squamata				O		
Dynamena pumila				F		F
Laomedea flexuosa	O			O	O	
Tubularia larynx						
COELENTERATA:ACTINIAE						
Actinia equina	F			F		
Actinothoe sphyrodeta						
Anemonia viridis	x1					
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina					x1	
Actinia fragacea				x1		
Sagartiogeton undatus				O		O
Actiniae indet (small)						
Metridium senile						C

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Eulalia viridis	x1					
Lanice conchilega						
Polydora sp.						
Pomatoceros sp. (p)	R			F		F
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'				C		
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids				C		
Spirorbinidae - on rock					O	F
Terebellidae indet.						
Circratulus cirratus				O		
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus				O	O	
Chthamalus montagui	F	A				
Chthamalus stellatus	O	O				
Elminius modestus	O	O			F	
Semibalanus balanoides	C	C		C	F	
Verruca stroemia						
CRUSTACEA:ISOPODA						
Idotea sp. (p)						

	1	2	3	4	5	6
CRUSTACEA:AMPHIPODA						
Amphipoda indet.						
Gammarus sp.						
Hyale nilssoni						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas	x					
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						x
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botrylloides leachii						O
Botryllus schlosseri						
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						R
Morchellium argus						F
Sidnyum elegans						
Styela clava						
Styelidae indet.						
Sidnyum turbinata						F
CHORDATA:PISCES						
Blennius pholis				x		
Pholis gunnellus						

	1	2	3	4	5	6
INSECTA						
Anurida maritima	O					
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria						
Gibbula umbilicalis	F	F			O	x
Hydrobia ulvae						
Littorina 'saxatilis'	C	C				
Littorina littorea	C	F		R		
Littorina mariae	F			F		
Littorina neglecta	F	O				
Littorina neritoides						
Littorina obtusata				F		
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata	O					
Nassarius incrassatus						
Nucella lapillus						
Ocenebra erinacea						
Patella aspera						
Patella depressa				F		
Patella vulgata	C	A		C	C	
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						x
?Lamellaria latens						x
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Cerastoderma edule						
Heteranomia squamula					O	O
Hiatella arctica						
Lasaea rubra						
Mytilus edulis						
Ostrea edulis						
Mania squama						x
BRYOZOA						
Alcyonidium gelatinosum				F		
Alcyonidium hirsutum						
Bowerbankia imbricata						
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa					C	
Flustrellidra hispida				F	F	C
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis				O		O

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86 RECORD NO.:

SITE NAME: Cellar Beach SITE NO.: 55

SURVEY AREA: Yealm SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 5310 4761 TO SX 5311 4761

RECORDER: J.J. Moore / A.E. Little DATE: 25 D 05 M 86 Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	✓
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	✓
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch. 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONE/CHALK	72	
HARD SEDIMENTARY ROCKS	73	
SOFT SEDIMENTARY ROCKS	74	
METAMORPHIC ROCKS	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	Mod.

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	✓
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	✓
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: W-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	
ANIMAL CHECKLIST	113	
OTHER (tick and note below)	114	

#2 of 4

INTERTIDAL HABITAT RECORD

SITE NAME Cellar Beach SITE NO. 55

		STN./HABITAT 1	8	9	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118						
LOWER MIDSHORE	119		✓				
LOWER SHORE	120			✓			
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132		2	2			
CLEAN GRAVEL (2-4 mm)	133		3				
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136			2			
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139		3	3			
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142		2				
MUD	143						
CLAY	144						
BLACK LAYER (note depth in cm)	145						
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						

		STN./HABITAT 1	8	9	4	5	6
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177						
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (+1m)	183						
ROCKPOOL - SM. (¾1m)	184						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191		3	3			
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193						
SMOOTH	194		2	2			
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198						
SHELLS (INTACT)	199						
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201			1			
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205		2	2			

SITE NO.: 55

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks ~~etc.~~)

See other form

SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

See other form

SITE NO.: 55

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on Shore, and Time; and include details of samples/specimens/photographs taken.)

tn 7

tn 8 LMS Lanice bed. Medium sand and gravel with some Shingle. Lanice density greater than 100/m². Boulders occasional, with F. serratus covering. No black layer. Sand lying on top of gravel & Shingle. Occasional small pebbles. Glycera and Arenicola observed, occasional. 0.01m²/0.5mm sample taken.

tn 9 LS Lanice bed. Medium sand with some gravel and occasional pebbles. Lanice dense in patches ~~[illegible]~~ c 500/m². Occasional Ensis, Arenicola, Glycera and Nepthys. Specimens collected. 0.1m²/1mm sample taken. 2 small Zostera plants found.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in these sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. [illegible] be included in the description of [illegible] including prevailing [illegible] rainfall are not [illegible] on the form. Numbers for each category do not [illegible] those on the sublittoral habitat [illegible]

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86

RECORD NO.:

SITE NAME: Warren Point West SITE NO.: 56

SURVEY AREA: Yealm SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 5351 4781 TO

RECORDER: J.J. Moore DATE: 25 D 05 M 86 Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	✓
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	✓
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	✓
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	✓
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	✓
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	Mod.

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: W-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

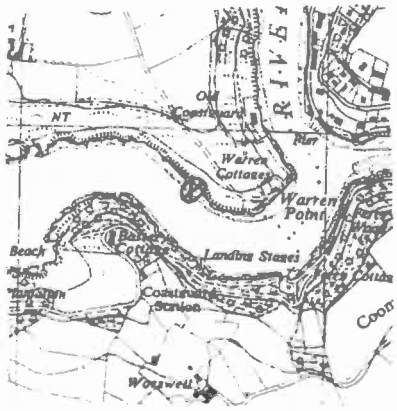
INTERTIDAL HABITAT RECORD

SITE NAME Warren Point West — SITE NO. 56

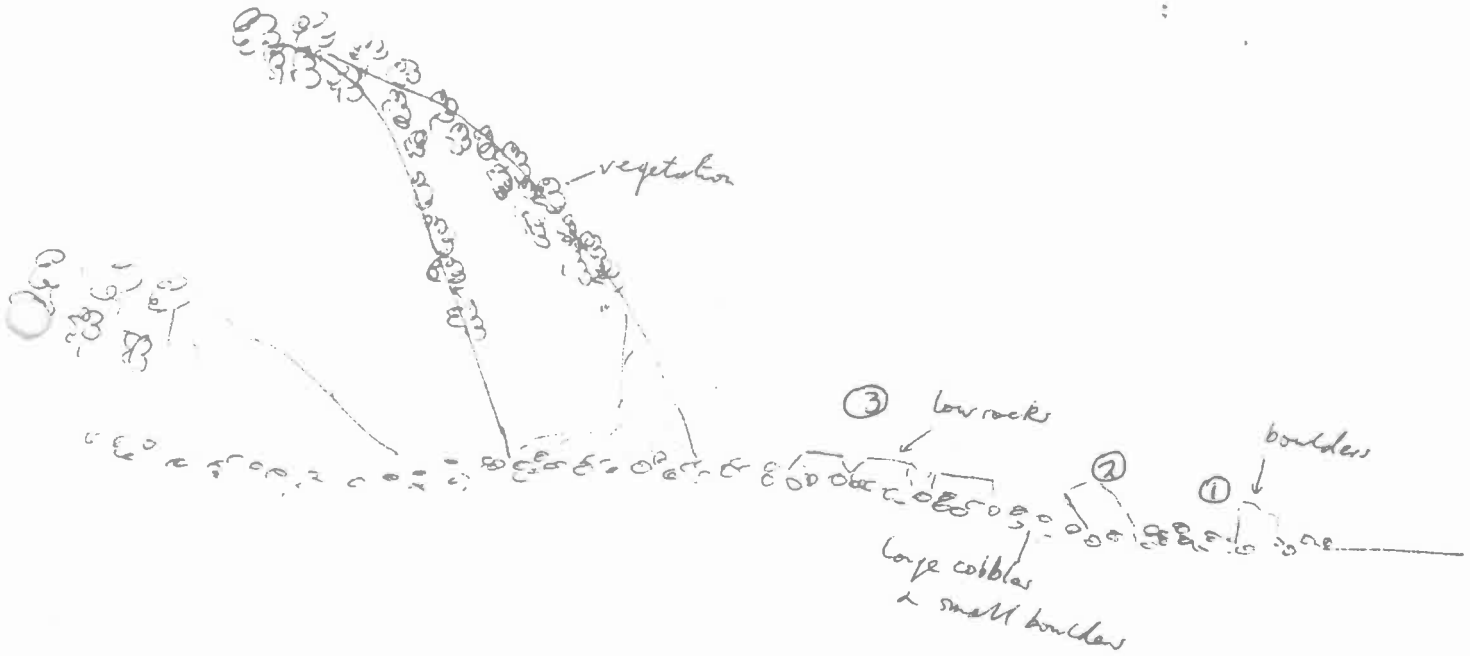
		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117			✓			
MIDSHORE	118	✓	✓	✓			
LOWER MIDSHORE	119	✓					
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	2	3	3			
LG. BOULDERS (500 mm+)	123			2			
SM. BOULDERS (256–500 mm)	124	3					
LG. COBBLES (128–256 mm)	125	3					
LG. SLATES (128–256 mm)	126						
SM. ANGULAR COBBLES (64–129 mm)	127						
SM. ROUND COBBLES (64–128 mm)	128						
SM. SLATES (64–128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16–64 mm)	130						
V.LG.&LG.RND.PEBBLES (16–64 mm)	131						
MED.&SM.PEBBLES (4–16 mm)	132						
CLEAN GRAVEL (2–4 mm)	133						
MUDDY GRAVEL (2–4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5–2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142	1					
MUD	143						
CLAY	144						
BLACK LAYER	145						
(note depth in cm)							
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1–3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1–3)							
FUCOID CANOPY	154	1		1			
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80–100°)	162						
V. STEEP (40–80°)	163						
STEEP (20–40°)	164						
SHALLOW (20°)	165	✓	✓	✓			
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1–3)							
OUTCROP	167		3				
UNBROKEN ROCK	168						
BROKEN ROCK	169	1	3	3			
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177	1					
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182	3					
ROCKPOOL – LG. (+1m)	183						
ROCKPOOL – SM. (¾1m)	184			2			
MOBILE COBBLES	185	3					
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1–3)							
FIRM	191						
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193						
SMOOTH	194						
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198						
SHELLS (INTACT)	199						
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1–3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

SITE NO.: 56

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 56

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on shore, and Time; and include details of samples/specimens/photographs taken.)

Stn 1 Mobile small boulders and large cobbles, MS - LMS. Monodonta frequent, L. littorea, L. saxatilis, Patella vulgata, Gibulla umbilicalis, Orange sponge on LMS rock (Chaetogammarus) E. modestus. Sparse patches of F. vesiculosus.

Stn 2 Single large boulder on middle shore. Frequent Elminius and common C. montagui and S. balanoides. Patella abundant and L. neglecta frequent

Stn 3 Bare rocky shore at UMS. V. little cover. Sargassum muticum present in rock pool. Ligia oceanica abundant. L. neglecta present. L. saxatilis extremely abundant.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover [illegible] not been defined for each habitat and is to be described in the blank section at the end of the form. [illegible] which would normally be included in the description of a survey area including [illegible] wind, time [illegible], tidal range and [illegible] are not [illegible] the form. [illegible] category do not [illegible] and with those [illegible] habitat record sheet.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

SITE NAME: Warren Point West (56) GRID REFERENCE: SX 535 478

DATE: 25/05/86 NAME OF RECORDER: D. Roston

KEY TO HABITAT COLUMNS:

1. Mid Shore small boulders and cobbles
2. Single large boulder on middle Shore
3. Bare rocky Shore at LWS
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.						
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.						
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa						
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum						
Ceramium shuttleworthianum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis			P			
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dilsea carnosa						
Dumontia incrassata						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum						
Gigartina acicularis						
Gigartina stellata						
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						
Hildenbrandia sp.						

	1	2	3	4	5	6
Hypoglossum woodwardii						
Laurencia hybrida						
Laurencia pinnatifida						
Lomentaria articulata						
Lomentaria clavellosa						
Membranoptera alata						
Mesophyllum lichenoides						
Palmaria palmata						
Phyllophora traillii						
Plumaria elegans						
Polyides rotundus						
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa						
Polysiphonia nigrescens						
Polysiphonia urceolata						
Polysiphonia sp.						
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)						
Rhodophyta indet. (pink)			P			
Scytosiphon lomentaria						
Porphyra sp.						
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
PHAEOPHYTA						
Ascophyllum nodosum						
Bifurcaria bifurcata						
Cladostephus spongiosus						
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.						
Fucus serratus						
Fucus spiralis						
Fucus vesiculosus	P		P			

	1	2	3	4	5	6	
Halidrys siliquosa							
Halopteris scoparia							
Himanthalia elongata							
Laminaria digitata							
Laminaria hyperborea							
Laminaria ochrolenca							
Laminaria saccharina							
Laminaria sp. (sporlings)							
Pelvetia canaliculata							
Phaeophyta indet. (filam.)							
Pilayella littoralis							
Saccorhiza polyschides							
Sargassum muticum			P				
CHLOROPHYTA							
Bryopsis hypnoides							
Bryopsis plumosa							
Chaetomorpha melagonium							
Chlorophyta indet. (filam.)							
Cladophora pellucida							
Cladophora sp.							
Cladostephus spongiosus							
Codium fragile tomentosoides							
Codium tomentosum							
Enteromorpha sp. (p)			P				
Ulva sp. (p)							
ANGIOSPERMAE							
Zostera noltii							
Zostera augustifolia							
Zostera marina							
LICHENS							
Calloplaca marina							
Calloplaca thallincola							
Grey lichens							
Lecanora atra							
Lichina confinis							
Lichina pygmaea							
Ochrolechia parella							
Verrucaria maura							
Verrucaria mucosa							
Xanthoria parietina							

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Warren Point West (56) GRID REFERENCE: SX 535 478

DATE: 25/5/86 NAME OF RECORDER: J Moore / D. Rostron

KEY TO HABITAT COLUMNS:

1. Mid Shore small boulders and cobbles
2. Single large boulder on middle shore
3. Bare rocky shore at LWS
4.
5.
6.

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
Scypha compressa						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Ophlitaspongia seriata						
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila						
Laomedea flexuosa						
Tubularia larynx						
COELENTERATA:ACTINIAE						
Actinia equina	O		P			
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina						

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Eulalia viridis						
Lanice conchilega						
Polydora sp.						
Pomatoceros sp. (p)						
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids						
Spirorbinidae - on rock						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus						
Chthamalus montagui		C	P			
Chthamalus stellatus						
Elminius modestus	F	F				
Semibalanus balanoides		C				
Verruca stroemia						
CRUSTACEA:ISOPODA						
Idotea sp. (p)						
Dynamene bidentata	O					
Ligia oceanica			A			

	1	2	3	4	5	6
CRUSTACEA:AMPHIPODA						
Amphipoda indet.						
Gammarus sp.						
Hyale nilssoni						
Haustorius	O					
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas	C					
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						

	1	2	3	4	5	6
INSECTA						
Anurida maritima		F				
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria						
Gibbula umbilicalis	O					
Hydrobia ulvae						
Littorina 'saxatilis'	O		E			
Littorina littorea	O					
Littorina mariae						
Littorina neglecta		F	P			
Littorina neritoides						
Littorina obtusata						
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata	C		P			
Nassarius incrassatus						
Nucella lapillus						
Ocenebra erinacea						
Patella aspera						
Patella depressa						
Patella vulgata						
Patella sp.	O	A	P			
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Cerastoderma edule						
Heteranomia squamula						
Hiatella arctica						
Lasaea rubra						
Mytilus edulis						
Ostrea edulis						
BRYOZOA						
Alcyonidium gelatinosum						
Alcyonidium hirsutum						
Bowerbankia imbricata						
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida						
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						

INTERTIDAL HABITAT RECORD - TRIAL VERSION 30/5/86 RECORD NO.:

SITE NAME: Warren Point SITE NO.: 57

SURVEY AREA: Yealm SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 5381 4781 TO SX 4391 4781

RECORDER: K. Hiscock DATE: 25 D 05 M 86 Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	✓
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	✓
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	✓
	36	
[illegible]	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	✓
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	✓
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	✓
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
[illegible]	75	✓
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	✓
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?) Rubbish	86	✓
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	✓
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: W-A	107	✓
C-U	108	✓
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

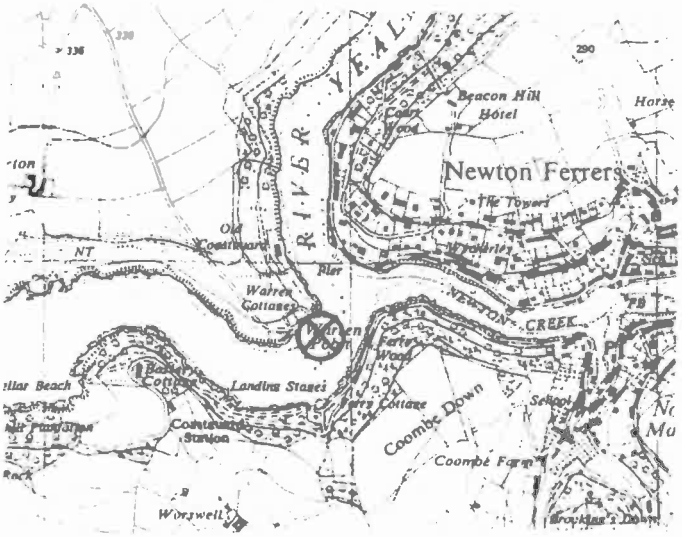
INTERTIDAL HABITAT RECORD

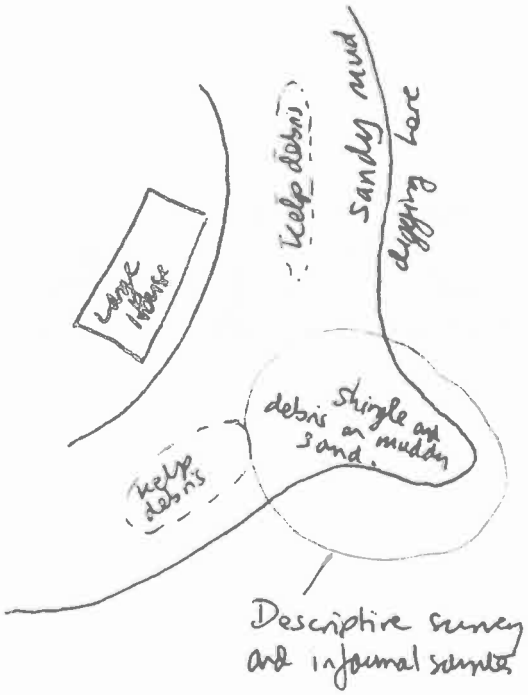
SITE NAME Warren Point SITE NO. 57

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118						
LOWER MIDSHORE	119	✓					
LOWER SHORE	120	✓					
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140	3					
SANDY MUD	141						
SHINGLE	142	2					
MUD	143						
CLAY	144						
BLACK LAYER	145	3					
(note depth in cm)		3					
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148	1					
OTHER (score & note type below) Wood pulp + debris	149	3					
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150	1					
CONCRETE	151						
WOOD	152	2					
OTHER (score & note type below) Glass	153	2					
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165	✓					
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177						
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (+1m)	183						
ROCKPOOL - SM. (<1m)	184						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191	3					
SOFT (SHALLOW SINK)	192	2					
SOFT (DEEP SINK)	193						
SMOOTH	194						
WORKED	195						
RIPPLED	196						
MOUNDS	197	2					
BURROWS	198	2					
SHELLS (INTACT)	199	1					
OTHER (score and note type below) Sand Waves	200	2					
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						
Wood pulp, debris + rubbish		3					

SITE NO.: 57

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)





SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 57

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on shore, and Time; and include details of samples/specimens/photographs taken.)

1 Muddy sand at LS with high wood pulp and ~~wood~~ plant debris content. Black layer fairly shallow. Large quantities of wood & plant debris piled up on spit; also much rubbish. Main substratum of shingle on muddy sand with high density of L. littorea. Sand steeply shelving into sublittoral. Some patches of high density spionid worms (sampled on low shore. Also Nereis and occasional cockle. Surface fauna included Anemonia viridis on top of spit, cockles. Other significant species attached to debris included Crepidula fornicata and Sargassum muticum. The shore resembled a rubbish dump.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and [illegible] is to be described in the blank section at the end of the [illegible] included in the [illegible] including [illegible] are not [illegible] numbers [illegible] sublittoral habitat record sheet.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

SITE NAME: Warren Pt. 57 GRID REFERENCE: SX 582[illegible]

DATE: [illegible] NAME OF RECORDER: [illegible]

KEY TO HABITAT COLUMNS:

1. [illegible]
2. Epiphytes on Cystoseira & Polysiphonia sp.
3.
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.	F					
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.						
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa						
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum	Oe	P				
Ceramium shuttleworthianum						
Ceramium sp.						
Chondrus crispus	F					
Chylocladia verticillata	P					
Corallina officinalis						
Cryptopleura ramosa						
Cystoclonium purpureum		P				
Delesseria sanguinea						
Dilsea carnosa						
Dumontia incrassata						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum	P					
Gigartina acicularis						
Gigartina stellata						
Gracilaria verrucosa	F					
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						
Hildenbrandia sp.						

	1	2	3	4	5	6
Hypoglossum woodwardii	Oe	O				
Laurencia hybrida						
Laurencia pinnatifida						
Lomentaria articulata						
Lomentaria clavellosa	O	P				
Membranoptera alata						
Mesophyllum lichenoides						
Palmaria palmata						
Phyllophora traillii						
Plumaria elegans						
Polyides rotundus	O					
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa						
Polysiphonia nigrescens	P					
Polysiphonia urceolata						
Polysiphonia sp.	P					
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)						
Rhodophyta indet. (pink)						
Scytosiphon lomentaria						
Porphyra sp.						
Gracilaria foliifera	Oe					
Cumagenarus ? devonicensis	R					
Gymnogongrus griffithsiae	R					
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
Nitophyllum punctatum		P				
Antithamnion spirographidis		P				
PHAEOPHYTA						
Ascophyllum nodosum						
Bifurcaria bifurcata						
Cladostephus spongiosus	O					
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis	O					
Desmarestia viridis						
Ectocarpoidea indet.						
Fucus serratus	F					
Fucus spiralis						
Fucus vesiculosus	F					

* On stones but in area of large amount [illegible] algal.

	1	2	3	4	5	6	
Halidrys siliquosa							
Halopteris scoparia							
Himanthalia elongata							
Laminaria digitata							
Laminaria hyperborea							
Laminaria ochrolenca							
Laminaria saccharina	F	P					
Laminaria sp. (sporlings)							
Pelvetia canaliculata							
Phaeophyta indet. (filam.)	F						
Pilayella littoralis							
Saccorhiza polyschides							
Sargassum muticum	F						
CHLOROPHYTA							
Bryopsis hypnoides							
Bryopsis plumosa		P					
Chaetomorpha melagonium							
Chlorophyta indet. (filam.)							
Cladophora pellucida							
Cladophora sp.							
Cladostephus spongiosus							
Codium fragile tomentosoides							
Codium tomentosum							
Enteromorpha sp. (p)							
Ulva sp. (p)							
ANGIOSPERMAE							
Zostera noltii							
Zostera augustifolia							
Zostera marina							
LICHENS							
Calloplaca marina							
Calloplaca thallincola							
Grey lichens							
Lecanora atra							
Lichina confinis							
Lichina pygmaea							
Ochrolechia parella							
Verrucaria maura							
Verrucaria mucosa							
Xanthoria parietina							

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Warren Point (57) GRID REFERENCE: SX 538 478

DATE: 25.5.86 NAME OF RECORDER: K. Hiscock

KEY TO HABITAT COLUMNS:

1. Shingle and debris on muddy sand at +0.5 to 1.5m
2.
3.
4.
5.
6.

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
Scypha compressa						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
[illegible]litaspongia seriata						
Suberites ficus	r					
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila						
Laomedea flexuosa	O					
Tubularia larynx						
Hydractinia echinata	P					
Sertularia cupressina	+1					
COELENTERATA:ACTINIAE						
Actinia equina	×1					
Actinothoe sphyrodeta						
Anemonia viridis	O					
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina						

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Eulalia viridis						
Lanice conchilega						
Polydora sp.						
Pomatoceros sp. (p)	P					
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids						
Spirorbinidae - on rock						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus						
Chthamalus montagui						
Chthamalus stellatus						
Elminius modestus						
Semibalanus balanoides						
Verruca stroemia						
CRUSTACEA:ISOPODA						
Idotea sp. (p)						

	1	2	3	4	5	6
CRUSTACEA:AMPHIPODA						
Amphipoda indet.						
Gammarus sp.						
Hyale nilssoni						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas	O					
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						
Pagurus berhardus	O					
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
Pagurus cuanensis	R					
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Dendrodoa grossularia	O					
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
Didemnum candidum	R					F
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						

	1	2	3	4	5	6
INSECTA						
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum	A					
Calyptera chinensis	F					
Crepidula fornicata	F					
Gibbula cineraria	C					
Gibbula umbilicalis						
Hydrobia ulvae						
Littorina 'saxatilis'						
Littorina littorea	A					
Littorina mariae						
Littorina neglecta						
Littorina neritoides						
Littorina obtusata						
Littorina obt./mariae	O					
Lepidochitona cinereus						
Monodonta lineata						
Nassarius incrassatus						
Nucella lapillus						
Ocenebra erinacea						
Patella aspera						
Patella depressa						
Patella vulgata						
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
Aeolysia punctata	O					
Buccinum undatum	R					
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Cerastoderma edule						
Heteranomia squamula						
Hiatella arctica						
Lasaea rubra						
Mytilus edulis						
Ostrea edulis						
BRYOZOA						
Alcyonidium gelatinosum						
Alcyonidium hirsutum						
Bowerbankia imbricata						
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida						
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86 RECORD NO.:

SITE NAME: S. of Madge Point SITE NO.: 58

SURVEY AREA: Yealm SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 5391 4825 TO SX 5391 4835

RECORDER: J.J. Moore DATE: 25 D 05 M 86 Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	✓
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	✓
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	✓
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	✓
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	✓
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	✓
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	Mod.

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: W-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
[illegible] CHECKLIST	112	
[illegible] CHECKLIST	113	
[illegible]	114	
[illegible]	115	

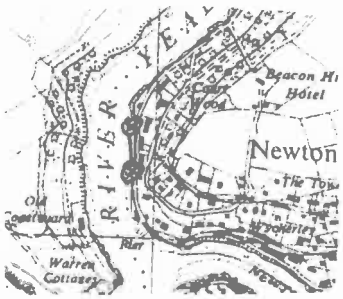
INTERTIDAL HABITAT RECORD

SITE NAME S. of Madge Point SITE NO. 58

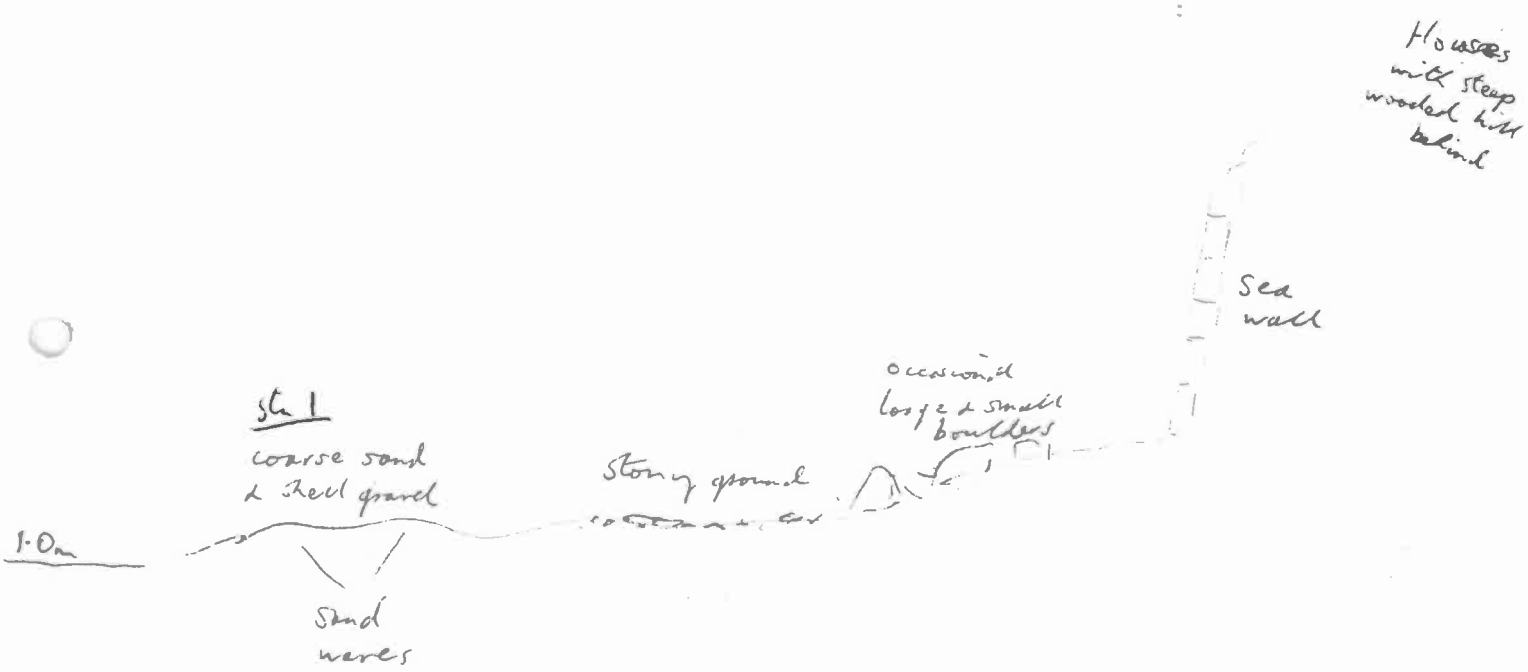
		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118						
LOWER MIDSHORE	119	✓					
LOWER SHORE	120	✓					
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136	3					
MUDDY SHELL GRAVEL	137	2					
COARSE SAND (0.5-2 mm)	138	3					
FINE CLEAN SAND	139						
FINE MUDDY SAND	140	2					
SANDY MUD	141						
SHINGLE	142						
MUD	143						
CLAY	144						
BLACK LAYER (note depth in cm)	145						
MIXTURE OF TYPES	146	✓					
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below) Wood pulp/detritus	149	3					
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165						
HORIZONTAL (5°)	166	✓					
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177						
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (+1m)	183						
ROCKPOOL - SM. (¾1m)	184						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191	2					
SOFT (SHALLOW SINK)	192	2					
SOFT (DEEP SINK)	193	2					
SMOOTH	194						
WORKED	195						
RIPPLED	196	2					
MOUNDS	197						
BURROWS	198						
SHELLS (INTACT)	199	1					
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						
Wood pulp/detritus		2					

SITE NO.: 58

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 58

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on shore, and Time; and include details of samples/specimens/photographs taken.)

1 LS to LMS sandbank. Variety of sediment types, but mostly coarse shelly gravel and coarse sand with a thick black layer of wood and twig debris underneath (~5-20cm below). Also some muddy gravels and muddy sands. Some large patches of wood and twig debris. Occasional Ensis, v-large Nepthys, Lanice, Glycera, Arenicola Venerupis pullastra on surface, rare. Prominent sand waves. Sample taken 0.01m²/0.5mm

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1983 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in these sheets are covered by similar headings except that the type of community [illegible] and its cover [illegible] habitat and is to be described in the blank section [illegible] of the form. [illegible] included in the description of a survey area including [illegible] wind, time [illegible] on the form. Numbers [illegible] category do not [illegible] habitat record sheet.

INTERTIDAL HABITAT RECORD - TRIAL VERSION 30/5/86 RECORD NO.:

SITE NAME: Madge Point SITE NO.: 59

SURVEY AREA: Yealm SEA AREA:

OS GRID REF.:	E - W	N - S	E - W	N - S
	SX	5319	4814	TO

RECORDER: DATE: 25 D 05 M 86 Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: B-W	107	
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	
ALGAL CHECKLIST	112	
ANIMAL CHECKLIST	113	
OTHER (tick and note below	114	

INTERTIDAL HABITAT RECORD

SITE NAME

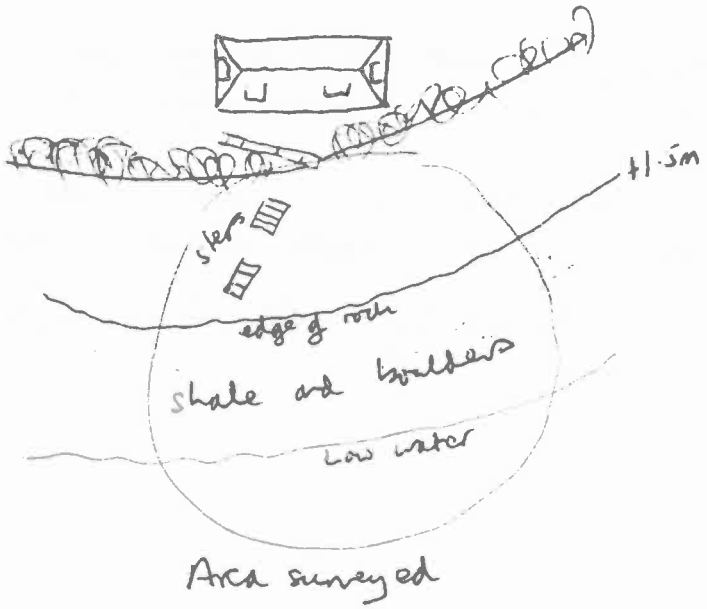
SITE NO. 59

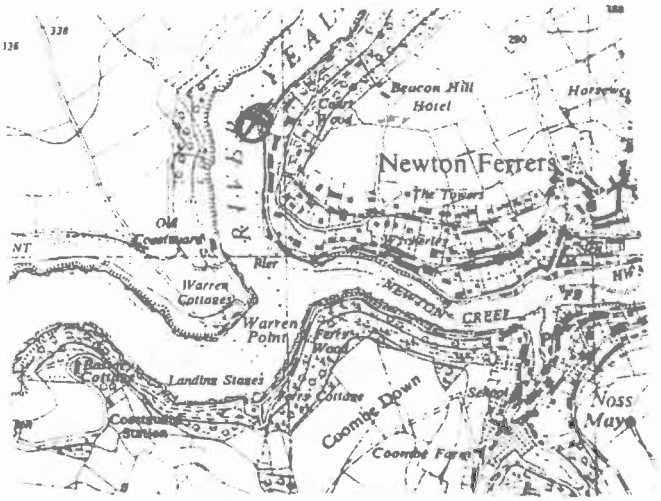
		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115	✓					
UPPER SHORE	116	✓	✓				
UPPER MIDSHORE	117		✓	✓			
MIDSHORE	118			✓	✓		
LOWER MIDSHORE	119			✓	✓	✓	✓
LOWER SHORE	120					✓	✓
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3	3	3	3		
LG. BOULDERS (500 mm+)	123					1	
SM. BOULDERS (256-500 mm)	124					1	
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126					3	
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129						
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140					2	
SANDY MUD	141						
SHINGLE	142						
MUD	143						
CLAY	144						
BLACK LAYER	145						
(note depth in cm)							
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154	3	3	2			
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						

		STN./HABITAT 1	2	3	4	5	6
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (30-100°)	162				✓		
V. STEEP (40-80°)	163						
STEEP (20-40°)	164	✓	✓	✓			
SHALLOW (20°)	165					✓	✓
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169	3	3	3	3		
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177				2		
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (+1m)	183						
ROCKPOOL - SM. (¾1m)	184						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191						
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193						
SMOOTH	194						
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198						
SHELLS (INTACT)	199						
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

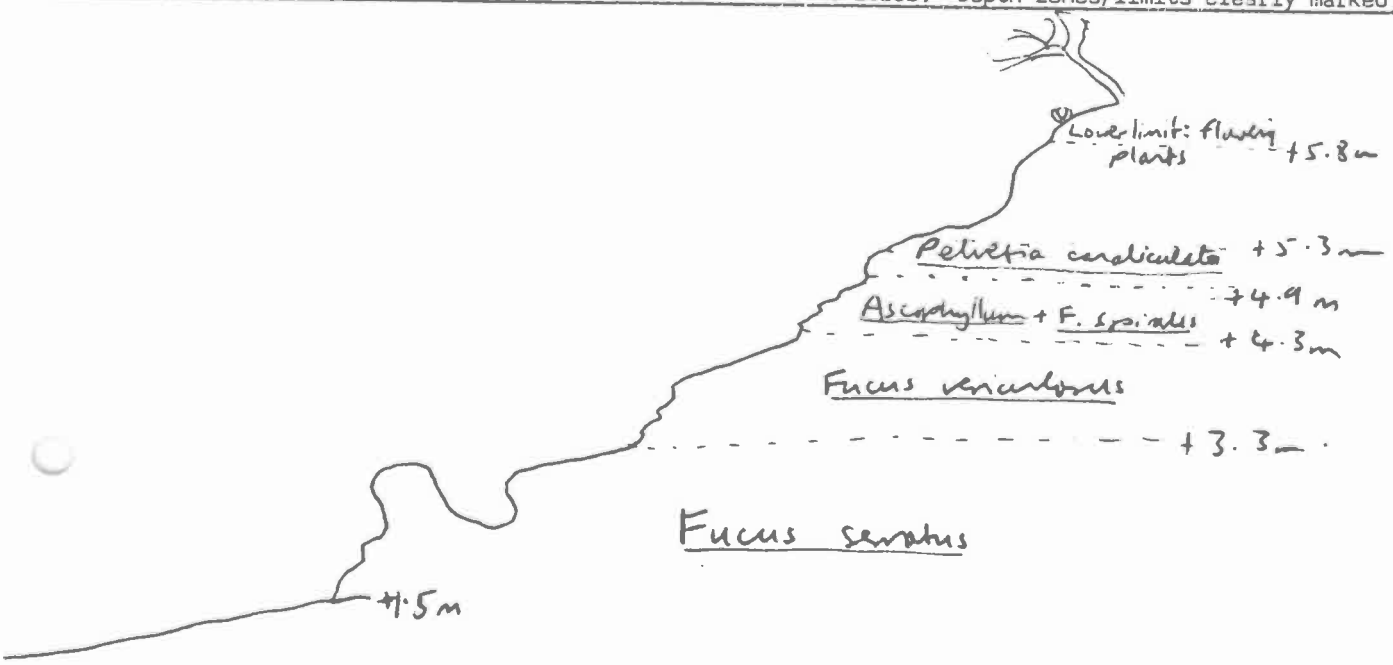
SITE NO.: 59

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks ~~etc.~~)





SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.:

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on shore, and Time; and include details of samples/specimens/photographs taken.)

1. Upper shore dominated by Ascophyllum with Fucus spiralis and Pelvetia on the uppermost shore with some patches of green algae. 4.3 to 5.5m

2. Upper midshore dominated ~~by Fucus vesiculosus with~~ limpets and barnacles with patches of dense Fucus vesiculosus. Monodonta lineata present. 3.3 to 4.3

3. Midshore and lower midshore colonised by patch Fucus serratus with area of limpets-barnacles. 1.5 to 3.3m

4. Lower midshore overhangs 3m

5. Lower shore shingle 0.7 to 1.5m

6. Lower shore on algae

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. Features which could be [illegible] in the description of a survey area including [illegible] wind, [illegible] range [illegible] on the form. Numbers for each category do not [illegible] with those on the [illegible] habitat record sheet.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

SITE NAME: Madge Point (54) GRID REFERENCE:

DATE: 25/05/86 NAME OF RECORDER: A.E. Lime

KEY TO HABITAT COLUMNS:

1. V.S
2. VMS
3. MS
4. overhangs
5. L.S
6. L.S Algae as substrate

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						F
Antithamnion plumula						F
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.				O	C	
Bonnemaisonia hamifera						
Bostrychia scorpioides	F					
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.				O		C
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						C
Callophyllis laciniata						
Catenella caespitosa	E	O				
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum					F	C
Ceramium shuttleworthianum						
Ceramium sp.				O	F	
Chondrus crispus					P	
Chylocladia verticillata					O	O
Corallina officinalis						
Cryptopleura ramosa						
Cystoclonium purpureum					O	O
Delesseria sanguinea						
Dilsea carnosa						
Dumontia incrassata					C	
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum		O	O			
Gigartina acicularis						
Gigartina stellata			F		F	
Gracilaria verrucosa					F	
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						
Hildenbrandia sp.						

	1	2	3	4	5	6
Hypoglossum woodwardii					F	F
Laurencia hybrida						
Laurencia pinnatifida						
Lomentaria articulata						
Lomentaria clavellosa					F	F
Membranoptera alata						
Mesophyllum lichenoides						
Palmaria palmata						
Phyllophora traillii						
Plumaria elegans						
Polyides rotundus						
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa		O	A			A
Polysiphonia nigrescens					F	F
Polysiphonia urceolata						
Polysiphonia sp.						
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)			O	O	C	
Rhodophyta indet. (pink)			O		A	
Scytosiphon lomentaria						
Porphyra sp.						
Nitophyllum punctatum					P	P
Bonnemaisonia hamifera					P	
BACILLARIOPHYCEAE						
Bacillariophyceae indet.				A		
PHAEOPHYTA						
Ascophyllum nodosum	E	C	C		O	
Bifurcaria bifurcata						
Cladostephus spongiosus					F	
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.						
Fucus serratus			C		C	
Fucus spiralis	E					
Fucus vesiculosus			A		O	

	1	2	3	4	5	6	
Halidrys siliquosa							
Halopteris scoparia							
Himanthalia elongata							
Laminaria digitata							
Laminaria hyperborea							
Laminaria ochrolenca							
Laminaria saccharina					O		
Laminaria sp. (sporlings)						P	✓
Pelvetia canaliculata	A						
Phaeophyta indet. (filam.)		A	A		F	F-A	
Pilayella littoralis							
Saccorhiza polyschides							
Sargassum muticum					F		
Dictyota dichotoma					R		
CHLOROPHYTA							
Bryopsis hypnoides							
Bryopsis plumosa							
Chaetomorpha melagonium							
Chlorophyta indet. (filam.)	A		C				
Cladophora pellucida							
2 Cladophora sp.					R		✓
Cladostephus spongiosus							
Codium fragile tomentosoides							
Codium tomentosum							
Enteromorpha sp. (p)		A	F			F	
Ulva sp. (p)						F	
ANGIOSPERMAE							
Zostera noltii							
Zostera augustifolia							
Zostera marina							
~~[illegible]~~	~~[illegible]~~						
~~[illegible]~~							
LICHENS							
Calloplaca marina							
Calloplaca thallincola							
Grey lichens							
Lecanora atra							
Lichina confinis							
Lichina pygmaea							
Ochrolechia parella							
Verrucaria maura							
Verrucaria mucosa							
Xanthoria parietina							
01) ✓ Polysiphonia sp 2			F		C	C	
~~[illegible]~~	~~[illegible]~~						

Higher plants just above HWS.

Sun	Shade
Armeria	Spleenwort
Festuca	ivy
Calloplaca spp.	ivy leaved toadflax
Ramalina	Hazel
Verrucaria maura	Hawthorn
	Beech
	Sloe
	Elder.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Madge Point (SM) GRID REFERENCE: SX 539 484

DATE: 25.5.86 NAME OF RECORDER: M. Holmes

KEY TO HABITAT COLUMNS:

1. ~~Upper~~ US bother bedrock at +3 to 5 m
2. UMS bother bedrock at +3 to 4.3 m
3. MS-LMS Bother rock +1.5 to 3 m
4. LMS overhangs etc. +3 m
5. LS shingle 0.7 to 1.5 m
6. LS on algae.

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
Scypha compressa						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea				R		
Hemimycale columella			~~C~~	~~C~~		
Hymeniacidon perleve			C	C		
Myxilla incrustans						
Phlitaspongia seriata						
COELENTERATA:HYDROZOA						
Clava squamata					O	
Dynamena pumila						
Laomedea flexuosa					C	
Tubularia larynx						
COELENTERATA:ACTINIAE						
Actinia equina					R	
Actinothoe sphyrodeta						
Anemonia viridis					R	
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina						
Metridium senile					R	

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Eulalia viridis						
Lanice conchilega					R	
Polydora sp.						
Pomatoceros sp. (p)				O		
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'			F			
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids						
Spirorbinidae - on rock				O		
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus						
Chthamalus montagui		O				
Chthamalus stellatus						
Elminius modestus		C	C	A		
Semibalanus balanoides		F	C	O	F	
Verruca stroemia						
CRUSTACEA:ISOPODA						
Idotea sp. (p)						

	1	2	3	4	5	6
CRUSTACEA:AMPHIPODA						
Amphipoda indet.	O					
Gammarus sp.	A					
Hyale nilssoni	F					
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas	R	O	F		O	
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						
Anguilla anguilla				x3		

	1	2	3	4	5	6
INSECTA						
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum					R	
Calyptera chinensis						
Crepidula fornicata					R	
Gibbula cineraria				O		
Gibbula umbilicalis		O	O			
Hydrobia ulvae						
Littorina 'saxatilis'		O	R			
Littorina littorea	O	F	C		A	
Littorina mariae	O		F		C	
Littorina neglecta						
Littorina neritoides						
Littorina obtusata		O				
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata	O	C				
Nassarius incrassatus						
Nucella lapillus						
Ocenebra erinacea						
Patella aspera						
Patella depressa						
Patella vulgata	O	A	A			
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
Lepidochitona cinereus			R			
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Cerastoderma edule						
Heteranomia squamula						
Hiatella arctica						
Lasaea rubra						
Mytilus edulis						
Ostrea edulis						
BRYOZOA						
Alcyonidium gelatinosum			O		C	
Alcyonidium hirsutum						
Bowerbankia imbricata			O			
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida						
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						
Bryozoa indet (white)					R	

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86

RECORD NO.:

SITE NAME: Steer Point Slip SITE NO.: 60

SURVEY AREA: Yealm SEA AREA:

OS GRID REF.:	E - W	N - S		E - W	N - S
	5 x	5 4 4	4 9 9	TO 5 x	5 4 5	4 9 9

RECORDER: J.J. Moore DATE: 2 6 D 0 5 M 8 6 Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	✓
LOW	36	
OTHER (tick and note below)		

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	✓
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	
WEAK (1 k)	63	✓
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	
LOW (30°/oo)	67	✓
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
FRIABLE SLATE/SHALES	75	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	✓
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: M-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	✓
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

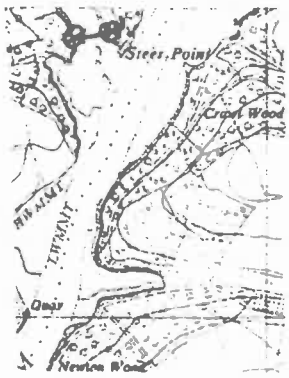
INTERTIDAL HABITAT RECORD

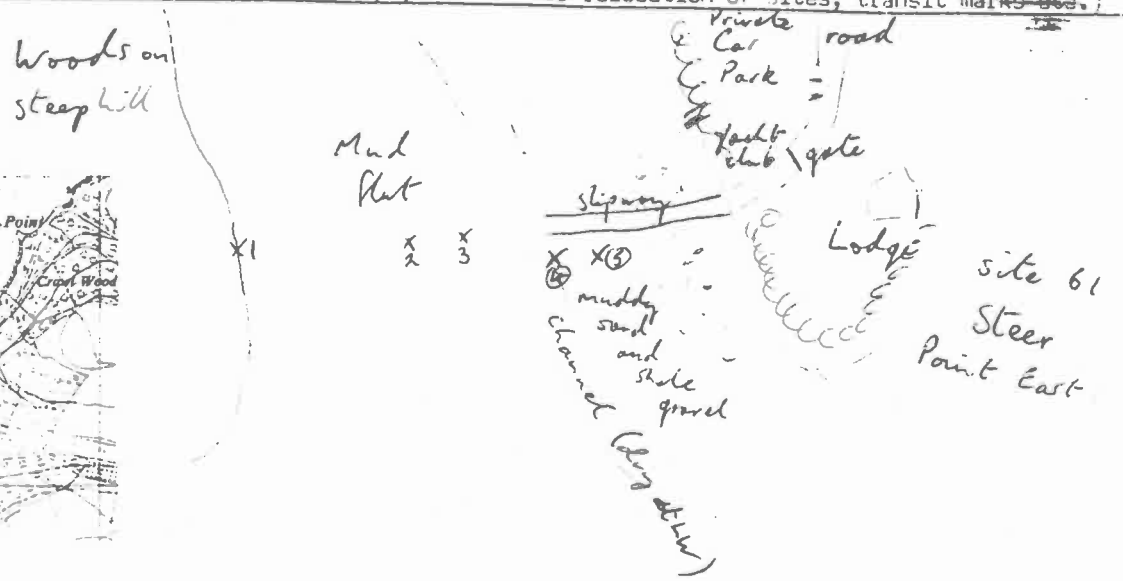
SITE NAME Steer Point Slip SITE NO. 60

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115	✓					
UPPER SHORE	116	✓					
UPPER MIDSHORE	117						
MIDSHORE	118		✓				
LOWER MIDSHORE	119			✓		✓	
LOWER SHORE	120				✓		
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	✓					
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256–500 mm)	124						
LG. COBBLES (128–256 mm)	125						
LG. SLATES (128–256 mm)	126						
SM. ANGULAR COBBLES (64–129 mm)	127						
SM. ROUND COBBLES (64–128 mm)	128						
SM. SLATES (64–126 mm)	129				1	1	
V.LG.&LG.ANG.PEBBLES (16–64 mm)	130						
V.LG.&LG.RND.PEBBLES (16–64 mm)	131						
MED.&SM.PEBBLES (4–16 mm)	132						
CLEAN GRAVEL (2–4 mm)	133						
MUDDY GRAVEL (2–4 mm)	134				3	3	
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5–2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140				3	3	
SANDY MUD	141						
SHINGLE	142						
MUD	143		3	3			
CLAY	144						
BLACK LAYER	145		2	2	3	3	
(note depth in cm)			2	2	3	2	
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below) Leaf & wood debris	149		2	2	3	3	
ARTIFICIAL SUBSTRATUM (SCORE 1–3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1–3)							
FUCOID CANOPY	154	3					
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159	1					
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80–100°)	162	✓					
V. STEEP (40–80°)	163						
STEEP (20–40°)	164			✓			
SHALLOW (20°)	165		✓		✓	✓	
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1–3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172	3					
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177						
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (+1m)	183						
ROCKPOOL - SM. (≯1m)	184						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189	3					
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1–3)							
FIRM	191						
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193		3	3	1	1	
SMOOTH	194						
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198		2	2	2	2	
SHELLS (INTACT)	199				1	1	
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1–3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205				1	2	

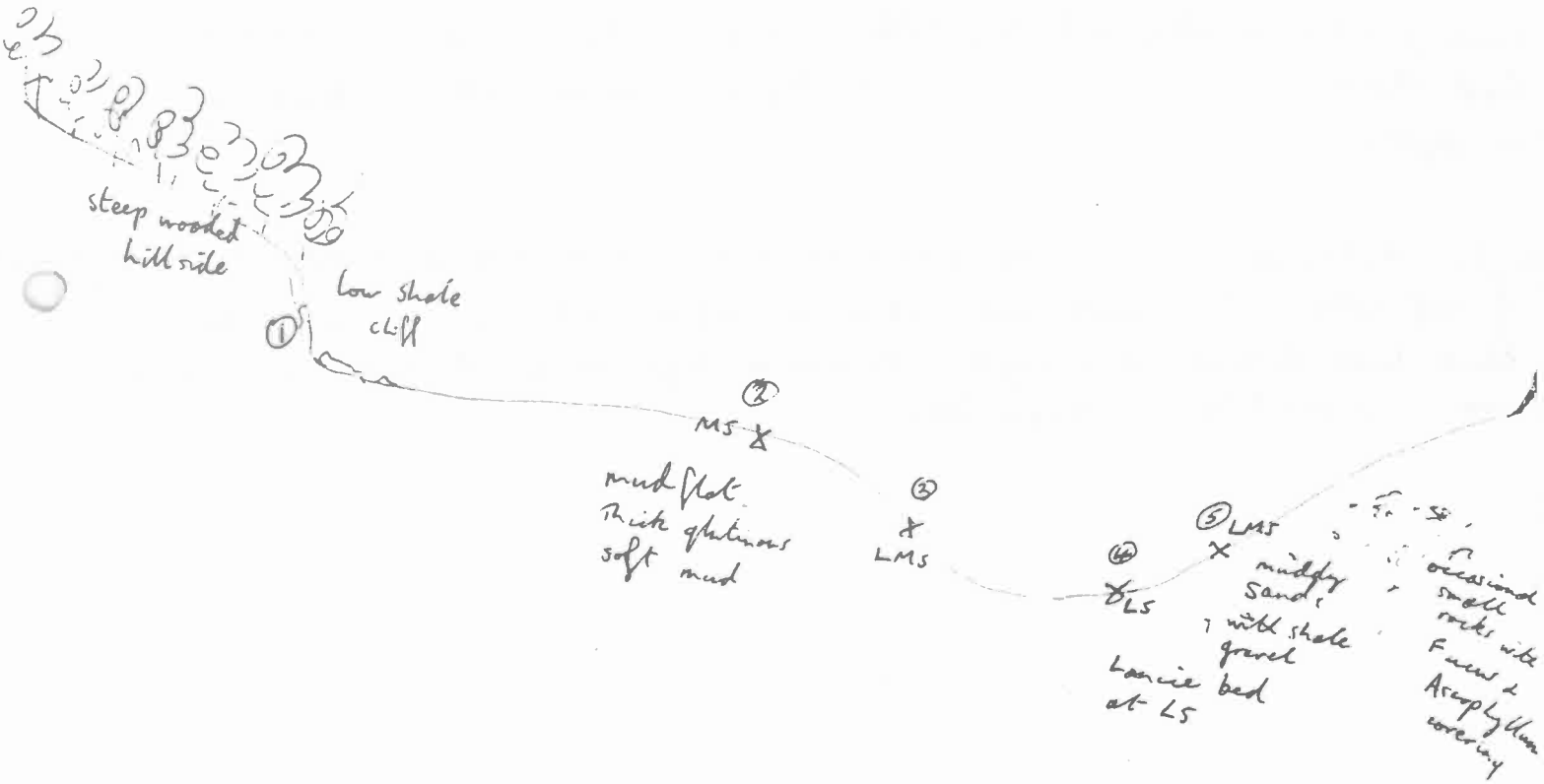
SITE NO.: 60

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)





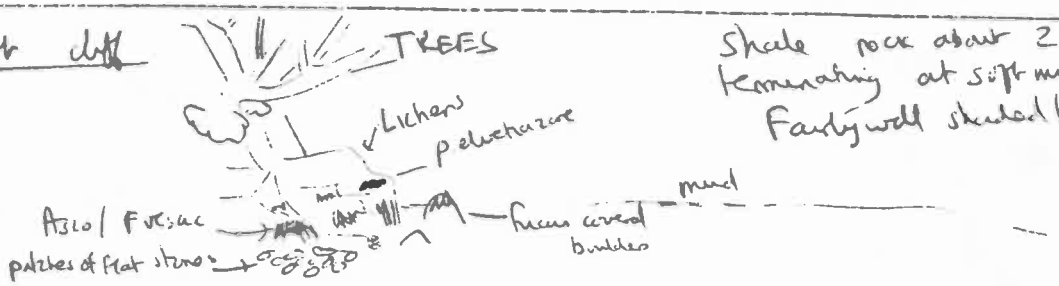
SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.: 60

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on shore, and Time; and include details of samples/specimens/photographs taken.)

Stn 1. Short cliff



Shale rock about 2.5m high terminating at soft mud. Fairly well shaded by trees.

Stn 2 Thick, soft glutinous mud at MS. Black layer not very distinct but fairly shallow. Numerous burrows (Nereis). Nepthys, Nereis & Abra noted in samples. 0.01m²/0.5mm and 0.1m²/1mm samples taken. Some leaf and twig litter.

Stn 3 Thick soft glutinous mud at LMS. Steeply sloping bank of mud, similar to Stn 2. Grey layer fairly shallow. Numerous Nereis burrows. 0.01m²/0.5mm and 0.1m²/1mm samples taken. Some leaf litter.

Stn 4 Muddy sand and shale gravel at LS. Fairly dense Lanice bed (c. 200/m²). Large quantities of leaf and twig litter. Occasion live cockles on surface and numerous dead shells. 0.1m²/1mm sample taken. Black layer distinct, 3cm depth.

Stn 5 Muddy sand and shale gravel at LMS. Sparse Lanice (c.20/m²). Large quantities of leaf litter. Occasional live cockles on surface and numerous dead shell. Black layer distinct 2 cm depth. Occasional large pieces of shale; some with Fucus cover. 0.01m²/0.5mm sample taken.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. Features which would normally be included in the description of a survey area including [illegible] wind, time of [illegible], tidal range and annual rainfall are not now included on the form. Numbers for each category do not correspond with those on the sublittoral habitat record sheet.

site 60

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

SITE NAME: Steer point slip (60) GRID REFERENCE: SX4699

DATE: 26th May 86 NAME OF RECORDER: D Rostron

KEY TO HABITAT COLUMNS:

1. Upper shore
2. upper middle shore
3. Algae as substrate
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.						
Bonnemaisonia hamifera						
Bostrychia scorpioides	C					
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.		P	P			
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa		C				
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum			P			
Ceramium shuttleworthianum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dilsea carnosa						
Dumontia incrassata						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum		P				
Gigartina acicularis						
Gigartina stellata						
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						
Hildenbrandia sp.						

	1	2	3	4	5	6
Hypoglossum woodwardii						
Laurencia hybrida						
Laurencia pinnatifida						
Lomentaria articulata						
Lomentaria clavellosa						
Membranoptera alata						
Mesophyllum lichenoides						
Palmaria palmata						
Phyllophora traillii						
Plumaria elegans						
Polyides rotundus						
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa		O				
Polysiphonia nigrescens		P				
Polysiphonia urceolata						
Polysiphonia sp.						
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)						
Rhodophyta indet. (pink)						
Scytosiphon lomentaria						
Porphyra sp.						
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
PHAEOPHYTA						
Ascophyllum nodosum		C				
Bifurcaria bifurcata						
Cladostephus spongiosus		-	-	-	-	-
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.						
Fucus serratus						
Fucus spiralis	R					
Fucus vesiculosus		F				

	1	2	3	4	5	6
Halidrys siliquosa						
Halopteris scoparia						
Himanthalia elongata						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochrolenca						
Laminaria saccharina						
Laminaria sp. (sporlings)						
Pelvetia canaliculata	F					
Phaeophyta indet. (filam.)						
Pilayella littoralis						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Chlorophyta indet. (filam.)	F					
Cladophora pellucida						
Cladophora sp.	F					
Cladostephus spongiosus						
Codium fragile tomentosoides						
Codium tomentosum						
Enteromorpha sp. (p)	O	O				
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera noltii						
Zostera augustifolia						
Zostera marina						
LICHENS						
Calloplaca marina	O					
Calloplaca thallincola	O					
Grey lichens	F					
Lecanora atra	O					
Lichina confinis						
Lichina pygmaea						
Ochrolechia parella						
Verrucaria maura	F					
Verrucaria mucosa						
Xanthoria parietina						

Stn 20

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Steer point slip (GD) GRID REFERENCE: SX6499

DATE: 26th May 1978 NAME OF RECORDER: D. Roston

KEY TO HABITAT COLUMNS:

1. Upper shore
2. Upper middle shore.
3.
4.
5.
6.

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
Scypha compressa						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
...litasponqia seriata						
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila						
Laomedea flexuosa						
Tubularia larynx						
COELENTERATA:ACTINIAE						
Actinia equina						
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina						

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Eulalia viridis						
Lanice conchilega						
Polydora sp.	:					
Pomatoceros sp. (p)						
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids						
Spirorbinidae - on rock						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus						
Chthamalus montagui						
Chthamalus stellatus						
Elminius modestus						
Semibalanus balanoides						
Verruca stroemia						
CRUSTACEA:ISOPODA						
Idotea sp. (p)						
Ligia oceanica	F					
Philoscia muscorum	O					

	1	2	3	4	5	6
CRUSTACEA:AMPHIPODA						
Amphipoda indet.						
Gammarus sp.	O	O				
Hyale nilssoni						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas		F				
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						

	1	2	3	4	5	6
INSECTA						
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria						
Gibbula umbilicalis						
Hydrobia ulvae	F					
Littorina 'saxatilis'	R					
Littorina littorea	O	O				
Littorina mariae						
Littorina neglecta						
Littorina neritoides						
Littorina obtusata						
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata						
Nassarius incrassatus						
Nucella lapillus						
Ocenebra erinacea						
Patella aspera						
Patella depressa						
Patella vulgata						
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Cerastoderma edule						
Heteranomia squamula						
Hiatella arctica						
Lasaea rubra						
Mytilus edulis						
Ostrea edulis						
BRYOZOA						
Alcyonidium gelatinosum						
Alcyonidium hirsutum						
Bowerbankia imbricata						
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida						
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86 RECORD NO.:

SITE NAME: Steer point East SITE NO.: 61

SURVEY AREA: SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SIX 546 499 TO SIX 5455 497

RECORDER: D. Roston DATE: 26 D 5 M 86 Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	✓
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	
LOW	36	✓
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	✓
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	✓
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	
WEAK (<1 k)	63	✓
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	✓

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	✓
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below) BOATS	92	✓
EASE OF ACCESS (on foot) (diff., mod., easy)	93	easy

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	99	
AQUACULTURE	98	
MOORING	100	✓
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: W-A	107	✓
C-U	108	
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	
ALGAL CHECK LIST	112	
ANIMAL CHECKLIST	113	
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

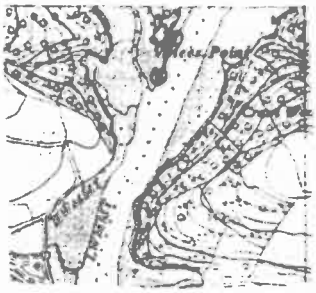
SITE NAME Steer point. SITE NO. 61

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115	✓					
UPPER SHORE	116	✓					
UPPER MIDSHORE	117		✓				
MIDSHORE	118						
LOWER MIDSHORE	119			✓			
LOWER SHORE	120				✓		
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3	1				
LG. BOULDERS (500 mm+)	123			1	1		
SM. BOULDERS (256-500 mm)	124			1			
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126		2	2	1		
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129		2	2	2		
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134		1	2	3		
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141			2			
SHINGLE	142						
MUD	143				2		
CLAY	144						
BLACK LAYER (note depth in cm)	145						
MIXTURE OF TYPES	146	3	3	3	3		
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150				1		
CONCRETE	151				1		
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154		2	2	1		
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						

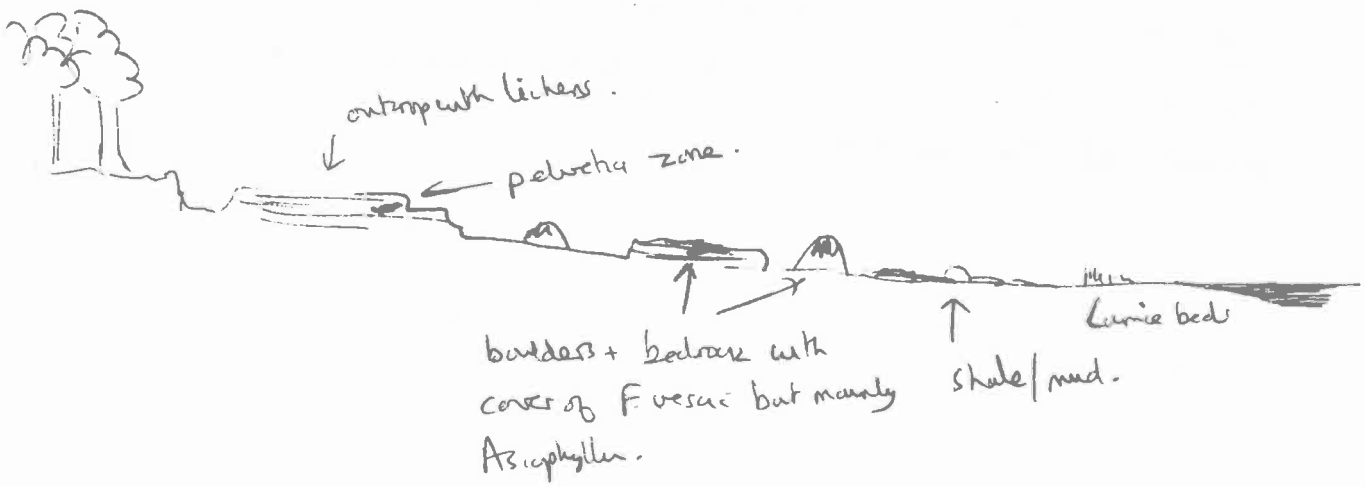
		STN./HABITAT 1	2	3	4	5	6
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165	✓	✓	✓	✓		
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167	3	1				
UNBROKEN ROCK	168		1	1			
BROKEN ROCK	169	2	3	1	1		
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177						
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (+1m)	183						
ROCKPOOL - SM. (¾1m)	184						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191						
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193						
SMOOTH	194						
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198						
SHELLS (INTACT)	199						
OTHER (score and note type below) STONEY	200		3	3	3		
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

SITE NO.:

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit ~~marks etc.~~)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.:

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on shore, and Time; and include details of samples/specimens/photographs taken.)

Zone 1. Splash zone upper shore. A noticeable band of lichens and Pelvetia canaliculata. Did not observe any animal species.

Zone 2. Upper midshore. A very mixed habitat with rock outcrops, patches of muddy shale, and large boulders. Ascophyllum nodosum was the dominant fucoid

Zone 3 Fewer rocks. Boulders here were however colonised by barnacles and fucoids including F. serratus and a tiny bit of sponge was on overhang.

Zone 4. Mostly sediment with large amounts of broken shale in it. Lamina beds at CW. Some Ensis, Cyprina islandica and C. edule were present at the surface.

INTERTIDAL RECORDING SHEET

This check list is based on the [illegible] and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its [illegible] defined [illegible] habitat and is to be described in the blank section at the end of the form. [illegible] in the description of a survey [illegible] including prevailing wind, time [illegible] are not now included in the form. [illegible] each category do not [illegible] sublittoral habitat record sheet.

Site 61

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

SITE NAME: Steer Point East (61) GRID REFERENCE: 566699.

DATE: 26-5-86 NAME OF RECORDER: D. Roston

KEY TO HABITAT COLUMNS:

1. Upper shore / splash zone
2. Upper mudshore
3. Lower mudshore
4. Lower shore
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.			C	O		
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.			O	F		
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa						
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum				O		
Ceramium shuttleworthianum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dilsea carnosa						
Dumontia incrassata						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum						
Gigartina acicularis						
Gigartina stellata			O	R		
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						
Hildenbrandia sp.						

	1	2	3	4	5	6
Hypoglossum woodwardii						
Laurencia hybrida						
Laurencia pinnatifida						
Lomentaria articulata						
Lomentaria clavellosa						
Membranoptera alata						
Mesophyllum lichenoides						
Palmaria palmata						
Phyllophora traillii						
Plumaria elegans						
Polyides rotundus						
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa		C	F			
Polysiphonia nigrescens ?				F		
Polysiphonia urceolata						
Polysiphonia sp.				F		
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)						
Rhodophyta indet. (pink)						
Scytosiphon lomentaria						
Porphyra sp.						
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
PHAEOPHYTA						
Ascophyllum nodosum		C	O			
Bifurcaria bifurcata						
Cladostephus spongiosus						
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.						
Fucus serratus			F			
Fucus spiralis						
Fucus vesiculosus		O	F	F		

	1	2	3	4	5	6
Halidrys siliquosa						
Halopteris scoparia						
Himanthalia elongata						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochrolenca						
Laminaria saccharina						
Laminaria sp. (sporlings)						
Pelvetia canaliculata	O					
Phaeophyta indet. (filam.)			O			
Pilayella littoralis						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Chlorophyta indet. (filam.)	C					
Cladophora pellucida						
Cladophora sp.						
Cladostephus spongiosus						
Codium fragile tomentosoides						
Codium tomentosum						
Enteromorpha sp. (p)		C	O			
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera noltii						
Zostera augustifolia						
Zostera marina						
LICHENS						
Calloplaca marina	F					
Calloplaca thallincola	F					
Grey lichens	F					
Lecanora atra						
Lichina confinis						
Lichina pygmaea						
Ochrolechia parella						
Verrucaria maura						
Verrucaria mucosa						
Xanthoria parietina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Steer point east (68) GRID REFERENCE: 546497

DATE: 26-5-86 NAME OF RECORDER: D. Rostron

KEY TO HABITAT COLUMNS:

1. Upper shore / splash zone.
2. Upper mudshore
3. Lower mudshore
4. Lower shore, mainly sediments
5.
6.

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
Scypha compressa						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans			O			
Polymastia seriata						
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila						
Laomedea flexuosa			C	O		
Tubularia larynx						
COELENTERATA:ACTINIAE						
Actinia equina						
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina						

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina				O		
Branchiomma vesiculosum						
Eulalia viridis						
Lanice conchilega				A		
Polydora sp.				O		
Pomatoceros sp. (p)						
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids						
Spirorbinidae - on rock						
Terebellidae indet.						
Nereis diversicolor		A	A	A		
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus						
Chthamalus montagui						
Chthamalus stellatus						
Elminius modestus		O	F	F		
Semibalanus balanoides			O	R		
Verruca stroemia						
CRUSTACEA:ISOPODA						
Idotea sp. (p)				R		

	1	2	3	4	5	6
CRUSTACEA:AMPHIPODA						
Amphipoda indet.						
Gammarus sp.			F	P		
Hyale nilssoni						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas			O			
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						

	1	2	3	4	5	6
INSECTA						
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria						
Gibbula umbilicalis						
Hydrobia ulvae						
Littorina 'saxatilis'						
Littorina littorea			O	O		
Littorina mariae						
Littorina neglecta						
Littorina neritoides						
Littorina obtusata						
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata						
Nassarius incrassatus						
Nucella lapillus						
Ocenebra erinacea						
Patella aspera						
Patella depressa						
Patella vulgata						
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
Eans sp				O		
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Cerastoderma edule				R		
Heteranomia squamula						
Hiatella arctica						
Lasaea rubra						
Mytilus edulis						
Ostrea edulis						
Cyprina islandica				O		
BRYOZOA						
Alcyonidium gelatinosum			O			
Alcyonidium hirsutum						
Bowerbankia imbricata		O		C		
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida						
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86

RECORD NO.:

SITE NAME: Crawl Work Beacon SITE NO.: 62

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.:	E - W	N - S		E - W	N - S
	SX	546	495	TO	

RECORDER: K. Hiscock DATE: 26 D 05 M 86 Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	✓
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	✓
NORTHWEST	33	

COASTAL HEIGHT (TICK)

HIGH	34	✓
MODERATE	35	✓
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	✓
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	✓
VARIABLE (30°/oo+)	66	
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	✓
SOFT SAND/MUDSTONES	74	
HARD METAMORPHICS	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	av.
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	diff.

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: W-A	107	✓
C-U	108	✓
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

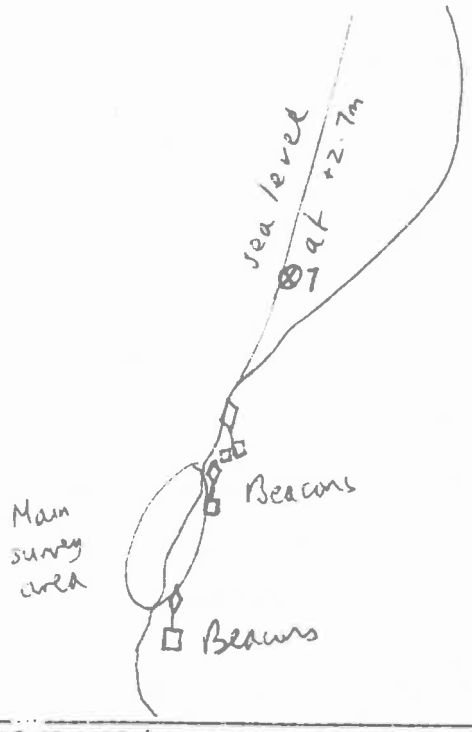
SITE NAME

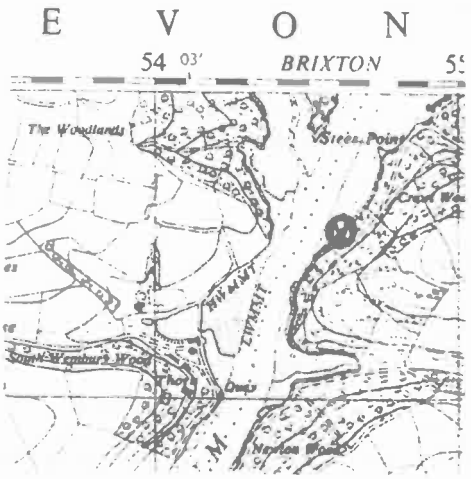
SITE NO. 62

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115	✓	✓				
UPPER SHORE	116		✓	✓	✓		
UPPER MIDSHORE	117			✓	✓	✓	
MIDSHORE	118					✓	
LOWER MIDSHORE	119						
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122	3	3	3	3	3	
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126		1				
SM. ANGULAR COBBLES (64-129 mm)	127						
SM. ROUND COBBLES (64-128 mm)	128						
SM. SLATES (64-128 mm)	129		2				
V.LG.&LG.ANG.PEBBLES (16-64 mm)	130						
V.LG.&LG.RND.PEBBLES (16-64 mm)	131						
MED.&SM.PEBBLES (4-16 mm)	132						
CLEAN GRAVEL (2-4 mm)	133						
MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143						
CLAY	144						
BLACK LAYER	145						
(note depth in cm)							
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154		2	3	3	3	
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (90-100°)	162	✓					
V. STEEP (40-80°)	163			✓	✓	✓	
STEEP (20-40°)	164		✓				
SHALLOW (20°)	165						
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169	3	3	3	3	3	3
TERRACES	170		2				
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177	1		1	1	1	1
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (+1m)	183						
ROCKPOOL - SM. (¾1m)	184						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191						
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193						
SMOOTH	194						
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198						
SHELLS (INTACT)	199						
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

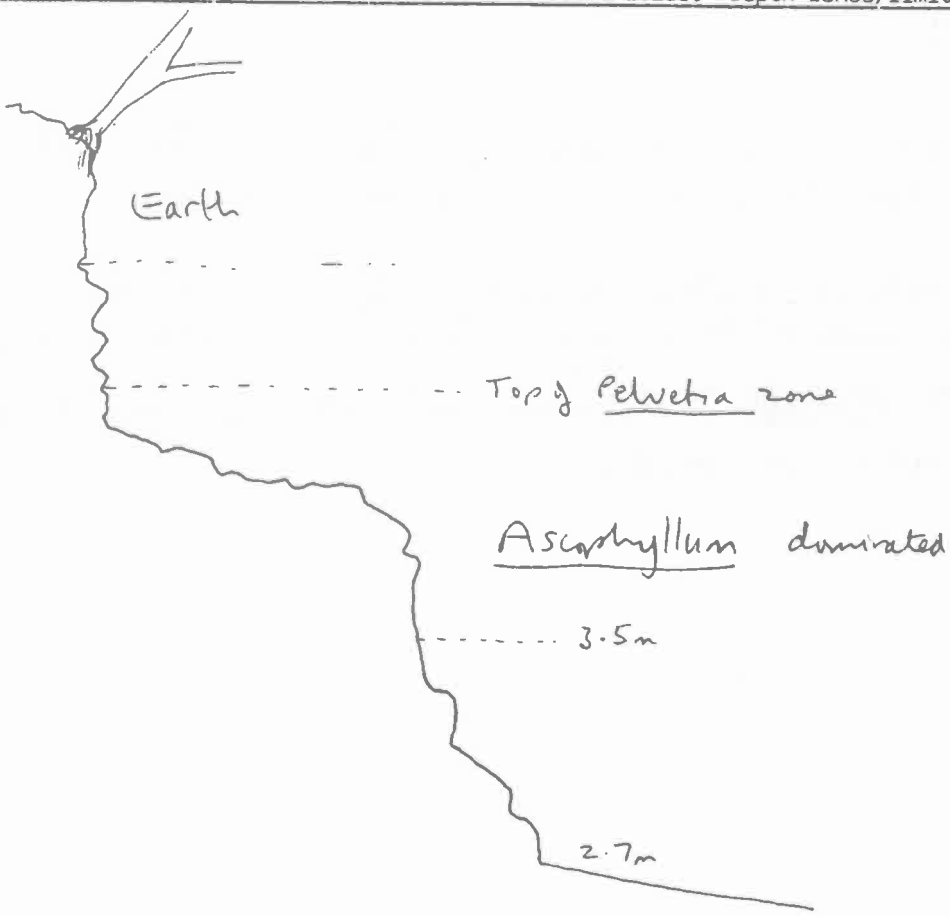
SITE NO.: 62

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)





SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).



SITE NO.:

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on shore, and Time; and include details of samples/specimens/photographs taken.)

General description. Steeply sloping broken bedrock to +2·7m overhung by cobbles. Upper shore areas were colonised by patchy Pelvetia and dense filamentous green algae. The rest of the rocky shore was dominated by fucoids. In places, vertical rock was colonised by Patella and was algal-free.

Station 1. Splash. Narrow band (30cm) of Verrucaria maura with Caloplaca on steeply sloping broken rock.

Station 2. Upper shore on steeply sloping broken rock and rock platform with shingle dominated by filamentous green algae with Pelvetia mixed with Fucus spiralis and Catenella on the platform.

Station 3. Upper midshore broken steeply sloping silty rock dominated by Ascophyllum with Audouinella below and some Laminaria models.

Station 4. Upper midshore steeply sloping broken rock without algae dominated by limpets with scattered barnacles.

Station 5. Midshore broken steeply sloping rock dominated by Ascophyllum with Polysiphonia lanosa and with several areas of rock with Patella abundant and with sparse barnacles. To +2·7m where sediment starts.

Station 6 no algae

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover have not been defined for each habitat and is to be described in the blank section at the end of the form. Features which would normally be included in the description of a survey area including prevailing wind, slope, aspect, tidal range and annual rainfall are not due to be recorded on the form. Numbers for each category do not correspond with those on the sublittoral habitat record sheet.

INTERTIDAL HABITAT RECORD - TRIAL VERSION 20/5/86 RECORD NO.:

SITE NAME: Crawl Wood Beacons SITE NO.: 62

SURVEY AREA: Plymouth, Yealm SEA AREA:

OS GRID REF.: E - W N - S E - W N - S

SX 5146 4915 TO

RECORDER: J. Moore DATE: 21 D 05 M 86 Y

SITUATION (TICK ONE ONLY)

OPEN SEA (1 km offshore)	1	
OPEN COASTLINE-ROCK (30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (30° deep-water window open sea)	4	
ENC. COASTLINE-SEDIMENT (30° deep-water window to open sea)	5	✓

INTERTIDAL EXTENT (m)	6	

COASTAL TYPE (TICK)

HEADLAND	7	
'LINEAR COAST'	8	
LARGE BAY (2 km)	9	
SMALL BAY	10	
SPIT/BAR	11	
OFFSHORE SMALL ISLAND	12	
AMONGST ROCKS/ISLETS	13	
SOUND/NARROWS	14	
SHALLOW RAPIDS	15	
SEA LOCH	16	
ESTUARY/MARINE INLET	17	✓
LINEAR BEACH	18	
POCKET BEACH	19	
SALTMARSH	20	
COASTAL LAGOON	21	
HARBOUR	22	
SEA CAVE	23	
WRECK	24	
OTHER (tick and note below)	25	

ASPECT (TICK)

NORTH	26	
NORTHEAST	27	
EAST	28	
SOUTHEAST	29	
SOUTH	30	
SOUTHWEST	31	
WEST	32	
NORTHWEST	33	✓

COASTAL HEIGHT (TICK)

HIGH	34	
MODERATE	35	✓
LOW	36	
OTHER (tick and note below)	37	

COASTAL BACKING (TICK)

SAND DUNES	38	
LOW CLIFF	39	
MODERATE CLIFF	40	
HIGH CLIFF	41	
SALTMARSH	42	
MACHAIR	43	
SEA WALL	44	
SHINGLE RIDGE	45	
GRASSLAND/AGRIC.LAND	46	
WOODS/SCRUBLAND	47	✓
OTHER (tick and note below)	48	

OFFSHORE FEATURES (TICK)

ISLANDS	49	
REEFS	50	
BREAKWATER	51	
SANDBANKS	52	
SHOAL	53	

WAVE EXPOSURE (TICK)

VERY EXPOSED (prevailing wind and swell)	54	
EXPOSED (prevailing wind)	55	
SEMI-EXPOSED (strong wind frequent)	56	
SHELTERED (strong wind rare)	57	
VERY SHELTERED (fetch 20 km)	58	
EXTREMELY SHELTERED (fetch 3 km)	59	✓

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	60	
STRONG (3-6 k)	61	
MOD. STRONG (1-3 k)	62	✓
WEAK (1 k)	63	
VERY WEAK (negligible)	64	

SALINITY REGIME (TICK)

NORMAL (around 34°/oo)	65	
VARIABLE (30°/oo+)	66	✓
LOW (30°/oo)	67	
FRESHWATER STREAM	68	
SALINITY MEASURED	69	
NOT KNOWN	70	

ROCK TYPE (TICK)

IGNEOUS	71	
LIMESTONES	72	
HARD SAND/MUDSTONES	73	✓
SOFT SAND/MUDSTONES	74	
HARD SLATE/SHALES	75	
FRIABLE SLATE/SHALES	76	
NOT KNOWN	77	
OTHER (tick and note below)	78	

SITE INFORMATION (TICK)

HABITAT VARIETY	79	
SPECIES AT OR NEAR LIMIT	80	
SPECIES RICHNESS (gd, av, poor)	81	Av.
MNR,NNR,LNR,SSSI NEARBY	82	
PREVIOUS STUDY AREA	83	
ORNITH. INTEREST (type?)	84	
SEAL HAUL OUT/ BREEDING AREA	85	
EVIDENCE OF POLLUTION (type?)	86	
VERY CLEAN	87	
FRAGILE	88	
THREATENED	89	
SEWAGE/INDUSTRIAL OUTFALL NEAR	90	
EVIDENCE OF STONE TURNING	91	
OTHER SOURCES OF DISTURBANCE (tick and note below)	92	
EASE OF ACCESS (on foot) (diff., mod., easy)	93	Diff.

SHORE USAGE (TICK)

FIELD STUDY	94	
RECREATION	95	
BEACH FISHING	96	
BAIT DIGGING	97	
SHELLFISH COLLECTION	98	
AQUACULTURE	99	
MOORING	100	
WATERSPORT	101	
OTHER (tick and note below)	102	

AMENITY (TICK)

ATTRACTIVE BEACH	103	
LOCAL RESORT	104	
POPULAR	105	
PUBLIC FACILITIES	106	

OTHER DATA RECORDED

PHOTOGRAPHS: W-A	107	✓
C-U	108	✓
WATER ANALYSIS	109	
SEDIMENT ANALYSIS	110	
SPECIMENS COLLECTED	111	
ALGAL CHECKLIST	112	✓
ANIMAL CHECKLIST	113	✓
OTHER (tick and note below)	114	

INTERTIDAL HABITAT RECORD

SITE NAME

SITE NO.

		STN./HABITAT 1	2	3	4	5	6
LOCATION ON SHORE							
SPLASH ZONE	115						
UPPER SHORE	116						
UPPER MIDSHORE	117						
MIDSHORE	118	✓					
LOWER MIDSHORE	119						
LOWER SHORE	120						
SUBLITTORAL FRINGE	121						
SUBSTRATUM (SCORE 1=RARE, 2=SECONDARY, 3=PREDOMINANT							
BEDROCK	122						
LG. BOULDERS (500 mm+)	123						
SM. BOULDERS (256-500 mm)	124						
LG. COBBLES (128-256 mm)	125						
LG. SLATES (128-256 mm)	126						
SM. ANGULAR COBBLES (64-129 mm)	127						
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MUDDY GRAVEL (2-4 mm)	134						
MAERL GRAVEL	135						
CLEAN SHELL GRAVEL	136						
MUDDY SHELL GRAVEL	137						
COARSE SAND (0.5-2 mm)	138						
FINE CLEAN SAND	139						
FINE MUDDY SAND	140						
SANDY MUD	141						
SHINGLE	142						
MUD	143	3					
CLAY	144						
BLACK LAYER	145	2					
(note depth in cm)		2					
MIXTURE OF TYPES	146						
KELP PLANTS	147						
WHOLE SHELLS	148						
OTHER (score & note type below)	149						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)							
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (score & note type below)	153						
ROCK COVER (SCORE 1-3)							
FUCOID CANOPY	154						
FOLIOSE RED ALGAE	155						
FOLIOSE GREEN ALGAE	156						

		STN./HABITAT 1	2	3	4	5	6
ALGAL TURF	157						
ALGAL CRUST	158						
LICHEN (Marine)	159						
FAUNAL BED	160						
OVERALL INCLINATION (TICK ONE)							
OVERHANG	161						
VERTICAL (80-100°)	162						
V. STEEP (40-80°)	163						
STEEP (20-40°)	164						
SHALLOW (20°)	165	✓					
HORIZONTAL (5°)	166						
ROCK FEATURES (SCORE 1-3)							
OUTCROP	167						
UNBROKEN ROCK	168						
BROKEN ROCK	169						
TERRACES	170						
LEDGES	171						
ROCK WALLS	172						
OPEN GULLIES	173						
STEEP-SIDED GULLIES (MAN)	174						
LARGE FISSURES/CREV.(ARM)	175						
SMALL FISS./CREV.(FINGERS)	176						
OVERHANG	177						
LARGE CAVE (MAN IN)	178						
SMALL CAVE (PUT HEAD IN)	179						
POTHOLES	180						
ROCKMILLS	181						
TURNABLE BOULDERS	182						
ROCKPOOL - LG. (+1m)	183						
ROCKPOOL - SM. (¾1m)	184						
MOBILE COBBLES	185						
SCOURED ROCK	186						
SAND ON ROCKS	187						
THIN SILT ON ROCKS	188						
THICK/FLOC. SILT ON ROCKS	189						
OTHER (score and note type below)	190						
SEDIMENT FEATURES (SCORE 1-3)							
FIRM	191						
SOFT (SHALLOW SINK)	192						
SOFT (DEEP SINK)	193	3					
SMOOTH	194						
WORKED	195						
RIPPLED	196						
MOUNDS	197						
BURROWS	198	2					
SHELLS (INTACT)	199						
OTHER (score and note type below)	200						
SEDIMENT COVER (SCORE 1-3)							
SEAGRASS	201						
DIATOM FILM	202						
GREEN ALGAE	203						
UNATTACHED ALGAE	204						
FAUNAL BED	205						

SITE NO.:

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of sites, transit marks etc.)

See other form

SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked).

See other form

SITE NO.: 62

REPORT SECTION (Describe each habitat and associated community. Description should begin with - Habitat No., Habitat Name, Height on shore, and Time; and include details of samples/specimens/photographs taken.)

Stn 7 Muddy shore at MS. Thick glutinous mud, very soft. Black layer not very distinct, but shallow. *Nereis* burrows numerous. *Scrobicularia* and *Nereis* seen in samples. 0.01m²/0.5mm and 0.1m²/1mm samples taken.

INTERTIDAL RECORDING SHEET

This check list is based on the format and categories used in the Sublittoral Habitat Record Sheet developed in 1985 and replaces the NCC sediment and rocky shore recording sheets developed by the SMBA/MBA Intertidal Survey Unit and used in 1985. The categories in those sheets are covered by similar headings except that the type of community present and its cover has not been defined for each habitat and is to be described in the blank section at the end of the form. Features which would normally be included in the description of a survey area including prevailing wind, time of [illegible], tidal range and annual rainfall are not now included on the form. Numbers for each category do not correspond with those on the sublittoral habitat record sheet.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

SITE NAME: Crawl Wood Beacon 62 GRID REFERENCE:

DATE: 26/05/85 NAME OF RECORDER: A.E Little

KEY TO HABITAT COLUMNS:

1. SPLASH [illegible] bedrock
2. US " " (Pelvetia)
3. UMS " " Above 3.5m
4. UMS Vertical bedrock (Algae free)
5. MS - LMS
6. MS - LMS [illegible]

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum					??	
Antithamnion plumula					??	
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.		O	A	O	C	
Bonnemaisonia hamifera						
Bostrychia scorpioides		C-A				
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.					C	C
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.					A	
Callophyllis laciniata						
Catenella caespitosa		A				
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum					P	
Ceramium shuttleworthianum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dilsea carnosa						
Dumontia incrassata						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gelidium latifolium						
Gelidium pusillum					P	
Gigartina acicularis						
Gigartina stellata			R		O	
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						
Hildenbrandia sp.						

	1	2	3	4	5	6	
Hypoglossum woodwardii							
Laurencia hybrida							
Laurencia pinnatifida							
Lomentaria articulata							
Lomentaria clavellosa							
Membranoptera alata							
Mesophyllum lichenoides							
Palmaria palmata							
Phyllophora traillii							
Plumaria elegans							
Polyides rotundus							
Polyneura hilliae							
Polysiphonia brodiaei							
Polysiphonia lanosa			C				✓
Polysiphonia nigrescens							
Polysiphonia urceolata							
Polysiphonia sp.							
Rhodophyta indet. (filam.)							
Rhodophyta indet. (dk. red)		R	R	F-C	O		✓
Rhodophyta indet. (pink)				O	F		✓
Scytosiphon lomentaria							
Porphyra sp.							
BACILLARIOPHYCEAE							
Bacillariophyceae indet.		O					✓
PHAEOPHYTA							
Ascophyllum nodosum		O	S	S			✓
Bifurcaria bifurcata							
Cladostephus spongiosus							
Chorda filum							
Colpomenia peregrina							
Cystosiera nodicaulis							
Desmarestia viridis							
Ectocarpoidea indet.							
Fucus serratus							
Fucus spiralis		A					✓
Fucus vesiculosus		A					✓

	1	2	3	4	5	6	
Halidrys siliquosa							
Halopteris scoparia							
Himanthalia elongata							
Laminaria digitata							
Laminaria hyperborea							
Laminaria ochrolenca							
Laminaria saccharina							
Laminaria sp. (sporlings)							
Pelvetia canaliculata		C-A					
Phaeophyta indet. (filam.)					C		
Pilayella littoralis							
Saccorhiza polyschides							
Sargassum muticum							
CHLOROPHYTA							
Bryopsis hypnoides							
Bryopsis plumosa							
Chaetomorpha melagonium							
Chlorophyta indet. (filam.)		E					
Cladophora pellucida							
Cladophora sp.			C		A		
Cladostephus spongiosus							
Codium fragile tomentosoides							
Codium tomentosum							
Enteromorpha sp. (p)						O	
Ulva sp. (p)			O		O	F	
ANGIOSPERMAE							
Zostera noltii							
Zostera augustifolia							
Zostera marina							
Festuca rubra	A						
Plantago maritima	R						
Crithmum maritimum	R						
LICHENS							
Calloplaca marina	?O						
Calloplaca thallincola	F						
Grey lichens							
Lecanora atra							
Lichina confinis							
Lichina pygmaea							
Ochrolechia parella	O						
Verrucaria maura	E						
Verrucaria mucosa	?R						
Xanthoria parietina	O						
Physcia sp.	O						— long hooks on back.
Ramalina sp.	O						

Higher plants (Graded scope [illegible] urbanisation)

Wood mice (? greater)
Beech
Oak
Holly
Honeysuckle
Vetch (Ephemeral large flowered)
Wood [illegible]
mouse

Splash zone $< \frac{1}{2}$ m

Catenella extend about 0.7m below Pelvetia

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Crawl West Beacons 62 GRID REFERENCE: SX 546 495

DATE: 26 5 86 NAME OF RECORDER: K Hiscock

KEY TO HABITAT COLUMNS:

1. Spl Steeply sloping broken rock
2. US steeply sloping bedrock and rock platform with shingle.
3. U.M.S steeply sloping broken bedrock silty bedrock
4. U.M.S steeply sloping broken bedrock (algal free)
5. MS steeply sloping bedrock.
6. O. algae.

	1	2	3	4	5	6
PORIFERA:CALCAREA						
Clathrina coriacea						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
Scypha compressa						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Dysidea fragilis						
Halichondria bowerbanki						
Halichondria panicea						
Hemimycale columella					●	
Hymeniacidon perleve			O		O	
Myxilla incrustans						
Oscillitaspongia seriata						
COELENTERATA:HYDROZOA						
Clava squamata						
Dynamena pumila			O		F	
Laomedea flexuosa						
Tubularia larynx						
COELENTERATA:ACTINIAE						
Actinia equina			R	F		
Actinothoe sphyrodeta						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Corynactis viridis						
Sagatia elegans						
Urticina felina						

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Eulalia viridis						
Lanice conchilega						
Polydora sp.						
Pomatoceros sp. (p)						
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids						
Spirorbinidae - on rock			O		O	
Terebellidae indet.						
Cirratulus cirratus			R	O	F	
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus					O	
Balanus improvisus						
Balanus perforatus						
Chthamalus montagui						
Chthamalus stellatus						
Elminius modestus			F	C	C	
Semibalanus balanoides				F	C	
Verruca stroemia						
CRUSTACEA:ISOPODA						
Idotea sp. (p)						
Ligia oceanica	O					

	1	2	3	4	5	6
CRUSTACEA:AMPHIPODA						
Amphipoda indet.		C	F		F	
Gammarus sp.						
Hyale nilssoni		C	C			
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas			C		C	
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus						
Sidnyum elegans						
Styela clava						
Styelidae indet.						
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						

	1	2	3	4	5	6
INSECTA						
Anurida maritima			C			
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria						
Gibbula umbilicalis						
Hydrobia ulvae						
Littorina 'saxatilis'		C		F		
Littorina littorea				O	O	
Littorina mariae			F			
Littorina neglecta						
Littorina neritoides						
Littorina obtusata						
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata						
Nassarius incrassatus						
Nucella lapillus						
Ocenebra erinacea						
Patella aspera						
Patella depressa						
Patella vulgata				A	C	
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
Lepidochitona cinerea					R	
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Cerastoderma edule						
Heteranomia squamula						
Hiatella arctica						
Lasaea rubra						
Mytilus edulis						
Ostrea edulis						
BRYOZOA						
Alcyonidium gelatinosum			O		F	
Alcyonidium hirsutum						
Bowerbankia imbricata			R		F	
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida						
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

SITE NAME: Tinside [illegible] post 63 GRID REFERENCE:

DATE: NAME OF RECORDER: AEL

KEY TO HABITAT COLUMNS:

1. L.S bedrock (Himanthalia & Polydora)
2. L S overhangs
3. L S Algae as substrate
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata	·					
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium	Dᵖ					
Audouinella sp.						
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata						
Callithamnion roseum						
Callithamnion sp.	O					
Callithamnion tetragonum						
Callithamnion tetricum						
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa						
Ceramium ciliatum						
Ceramium echionotum						
Ceramium rubrum	O					
Ceramium shuttleworthianum						
Ceramium sp.	O					
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis	C					
Cryptopleura ramosa		R				
Cystoclonium purpureum						
Delesseria sanguinea						
Dilsea carnosa						
Dumontia incrassata						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gelidium latifolium	C					
Gelidium pusillum	C					
Gigartina acicularis						
Gigartina stellata	F	C				
Gracilaria verruscosa						
Griffithsia corallinoides						
Griffithsia flosculosa	?Rᵖ					
Griffithsia sp.						
Hildenbrandia sp.						

	1	2	3	4	5	6
Hypoglossum woodwardii						
Laurencia hybrida						
Laurencia pinnatifida						
Lomentaria articulata						
Lomentaria clavellosa						
Membranoptera alata						
Mesophyllum lichenoides	Dᵖ					✓
Palmaria palmata	O	A				✓
Phyllophora traillii						
Plumaria elegans						
Polyides rotundus						
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa						
Polysiphonia nigrescens	?F					
Polysiphonia urceolata						
Polysiphonia sp.						
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)		O				✓
Rhodophyta indet. (pink)	F	O				✓
Scytosiphon lomentaria						
Porphyra sp.						
Calliophyllis laciniata		R				✓
BACILLARIOPHYCEAE						
Bacillariophyceae indet.						
PHAEOPHYTA						
Ascophyllum nodosum						
Bifurcaria bifurcata						
Cladostephus spongiosus						
Chorda filum						
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.						
Fucus serratus		O				✓
Fucus spiralis						
Fucus vesiculosus						

	1	2	3	4	5	6
Halidrys siliquosa						
Halopteris scoparia						
Himanthalia elongata	S	F				
Laminaria digitata		F				
Laminaria hyperborea		O				
Laminaria ochrolenca						
Laminaria saccharina		O				
Laminaria sp. (sporlings)						
Pelvetia canaliculata						
Phaeophyta indet. (filam.)		F				
Pilayella littoralis						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa		O				
Chaetomorpha melagonium						
Chlorophyta indet. (filam.)						
Cladophora pellucida						
Cladophora sp.		P				
Codiostephus spongiosus						
Codium fragile tomentosoides						
Codium tomentosum						
Enteromorpha sp. (p)						
Ulva sp. (p)		F				
ANGIOSPERMAE						
Zostera noltii						
Zostera augustifolia						
Zostera marina						
LICHENS						
Calloplaca marina						
Calloplaca thallincola						
Grey lichens						
Lecanora atra						
Lichina confinis						
Lichina pygmaea						
Ochrolechia parella						
Verrucaria maura						
Verrucaria mucosa						
Xanthoria parietina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES
IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Tinside Swimming Pool (63) GRID REFERENCE: _____

DATE: 26.5.86 NAME OF RECORDER: K. Hiscock

KEY TO HABITAT COLUMNS:

2. Overhanging surfaces on rocks south of swimming pool
3. _____
4. _____
5. _____
6. _____

	2	3	4	5	6
PORIFERA:CALCAREA					
Clathrina coriacea					
Leuconia barbata					
Leucosolenia botryoides	O				
Scypha ciliata					
Scypha compressa					
PORIFERA:DEMOSPONGIAE					
Amphilectus fucorum					
Dysidea fragilis					
Halichondria bowerbanki	?F				
Halichondria panicea					
Hemimycale columella					
Hymeniacidon perleve					
Ixilla incrustans					
Sphlitasponqia seriata					
?Oscarella lobularis	O				
Clava sp	O				
COELENTERATA:HYDROZOA					
Clava squamata					
Dynamena pumila					
Laomedea flexuosa					
Tubularia larynx					
Tubularia indivisa	O				
Plumularia setacea	F				
COELENTERATA:ACTINIAE					
Actinia equina					
Actinothoe sphyrodeta					
Anemonia viridis					
Caryophyllia smithii					
Cereus pedunculatus					
Corynactis viridis	F				
Sagatia elegans					
Urticina felina					

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina						
Branchiomma vesiculosum						
Eulalia viridis						
Lanice conchilega						
Polydora sp.						
Pomatoceros sp. (p)						
Sabella pavonina						
Spirorbinidae - on 'lithothamnia'						
Spirorbinidae - on Gigartina/Chondrus						
Spirorbinidae - on fucoids						
Spirorbinidae - on rock						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Balanus improvisus						
Balanus perforatus						
Chthamalus montagui						
Chthamalus stellatus						
Elminius modestus						
Semibalanus balanoides						
Verruca stroemia						
CRUSTACEA:ISOPODA						
Idotea sp. (p)						

	1	2	3	4	5	6
CRUSTACEA:AMPHIPODA						
Amphipoda indet.						
Gammarus sp.						
Hyale nilssoni						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Galathea dispersa						
Galathea squamifera						
Galathea strigosa						
Liocarcinus puber						
Pagurus berhardus						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles						
ECHINODERMATA:STELLEROIDEA						
Amphipholis squamata						
Asterias rubens						
Asterina gibbosa						
Ophiothrix fragilis						
ECHINODERMATA:ECHINOIDEA						
Psammechinus miliaris						
CHORDATA:ASCIDIACEA						
Ascidiella aspersa						
Botrylloides leachii	C					
Botryllus schlosseri						
Ciona intestinalis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum maculosum						
Morchellium argus	O					
Sidnyum elegans						
Styela clava						
Styelidae indet.						
CHORDATA:PISCES						
Blennius pholis						
Pholis gunnellus						

	1	2	3	4	5	6
INSECTA						
Anurida maritima						
Insecta indet. (pupae)						
MOLLUSCA:GASTROPODA						
Polyplacophora indet.						
Calliostoma zizyphinum						
Calyptera chinensis						
Crepidula fornicata						
Gibbula cineraria						
Gibbula umbilicalis						
Hydrobia ulvae						
Littorina 'saxatilis'						
Littorina littorea						
Littorina mariae						
Littorina neglecta						
Littorina neritoides						
Littorina obtusata						
Littorina obt./mariae						
Lepidochitona cinereus						
Monodonta lineata						
Nassarius incrassatus						
Nucella lapillus						
Ocenebra erinacea						
Patella aspera						
Patella depressa						
Patella vulgata						
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Anomiidae indet.						
Cerastoderma edule						
Heteranomia squamula						
Hiatella arctica						
Lasaea rubra						
Mytilus edulis						
Ostrea edulis						
BRYOZOA						
Alcyonidium gelatinosum						
Alcyonidium hirsutum						
Bowerbankia imbricata						
Bryozoa indet. (encr.)						
Bugula plumosa						
Bugula turbinata						
Electra pilosa						
Flustrellidra hispida						
Membranipora membranacea						
Scrupocellaria reptans						
Umbonula littoralis						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

INTERTIDAL SURVEYS - PLANTS

SITE NAME: Stadden Pebble Pools 64 GRID REFERENCE: _____

DATE: _____ NAME OF RECORDER: A E Little

KEY TO HABITAT COLUMNS:

1. MLS pools (large, over 1m deep except for Small Pool) 1 cm = 1 m
2. LMS pools.
3. _____
4. _____
5. _____
6. _____

	1	2	3	4	5	6
RHODOPHYTA						
Ahnfeltia plicata						
Antithamnion cruciatum						
Antithamnion plumula						
Antithamnion sp.						
Apoglossum ruscifolium						
Audouinella sp.						
Bonnemaisonia hamifera						
Bostrychia scorpioides						
Callibleparis ciliata						
Calliblepharis jubata	O					
Callithamnion roseum						
Callithamnion sp.						
Callithamnion tetragonum						
Callithamnion tetricum		O				
Callithamnion/Antithamnion sp.						
Callophyllis laciniata						
Catenella caespitosa						
Ceramium ciliatum						
Ceramium echionotum		P				
Ceramium rubrum	O	?				
Ceramium shuttleworthianum		O				
Ceramium sp.	F					
Chondrus crispus						
Chylocladia verticillata		R				
Corallina officinalis	C	A				
Cryptopleura ramosa						
Cystoclonium purpureum						
Delesseria sanguinea						
Dilsea carnosa						
Dumontia incrassata	F					
Furcellaria lumbricalis						
Gastroclonium ovatum	F	O				
Gelidium latifolium						
Gelidium pusillum						
Gigartina acicularis						
Gigartina stellata		P				
Gracilaria verrucosa						
Griffithsia corallinoides						
Griffithsia flosculosa						
Griffithsia sp.						
Hildenbrandia sp.						

	1	2	3	4	5	6
Hypoglossum woodwardii						
Laurencia hybrida						
Laurencia pinnatifida						
Lomentaria articulata						
Lomentaria clavellosa						
Membranoptera alata						
Mesophyllum lichenoides	C					
Palmaria palmata	F	R				
Phyllophora traillii						
Plumaria elegans						
Polyides rotundus						
Polyneura hilliae						
Polysiphonia brodiaei						
Polysiphonia lanosa						
Polysiphonia nigrescens						
Polysiphonia urceolata						
Polysiphonia sp.	P	P				
Rhodophyta indet. (filam.)						
Rhodophyta indet. (dk. red)						
Rhodophyta indet. (pink)		S				
Scytosiphon lomentaria	F	F				
Porphyra sp.		O				
BACILLARIOPHYCEAE						
Bacillariophyceae indet.		P				
PHAEOPHYTA						
Ascophyllum nodosum						
Bifurcaria bifurcata		C				
Cladostephus spongiosus						
Chorda filum		O				
Colpomenia peregrina						
Cystosiera nodicaulis						
Desmarestia viridis						
Ectocarpoidea indet.						
Fucus serratus						
Fucus spiralis						
Fucus vesiculosus						

	1	2	3	4	5	6	
Halidrys siliquosa							
Halopteris scoparia							
Himanthalia elongata	r	F					
Laminaria digitata	r						
Laminaria hyperborea							
Laminaria ochrolenca							
Laminaria saccharina	C						
Laminaria sp. (sporlings)							
Pelvetia canaliculata							
Phaeophyta indet. (filam.)							
Pilayella littoralis							
Saccorhiza polyschides							
Sargassum muticum	C						
Laminaria	O						
?Punctaria		Oc					
CHLOROPHYTA							
Bryopsis hypnoides							
Bryopsis plumosa							
Chaetomorpha melagonium							
Chlorophyta indet. (filam.)							
Cladophora pellucida							
Cladophora sp.		F					
Cladostephus spongiosus							
Codium fragile tomentosoides							
Codium tomentosum		O					
Enteromorpha sp. (p)	F	F					
Ulva sp. (p)	F	O					
~~Codium~~ sp		O					
ANGIOSPERMAE							
Zostera noltii							
Zostera augustifolia							
Zostera marina							
LICHENS							
Calloplaca marina							
Calloplaca thallincola							
Grey lichens							
Lecanora atra							
Lichina confinis							
Lichina pygmaea							
Ochrolechia parella							
Verrucaria maura							
Verrucaria mucosa							
Xanthoria parietina							

— Please edit:

A report to the
Nature Conservancy Council
from the
Field Studies Council Oil Pollution Research Unit
Orielton, Pembroke, Dyfed. SA71 5EZ.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

PLYMOUTH AREA INCLUDING THE YEALM

VOLUME 3b

Subtidal Field Data

Keith Hiscock and Jon Moore

Survey teams:

Intertidal (April 22 to 28, May 21 to 27)

Dr. Keith Hiscock
Jon Moore
Mark Hannan
Annette Little
Sue Hiscock
Dale Rostron
Jean Edwards
Kevin Chapple
Tracey Lyons
Sally Kelling

Subtidal (July 12 to 26)

Dr. Keith Hiscock
Jon Moore
Blaise Bullimore
Annette Little
Sue Hiscock
Iain Dixon
Teresa Bennett
Christine Howson
Heather Hughes
Paul Dart
Tracey Lyons
Vanda Morgan

Laboratory assistance:

Mark Hannan
Heather Hughes
Ian Slavin

Secretarial:

Madeline James

December 1986

FSC/OPRU/36/86

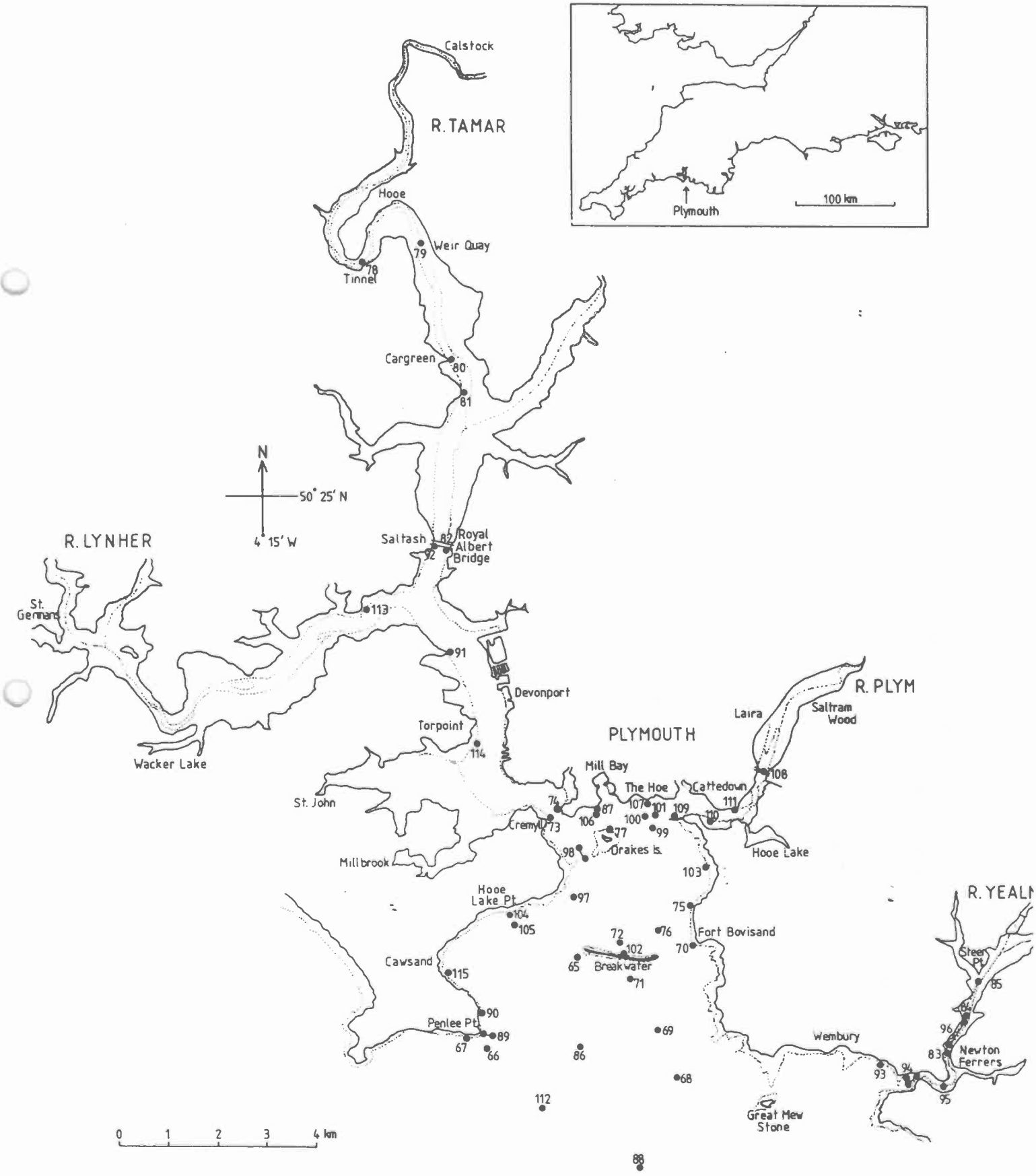
Sites surveyed and survey staff.

SUBTIDAL SITES

Site No.	Site Name	OS Grid Ref. SX:	Algae	Animals	Habitat	Date surveyed
65	SW Breakwater	462503-463505	AEL	KH, BB	KH, BB	13.7.86
66	Draystone Ledge	445485	AEL, BB	BB	BB	13.7.86
67	Penlee Tunnel	442487	AEL	KH	KH	13.7.86
68	Tinker Shoal South	483480	AEL, BB	BB	BB	14.7.86
69	East Tinker Buoy	480488	AEL	JM	JM, AEL	14.7.86
70	Staddon Point Gulley	486507	AEL	JM	JM, AEL	14.7.86
71	S of Breakwater	473499	AEL	KH, JM, BB	KH	14.7.86 & 18.7.86
72	N of Breakwater	472507	-	BB	BB	14.7.86
73	Battery Buoy	458533	AEL	JM, BB	BB, JM, AEL	15.7.86 18.7.86
74	N Devil's Point	459534	-	KH	KH	15.7.86
75	Ramscliff Point	487514	-	BB	BB	15.7.86
76	Duke Rock Buoy	480509	AEL	JM	JM, AEL	15.7.86
77	N Drake's Island	470529	AEL	KH	AEL, KH	16.7.86
78	Below Tinnel	420642	-	KH	KH	16.7.86
79	Weir Quay	431649	-	BB	BB	16.7.86
80	Cargreen	437627	-	BB	BB	16.7.86
81	Weir Point	440620-440619	-	KH	KH	16.7.86
82	Ferry Slip, St. Budeaux	436587	AEL	BB	BB, AEL	16.7.86
83	Clitter's Wood	538483	AEL, KH	KH	KH	17.7.86
84	Shortaflete Creek	543492	AEL	BB	BB	17.7.86
85	Steer Point	545497-545495	-	BB	BB	17.7.86
86	S of Knap Shoal	463484-463486	TB	KH	KH	18.7.86
87	Eastern King Point	467534	TB	KH	KH	18.7.86
88	Entrance, Plymouth Sound	477460	AEL	KH, JM	KH, AEL, TB, JM	19.7.86
89	Penlee Point	443487-447487	TB, SH	IMTD,BB	BB,IMTD, TB	20.7.86
90	Inner Broady Cove	443492	SH	JM	SH, JM	20.7.86
91	Looking Glass Point	436566	TB	IMTD,JM	TB, JM	20.7.86
92	Royal Albert Bridge	435588	SH	KH, BB	SH, KH, BB	20.7.86
93	Kitchings Gully, Tomb Rock	526480	TB	KH	KH	21.7.86
94	Off Cellar Bay	530479-530477 -531478	SH	JM	JM, SH	21.7.86
95	Ferry Cottage, Yealm	538475	CH	BB	CH, BB	21.7.86
96	Northern Yealm	540486-543491	CH	IMTD	CH,IMTD	21.7.86
97	Offshore, Picklecombe Point	465514-461512	SH	IMTD	SH,IMTD	22.7.86
98	N of the Bridge	462527-464525	BB, CH, SH	BB	BB	22.7.86
99	S of Mallard Shoal	479531	-	KH	KH	22.7.86

Site No.	Site Name	OS Grid Ref. SX:	Algae	Animals	Habitat	Date surveyed
100	W of Mallard Shoal	476532-479532	SH	JM	SH, JM	22.7.86
101	Mallard Shoal (Beacon)	470532	SH	KH	KH, SH	22.7.86
102	N Breakwater (Fort)	473504	IMTD	BB	BB,IMTD	22.7.86
103	Jennycliff Bay	289521-490521	SH	CH,IMTD	SH,IMTD	23.7.86
104	Hooe Lake Point (Inner)	450512	CH	JM	CH, JM	23.7.86
105	Off Hooe Lake Point	452510	IMTD	IMTD	IMTD	23.7.86
106	Mill Bay Pit	468534	-	KH	KH, BB	23.7.86
107	Off Tinside Swimming Pool	477536	CH	JM	JM/CH	23.7.86
108	Laira Bridge Piling	502542	IMTD	IMTD	IMTD	24.7.86
109	N of Mount Batten Breakwater	483533	CH	BB	BB, CH	24.7.86
110	Clovelly Bay	491531-492532	JM	JM	JM	24.7.86
111	Cattedown Wharf Piles	496535	-	JM	JM	24.7.86
112	Reef near "The Elk"	-	SH, CH	IMTD,BB, JM	CH, JM, IMTD,BB	24.7.86
113	Sand Acre Point	419572-421573	IMTD	IMTD,BB	IMTD,BB	25.7.86
114	Off Ballast Pound	441547-443546	SH	JM	JM, SH	25.7.86
115	Cawsand Bay	437499-438499	SH	IMTD	IMTD,SH	25.7.86

Location of survey sites



1 of 2

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: SOUTHWEST BREAKWATER — SITE NO.: 65 (1)

SURVEY AREA: PLYMOUTH. — SEA AREA: PLYMOUTH.

OS GRID REF.:

	E - W	N - S			E - W	N - S
SX	462	503	TO	SX	463	505

LAT. LONG.

	° '	° ' W/E	TO	° '	° ' W/E

RECORDER: B. BULLIMORE — DATE: 13 D 07 M 86 Y

TIME IN: 1059 — TIME OUT: 1143 BST/GMT — DURATION: 44

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 5. m

DEPTH RANGE SURVEYED 15-13 m BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 8 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	✓
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	✓

BREAKWATER NEAR

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	✓
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	✓
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	✓
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	✓

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	✓
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below)	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	✓
C-U	82	
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

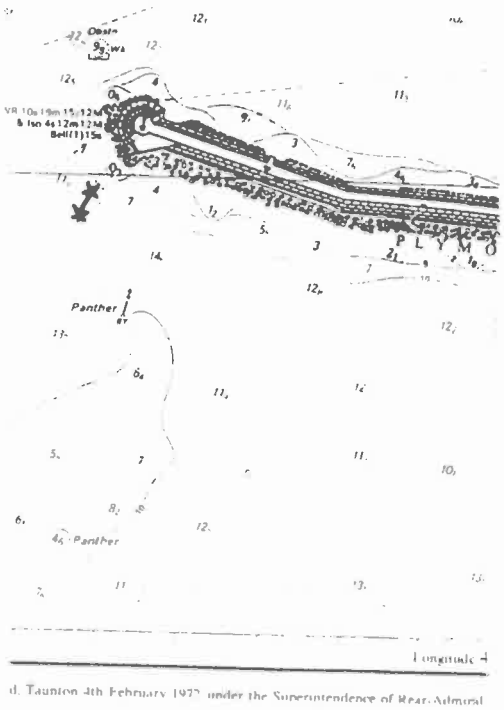
SITE NO. 65 (1)

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102	✓	✓				
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107						
5-10	108						
10-20	109	✓	✓				
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112						
LG. BOULDERS (500 mm+)	113		1				
SM. BOULDERS (256-500 mm)	114		2				
LG. COBBLES (128-256 mm)	115		3				
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117		3				
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120		2				
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122		2				
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124		2				
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126	3					
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128	3	1				
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133		3				
KELP PLANTS	134	1	1				
WHOLE SHELLS	135	1	1				
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY		1	1				
ALGAL MEADOW			2				
ALGAL TURF							
ALGAL CRUST			2				
FAUNAL TURF							
FAUNAL BED							

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174						
HORIZONTAL	175	✓	✓				
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191		2				
(PEBBLE INTERSTICES	192		2				
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197		2				
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224	3					
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227	1					
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE NO.: 65 A1

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



d. Taunton 4th February 1972 under the Superintendence of Rear-Admiral

SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)

Breakwater rocks

Rare Laminaria

Red alg → 60% cover on bldrs >30cm.
but < 5% cover of all seabed.

Stones w. ccc. → freq.
sponges, Nemertesia sp.

K.H. +
A.L.

-13m.

-15m

Pebbles → 5m bldrs
Mostly flat + angular.
Bldr. areas patchy + discontinuous.

0.5m wavelength,
5cm high coa. sedi
waves. (Sand, sh. gravel,
5m. pebbles)

SITE NO.: 65 (1)

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

Coarse Sediment.

- short shallow waves. Cerianthus rare, nr. bldrs. Lanice R.

Pebbles → Boulders.

Stable plain of chiefly lge ang. pebbles & ang. cobbles interspersed w. muddy sand and sm. pebbles and patches of lger bldrs (→ 50cm) (flat & angular). Lgest blders (>30cm) will cover ≃ 60% of red foliose algae. Also colonial Ascidians, A. digitatum., Cereus on sandier rocks, and Urticina. Balanus, Verruca, Pomatoceros on small & lge stones. Phoronis on smaller stones and @ sedi., interface on bldrs. ~~Occ~~ Occ. hydroids, erect bryos anemones & small sponges. Terebellids between stones. lge patches of enc. bryos & enc. calc. red alg. on some stones.

→ ? Didemnin maculatum forming extensive patches also Diplosoma ....

#103

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: SOUTHWEST BREAKWATER (65) GRID REFERENCE: SX 462 503

DATE: Bo786. NAME OF RECORDER: COLLECTED B. BULLIMORE ID'D A. LITTLE.

KEY TO HABITAT COLUMNS:

1.
2.
3.
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula						
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides		P				
Bonnemaisonia hamifera						
Brongniartella byssoides						
Calliblepharis ciliata		P				
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)		F				
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa						
Delesseria sanguinea						
Dilsea carnosa						
Drachiella spectabilis		P				
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum		P				
Heterosiphonia plumosa		P				
Hypoglossum woodwardii						
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii		P				
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii						
Polyneura hilliae		P				
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides		P				
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida		P				
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
~~Titanoderma~~		~~F~~				
Schmitzia neapolitana		P				
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME: 65 (1)

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata						
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
Laminaria saccharina						
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
✓ Sporochnus pedunculatus		P				
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera marina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: SOUTHWEST BREAKWATER (65) GRID REFERENCE: SX 462503

DATE: 130786. NAME OF RECORDER: B. BULLIMORE

KEY TO HABITAT COLUMNS:

1. COARSE SEDIMENT WAVES.
2. PGE PEBBLES – BOULDERS.
3.
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides		O				
Scypha ciliata		R				
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata		O				
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea		O				
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans		O				
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum		R				
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina	:	F				
Nemertesia ramosa		O				
Obelia dichotoma		R				
Obelia geniculata						
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa		R				
Tubularia larynx						
Kirchenpauria		R				
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum		R				
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus		F				
Cerianthus lloydii	R					
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes		O				
Sagartiogetan undatus						
Urticina felina		O				

SITE NAME: 65(1)

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega	R					
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)		F				
Sabella pavonina						
Terebellidae indet.		F				
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus		F				
Elminius modestus						
Verruca stroemia		F				
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus		F				
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria		R				
Nassarius incrassatus (NOT SEEN)		R				
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
CORYPHELLA PEDATA		R				
EUBRANCHUS FARRANI		R				
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
Hiatella sp.		O				
PHORONIS sp		F				
BRYOZOA						
Alcyonidium diaphanum		F				
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)		F				
Bugula flabellata		O				
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens		F				
Henricia oculatata		O				
Marthasterias glacialis		O				
Ophiocomina nigra						
Ophiothrix fragilis		O				
Ophiura texturata						

SITE NAME: SOUTHWEST BREAKWATER 65 (1)

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
✓ Botryllus schlosseri		F				
Ciona intestinalis						
✓ Clavelina lepadiformis		O				
Dendrodoa grossularia						
✓ Didemnidae indet. (TRIDIDEMNUM)		O				
Dicemnum gelatinosum						
✓ Didemnum maculosum (?orange)		P/F				
✓ Diplosoma listerianum		F				
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Molgula manhattensis						
✓ Morchellium argus		F				
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
✓ Styela clava		O				
✓ Pyura dilatata		O				
CHORDATA:PISCES						
Ammodytes sp.						
✓ Callionymus lyra	R					
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Syngnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
minutus.		R				✓
Pomatoschistus pictus		R				✓

3101

* – P in samples - 'normal' grey form.
'?orange' form F.

2-12

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: SW Breakwater SITE NO.: 65 (2)

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	463	505	TO		

LAT. LONG.

	° '	° ' W/E	TO	° '	° ' W/E

RECORDER: K. Hiscock DATE: 13 D 07 M 86 Y

TIME IN 1225

TIME OUT 1250 BST/~~GMT~~

DURATION 25

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 4·2-3·7 m

DEPTH RANGE SURVEYED 0 - 12·5 M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 10 m

SITUATION (TICK ONE ONLY)			WAVE EXPOSURE (SURFACE) (TICK)			ROCK TYPE (TICK)		
OPEN SEA (> 1 km offshore	1		VERY EXPOSED (prevailing wind and swell)	30		IGNEOUS	50	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	✓	EXPOSED (prevailing wind)	31	✓	LIMESTONES	51	✓
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3		SEMI-EXPOSED (strong wind frequent)	32		HARD SAND./MUDSTONES	52	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4		SHELTERED (strong wind rare)	33		SOFT SAND./MUDSTONES	53	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5		VERY SHELTERED (fetch <20 km)	34		HARD SLATE/SHALES	54	
			EXTREMELY SHELTERED (fetch <3 km)	35		FRIABLE SLATE/SHALES	55	
						NOT KNOWN	56	
						OTHER (tick and note below)	57	
COASTAL TYPE (TICK)			MAX. TIDAL STREAM STRENGTH (TICK)					
HEADLAND	6		VERY STRONG (6 k+)	36		SITE INFORMATION (TICK)		
'LINEAR COAST'	7		STRONG (3-6 k)	37		MNR, NNR, LNR, SSSI NEARBY	65	
BAY	8	✓	MOD. STRONG (1-3 k)	38	✓	SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
SPIT/BAR	9		WEAK (<1 k)	39		OTHER SOURCES OF DISTURANCE (tick & note below)	67	
OFFSHORE SM. ISLAND	10		VERY WEAK (negligible)	40				
AMONGST ROCKS/ISLETS	11		SALINITY (TICK)					
SOUND/NARROWS	12		NORMAL (around 34°/oo)	41	✓			
SHALLOW RAPIDS	13		VARIABLE (30°/oo+)	42		OTHER DATA RECORDED		
SEA LOCH	14		LOW (<30°/oo)	43		PHOTOGRAPHS: SURF	80	
ESTUARY/MARINE INLET	15		SALINITY MEASURED (TICK)	44		W-A	81	
COASTAL LAGOON	16		NOT KNOWN	45		C-U	82	✓
HARBOUR	17		WATER STRATIFICATION (TICK)			WATER ANALYSIS	83	
SEA CAVE	18		THERMOCLINE	46		SEDIMENT ANALYSIS	84	
WRECK	19		HALOCLINE	47		SPECIMENS COLLECTED	85	✓
OTHER (tick and note below)	20		NOT STRATIFIED	48	✓	ALGAL CHECKLIST	86	✓
			NOT KNOWN	49		ANIMAL CHECKLIST	87	✓
						OTHER (tick and note below)	88	

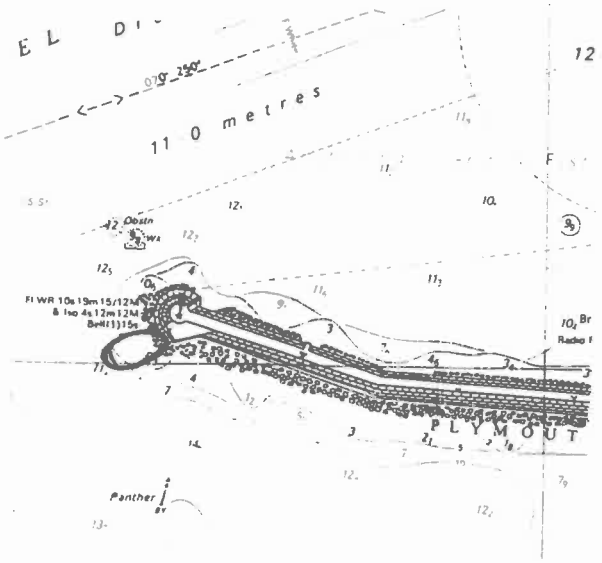
UNDERWATER DATA

SITE NO. 65 (2)

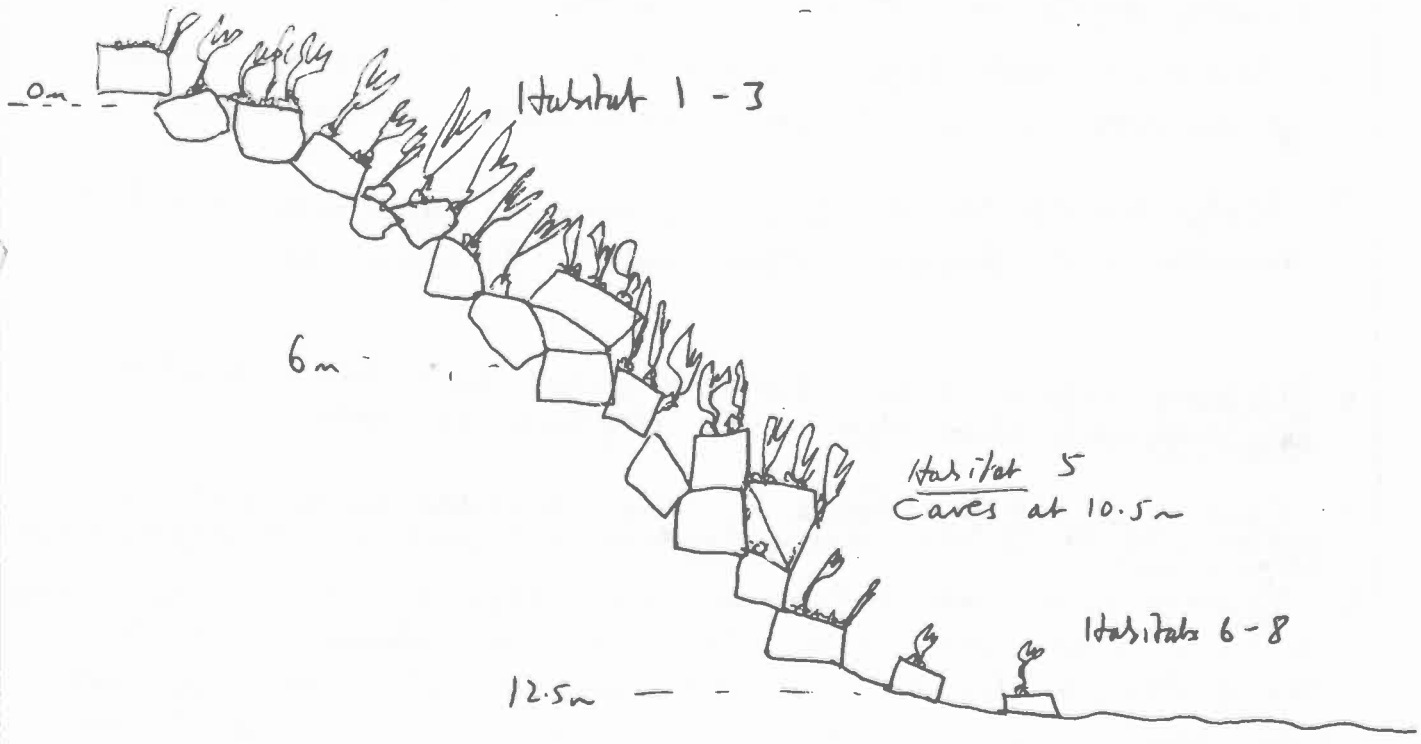
DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100	✓	✓	✓			
UPPER INFRALITTORAL	101				✓	✓	.
LOWER INFRALITTORAL	102						✓
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓	✓	✓	✓		
5-10	108				✓	✓	✓
10-20	109					✓	✓
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112						
LG. BOULDERS (500 mm+)	113	3	3	3	3	3	3
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY		.					
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED							

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174						
HORIZONTAL	175						
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 65 (2)

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

1. Horizontal or upfacing surfaces at 0m to 0.5m. Upward surfaces of limestone blocks dominated by Corallina officinalis and foliose algae over dark red encr. algae, pink encr. algae, encrusting Bryozoa and with Laminaria hyperborea overall.

2. Vertical ~~[illegible]~~ surfaces at 0m to 0.5m dominated by a mosaic of encrusting Bryozoa, Plumularia and encrusting calcareous algae.

3. Kelp holdfasts at 0m. Laminaria hyperborea holdfasts encrusted with Bryozoa, Plumularia, Diplosoma etc.

4. Upfacing surfaces at 6m. Dominated overall by a tabt of Saccorhiza polyschides + dense foliose algae on the very bared rock below.

5. Caves at 10.5m. Formed by large limestone blocks with a very similar biota to (7) below. Echinus esculentus only found in caves. Trisopterus luscus common in caves.

6. Upfacing sandy rock surfaces at base of slope at 12.5m. Large limestone blocks scattered over coarse sand just off ~~[illegible]~~ and at the base of the breakwater slope. Dominated by foliose red algae with a few Saccorhiza plants. Rock surface covered by Verruca stroemia and Amphipoda tubes and heavily bared with siphons of ?Hiatella showing.

7. Vertical and overhanging surfaces dominated by erect Bryozoa with Alcyonium digitatum over bared rock covered by Verruca stroemia and boring Cliona sp.

~~Sheet 1 of 2~~

#2 of 3

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: S.W Breakwater (65) GRID REFERENCE: SX 463 505

DATE: 13/07/86 NAME OF RECORDER: A.E. Little

KEY TO HABITAT COLUMNS:

1. Horizontal or gentle slope, 0-0.5m
2. Vertical surfaces, 0-0.5m.
3. Kelp holdfasts, 0m
4. Horizontal or gentle slopes 6m
5. Caves, 10.5m (Additional animal species only)
6. Upfacing sandy surfaces at base of slope, 12.5m

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula						
Antithamnion spirographidis						
✓ Apoglossum ruscifolium		O		O		
Asparagopsis armata						
✓ Bonnemaisonia asparagoides						R
Bonnemaisonia hamifera						
✓ Brongniartella byssoides	F			F		O
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
✓ Callophyllis laciniata	O	O		C		C
Ceramium rubrum						
Ceramium sp.						
✓ Chondrus crispus	C					
Chylocladia verticillata						
✓ Corallina officinalis	C					
Corallinaceae indet. (pink encr.)						
✓ Cordylecladia erecta						R
Cruoria pellita						
✓ Cryptopleura ramosa	F	O				
✓ Delesseria sanguinea	F			A		F
✓ Dilsea carnosa				O		D
✓ Drachiella spectabilis						R
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
✓ Heterosiphonia plumosa				F		O
✓ Hypoglossum woodwardii		O				
✓ Kallymenia reniformis	F	O		F		D
✓ Lomentaria clavellosa	O			O		
✓ Lomentaria articulata	R					

	1	2	3	4	5	6
Lomentaria orcadensis	O	O				O
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum				C		F
Polyides rotundus						
Polyneura gmelinii						D
Polyneura hilliae						
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica				F		O
Radicilingua thysanorhizans						?R
Rhodomela confervoides						
Rhodophyllis divaricata	F					
Rhodophyllis sp.						
Rhodophyta indet. (encr.) (pink)	F					
Rhodymenia delicatula				?R		
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						R
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
Callithamnion ?hookeri						R
Schottera nicaeensis						O
?Glaciosiphonia (on sides)				O		
Pterosiphonia complanata	F					
Rhodo. indet. encr. red.	O					
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						
Phycodrys rubens	O					

SITE NAME: 65 (2)

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus	F					
Cystoseira baccata						
Desmarestia aculeata	F					
Desmarestia ligulata	O			O		R
Desmarestia viridis	O			O		O
Dictyopteris membranacea						R
Dictyota dichotoma		R				O
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						R
Laminaria digitata						
Laminaria hyperborea	A			O		
Laminaria ochroleuca						
Laminaria saccharina						
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides	O			C		O
Sargassum muticum						
H. maritima elong.	F					
Aglaozonia parvula	O					
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						R
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)	O					
Cladophora sp.	F/C					
ANGIOSPERMAE						
Zostera marina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: SW Breakwater (65/2) | GRID REFERENCE: SX 463 505

DATE: 13.7.86 NAME OF RECORDER: K. Hiscock

KEY TO HABITAT COLUMNS:

1. Horizontal or up facing surface at 0m to 0.5m
2. Vertical surface at 0m to 0.5m
3. Kelp holdfasts at 0m
4. Up facing surface at 6m.
5. Caves at ~~0-5m~~ 0.5m (additional aerial survey req)
6. ~~Vertical~~ Up facing surface at base of slope at 12.5m.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea		O				
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides		O				
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum		O		O		
Ciocalypta penicillus						
Cliona celata						O
Cliona sp. (boring)						F
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea		O				
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve	·	R				
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma		O	C			
Aglaophenia tubulifera		·				
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina	:					F
Nemertesia ramosa						
Obelia dichotoma				F		
Obelia geniculata			O			
Plumularia setacea	C	C	F			
Sertularella polyzonias		O				R
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						O
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta	O	F	F			F
Adamsia carciniopados						
Alcyonium digitatum		R				F
Anemonia viridis						
Caryophyllia smithii						F
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis		F				
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						
Sagartia elegans rosea		F				

SITE NAME: 65 (2)

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)	O	F				
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia						A
Balanus perforatus		O				
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						C
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
Pilumnus hirtellus	x1					
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum		x1				
Crepidula fornicata						
Gibbula cineraria				F		
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
Bivalva indet (larvae)				C		
BRYOZOA						
Alcyonidium diaphanum						O
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						O
Bugula turbinata						O
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa				F		
Escharoides coccinea				O		
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans		F				
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis	F	C	C			
Vesicularia spinosa						
Schizomavella linearis		P		O		
Callopora sp. on Corallina	C					
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata				R		
Marthasterias glacialis						O
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: JW Bratunster (2)

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
✓ Echinus esculentus					F	
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
✓ Holothuria forskali						R
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
✓ Diplosoma listerianum	O	F	F			O
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
✓ Lissoclinum perforatum						O
Molgula manhattensis						
✓ Morchellium argus						C
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
✓ Didemnidae indet (pink)		O				
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
✓ Crenilabrus melaps				F		O
✓ Ctenolabrus rupestris				F		F
Gobius niger						
Gobiusculus flavescens						
✓ Labrus bergylta				O		O
✓ Labrus mixtus						R
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
✓ Trisopterus luscus					C	

~~sheet 2 of 2~~

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

3 of 3

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: S.W. Breakwater (65) GRID REFERENCE: SX 463505 ~~463503~~

DATE: 13-7-86 NAME OF RECORDER: AEL.

KEY TO HABITAT COLUMNS:

1. Verticals and overhangs at base of slope, 12.5m
2. Algae as substrate
3. Lam hyperborea as substrate 0-1m
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum		O	O			
Ahnfeltia plicata						
Antithamnion plumula						
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides						
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum			O			
Callophyllis laciniata	R					
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa						
Delesseria sanguinea						
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii	O					
Kallymenia reniformis	O					
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata			O			
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii						
Polyneura hilliae						
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata	R					
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
Phycodrys rubens	R					
Porphyra spp.			O			
Porphyropsis coccinea			R			
Polysiphonia urceolata			R			
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME: 65 (3)

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata						
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
Laminaria saccharina						
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
✓ Phaeophyta indet. (filam)			C			
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera marina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS
(Not including species sampled from sediments)

SITE NAME: S.W. Breakwater (65) GRID REFERENCE: 5x 463 505

DATE: 13-7-86 NAME OF RECORDER: K. Miscock

KEY TO HABITAT COLUMNS:

7x. Vertical and overhanging surfaces at base of stone at 12.5m.
8. On algae at 12.5m
3.
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)	F/c					
Dercitus bucklandi						
Dysidea fragilis	R					
Halichondria panicea						
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						
Halichondria sp	R					
Myxilla sp	R					

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii	O					✓
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina	O					✓
Nemertesia ramosa						
Obelia dichotoma	F					✓
Obelia geniculata		A				✓
Plumularia setacea	O					✓
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
Endendrium capillare	F					✓
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum	C					✓
Anemonia viridis						
Caryophyllia smithii	O					✓
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis	O					✓
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes	O					✓
Sagartiogetan undatus						
Urticina felina						

SITE NAME: 65(3)

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus	R					
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)						
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia	A					
Lysmata seticaudata	F					
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum	O					
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata	O					
Cellaria fistulosa						
Cellaria sinuosa						
Callepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa		O				
Escharoides coccinea	O					
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa	C					
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
Crisia denticulata	F					
Schizomavella linearis	O					
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens	R					
Henricia oculatata	R					
Marthasterias glacialis	O					
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: JW Breakwater (3)

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali	-					
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis	O					
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum	F					
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Molgula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
Didemnidae indet (yellow)	F					
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus	F					
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Syngnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
Rhomis [illegible]	O					

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: DRAYSTONE LEDGE — SITE NO.: 66

SURVEY AREA: PLYMOUTH — SEA AREA: PLYMOUTH.

OS GRID REF.: E-W N-S — SX 445 485 TO E-W N-S

LAT. LONG. ° ' ° ' W/E TO ° ' ° ' W/E

RECORDER: B. Bullimore — DATE: 13 D 07 M 86 Y

TIME IN 1405 — TIME OUT 1429 BST/ — DURATION 24 GMT

DEPTH CORRECTION APPLIED? ~~YES~~ -2.3 m

DEPTH RANGE SURVEYED 11.5-13.5 m BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 8 m

16.

SITUATION (TICK ONE ONLY)			WAVE EXPOSURE (SURFACE) (TICK)			ROCK TYPE (TICK)		
OPEN SEA (> 1 km offshore	1		VERY EXPOSED (prevailing wind and swell)	30		IGNEOUS	50	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	✓	EXPOSED (prevailing wind)	31	✓	LIMESTONES	51	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3		SEMI-EXPOSED (strong wind frequent)	32		HARD SAND./MUDSTONES	52	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4		SHELTERED (strong wind rare)	33		SOFT SAND./MUDSTONES	53	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5		VERY SHELTERED (fetch <20 km)	34		HARD SLATE/SHALES	54	✓
			EXTREMELY SHELTERED (fetch <3 km)	35		FRIABLE SLATE/SHALES	55	
COASTAL TYPE (TICK)			MAX. TIDAL STREAM STRENGTH (TICK)			NOT KNOWN	56	
HEADLAND	6	✓	VERY STRONG (6 k+)	36		OTHER (tick and note below)	57	
'LINEAR COAST'	7		STRONG (3-6 k)	37				
BAY	8		MOD. STRONG (1-3 k)	38	✓			
SPIT/BAR	9		WEAK (<1 k)	39		SITE INFORMATION (TICK)		
OFFSHORE SM. ISLAND	10		VERY WEAK (negligible)	40		MNR, NNR, LNR, SSSI NEARBY	65	
AMONGST ROCKS/ISLETS	11		SALINITY (TICK)			SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
SOUND/NARROWS	12		NORMAL (around 34°/oo)	41	✓	OTHER SOURCES OF DISTURANCE (tick & note below)	67	
SHALLOW RAPIDS	13		VARIABLE (30°/oo+)	42				
SEA LOCH	14		LOW (<30°/oo)	43				
ESTUARY/MARINE INLET	15		SALINITY MEASURED (TICK)	44		OTHER DATA RECORDED		
COASTAL LAGOON	16		NOT KNOWN	45		PHOTOGRAPHS: SURF	80	
HARBOUR	17		WATER STRATIFICATION (TICK)			W-A	81	
SEA CAVE	18		THERMOCLINE	46		C-U	82	
WRECK	19		HALOCLINE	47		WATER ANALYSIS	83	
OTHER (tick and note below)	20		NOT STRATIFIED	48		SEDIMENT ANALYSIS	84	
			NOT KNOWN	49	✓	SPECIMENS COLLECTED	85	✓
						ALGAL CHECKLIST	86	
						ANIMAL CHECKLIST	87	✓
						OTHER (tick and note below)	88	

UNDERWATER DATA

SITE NO. 66

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102	✓	✓				
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						

DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107						
5-10	108						
10-20	109	✓	✓				
20-30	110						
>30	111						

SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	3					
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114	1					
LG. COBBLES (128-256 mm)	115	1					
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117	1					
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122	2					
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126	2					
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128	2					
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134	3					
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						

ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						

ROCK COVER (SCORE 1-3)	1	2	3	4	5	6
KELP CANOPY	2					
ALGAL MEADOW	3					
ALGAL TURF						
ALGAL CRUST	2					
FAUNAL TURF						
FAUNAL BED						

OVERALL INCLINATION (TICK ONE)		1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174	✓					
HORIZONTAL	175						

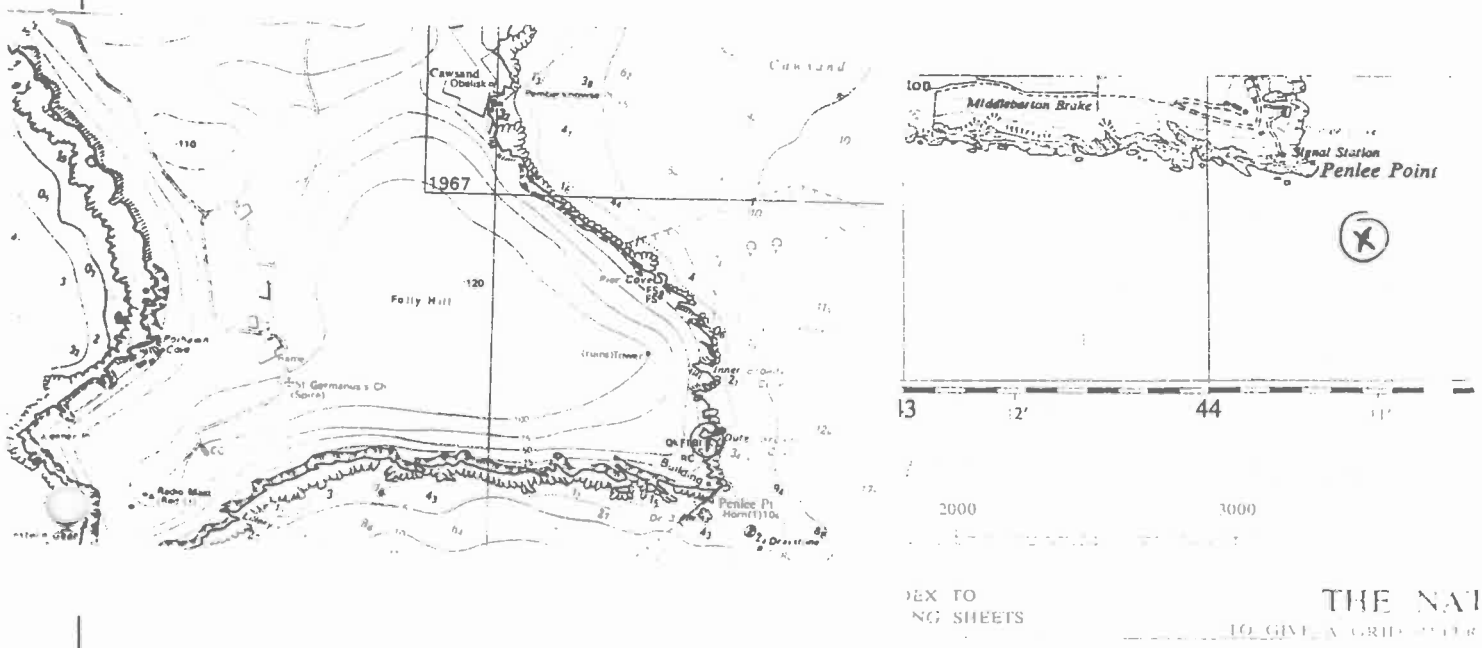
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176	3					
(UNBROKEN ROCK	177						
(BROKEN ROCK	178	3					
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181	2					
OPEN GULLIES	182	2					
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185	2					
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						

SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						

SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE NO.: 66

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)

Bedrock outcrops - variously steep and -> 1·5/2m high to shallow sloped.

Kelp park. - densely covered by Obelia. Steep surfs dom. by Red foliose algae + A. digitatum. Sponges, ascidians, hydroids + anemones between.



Gullies - open with coe sand/sh.gravel/pebbles.

SITE NO.: 66

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

Bedrock outcrops-

Bedrock 75% seabed with sandy/cse sedi gullies between. Upper rock & the most upfacing parts kelp park (mostly L. hyp, also Saccharina) - rest of rock dom by foliose algae and common A. dig.
Beneath kelp and on steepest surf's - cover of colonial ascidians (ind. Stolonica, Pycnoclav., Clavellina,) occasional sponges, anemones & hydroids. Infreq. asteroid echino's., rare Cucumaria in crevices

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: BRAYSTONE LEDGE (66) GRID REFERENCE: SX 445 485

DATE: 130786. NAME OF RECORDER: B. BULLIMORE - COLLECTED
A. LITTLE - I.D'D.

KEY TO HABITAT COLUMNS:

1. BEDROCK RIDGES.
2.
3.
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum	P					
Ahnfeltia plicata						
Antithamnion plumula						
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides	P					
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus	P					
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)	P					
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa	P					
Delesseria sanguinea	P					
Dilsea carnosa	P					
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa	P					
Hypoglossum woodwardii						
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa	P					
Phyllophora pseudoceranoides	P					
Phyllophora sicula	:					
Phymatolithon calcareum						
Plocamium cartilagineum	P					
Polyides rotundus						
Polyneura gmelinii	P					
Polyneura hilliae						
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides	P					
Rhodophyllis divaricata	P					
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata	P					
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum	P					
Stenogramme interrupta						
~~LITHOTHAMNIA~~	O					
? Nascaria wigsii (as 65)	P					
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME: 65 ORAYSTONE LEDGE

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia liqulata						
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
Laminaria saccharina						
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera marina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: DRAYSTONE LEDGE 66 GRID REFERENCE: SX 445 485

DATE: 130786. NAME OF RECORDER: B. BULLIMORE

KEY TO HABITAT COLUMNS:

1. BEDROCK RIDGES.
2. ALGAE AS SUBSTRATE
3.
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
✓ Scypha ciliata	R					
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
✓ Ciocalypta penicillus	P					
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
✓ Dysidea fragilis	R					
✓ Halichondria panicea	F					
Halichondria bowerbanki						
Haliclona oculata						
✓ Hemimycale columella	F					
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						
✓ Enc or. sponge indet.	O					

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina	F					✓
Nemertesia ramosa	F					✓
Obelia ~~dichotoma~~						
Obelia geniculata		A				✓
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta	R					✓
Adamsia carciniopados						
Alcyonium digitatum	C					✓
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis	O					✓
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes	O					✓
Sagartiogetan undatus						
Urticina felina	O					✓

SITE NAME: ORAYSTONE LEDGE 66

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)	F					
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus *	F					
Elminius modestus						
Verruca stroemia						
* Barnacle spat loc. C	F					
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)	O					
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
Aplysia.	O					
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum	O					
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)	F					
Bugula flabellata	F					
Bugula plumosa						
Bugula turbinata	O					
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa		C				
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens	O					
Henricia oculatata						
Marthasterias glacialis	O					
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: 66

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp. Aslia lef.	R					
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri	F					
Ciona intestinalis						
Clavelina lepadiformis	O					
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum	F					
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Morchellium argus	O					
Morchellium argus	F					
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Solonica socialis	O					
Styela clava						
Tridemnum	O					
Pyuroclavella aur	O					
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Syngnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: Perlee Tunnel — SITE NO.: 67

SURVEY AREA: Plymouth — SEA AREA:

OS GRID REF.:

	E - W	N - S	TO	E - W	N - S
SX	442	487			

LAT. LONG.

	°	'	°	'	W/E	TO	°	'	°	'	W/E
		:		:				:		:	

RECORDER: K. Hiscock — DATE: 13 D 07 M 86 Y

TIME IN 1509 — TIME OUT 1554 BST/GMT — DURATION 46

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 1.75 m

DEPTH RANGE SURVEYED 0 -8.5 M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 5 m

SITUATION (TICK ONE ONLY)			WAVE EXPOSURE (SURFACE) (TICK)			ROCK TYPE (TICK)		
OPEN SEA (> 1 km offshore	1		VERY EXPOSED (prevailing wind and swell)	30	✓	IGNEOUS	50	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	✓	EXPOSED (prevailing wind)	31		LIMESTONES	51	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3		SEMI-EXPOSED (strong wind frequent)	32		HARD SAND./MUDSTONES	52	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4		SHELTERED (strong wind rare)	33		SOFT SAND./MUDSTONES	53	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5		VERY SHELTERED (fetch <20 km)	34		HARD SLATE/SHALES	54	✓
			EXTREMELY SHELTERED (fetch <3 km)	35		FRIABLE SLATE/SHALES	55	
						NOT KNOWN	56	
						OTHER (tick and note below)	57	

COASTAL TYPE (TICK)			MAX. TIDAL STREAM STRENGTH (TICK)			SITE INFORMATION (TICK)		
HEADLAND	6	✓	VERY STRONG (6 k+)	36		MNR, NNR, LNR, SSSI NEARBY	65	
'LINEAR COAST'	7		STRONG (3-6 k)	37		SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
BAY	8		MOD. STRONG (1-3 k)	38		OTHER SOURCES OF DISTURANCE (tick & note below)	67	
SPIT/BAR	9		WEAK (<1 k)	39				
OFFSHORE SM. ISLAND	10		VERY WEAK (negligible)	40	✓			
AMONGST ROCKS/ISLETS	11		**SALINITY (TICK)**					
SOUND/NARROWS	12		NORMAL (around 34°/oo)	41	✓	**OTHER DATA RECORDED**		
SHALLOW RAPIDS	13		VARIABLE (30°/oo+)	42		PHOTOGRAPHS: SURF	80	
SEA LOCH	14		LOW (<30°/oo)	43		W-A	81	
ESTUARY/MARINE INLET	15		SALINITY MEASURED (TICK)	44		C-U	82	✓
COASTAL LAGOON	16		NOT KNOWN	45		WATER ANALYSIS	83	
HARBOUR	17		**WATER STRATIFICATION (TICK)**			SEDIMENT ANALYSIS	84	
SEA CAVE	18		THERMOCLINE	46		SPECIMENS COLLECTED	85	✓
WRECK	19		HALOCLINE	47		ALGAL CHECKLIST	86	✓
OTHER (tick and note below)	20		NOT STRATIFIED	48	✓	ANIMAL CHECKLIST	87	✓
			NOT KNOWN	49		OTHER (tick and note below)	88	

UNDERWATER DATA

SITE NO. 67

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101	✓					
LOWER INFRALITTORAL	102		✓	✓			
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104				✓	✓	✓
NOT KNOWN	105						

DEPTH BAND (m) BELOW CD (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
<0	106						
0-5	107	✓	✓	✓	✓		✓
5-10	108					✓	
10-20	109						
20-30	110						
>30	111						

SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		STN./HABITAT 1	2	3	4	5	6
BEDROCK	112	3	3	3	3	3	3
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						

ARTIFICIAL SUBSTRATUM (SCORE 1-3)		STN./HABITAT 1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						

ROCK COVER (SCORE 1-3)		STN./HABITAT 1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW		3	2	2			
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF					2	2	2
FAUNAL BED							

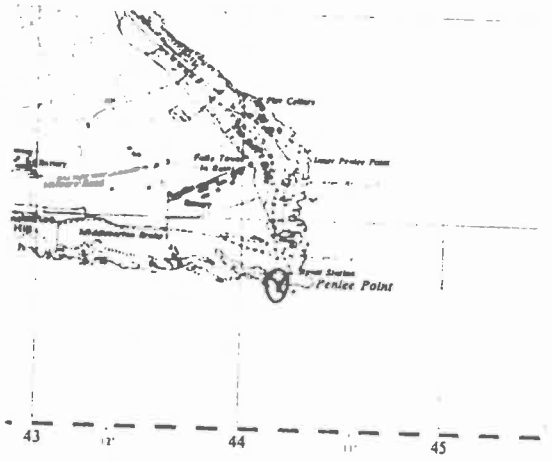
OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170					✓	
VERTICAL (80-100°)	171	✓	✓	✓	✓		✓
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174	✓					✓
HORIZONTAL	175						

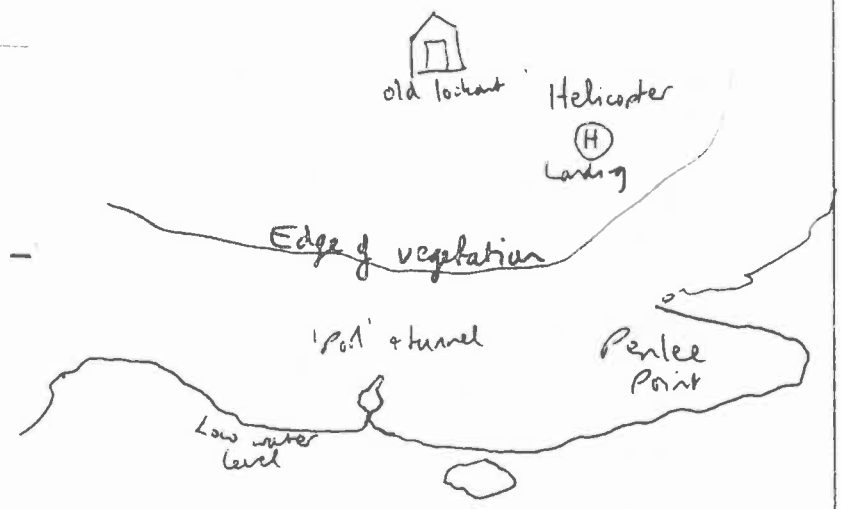
ROCK FEATURES (SCORE 1-3)		STN./HABITAT 1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178	✓					3
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181	3	3	3	3	3	3
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186				3	3	3
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						

SEDIMENT FEATURES (SCORE 1-3)		STN./HABITAT 1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						

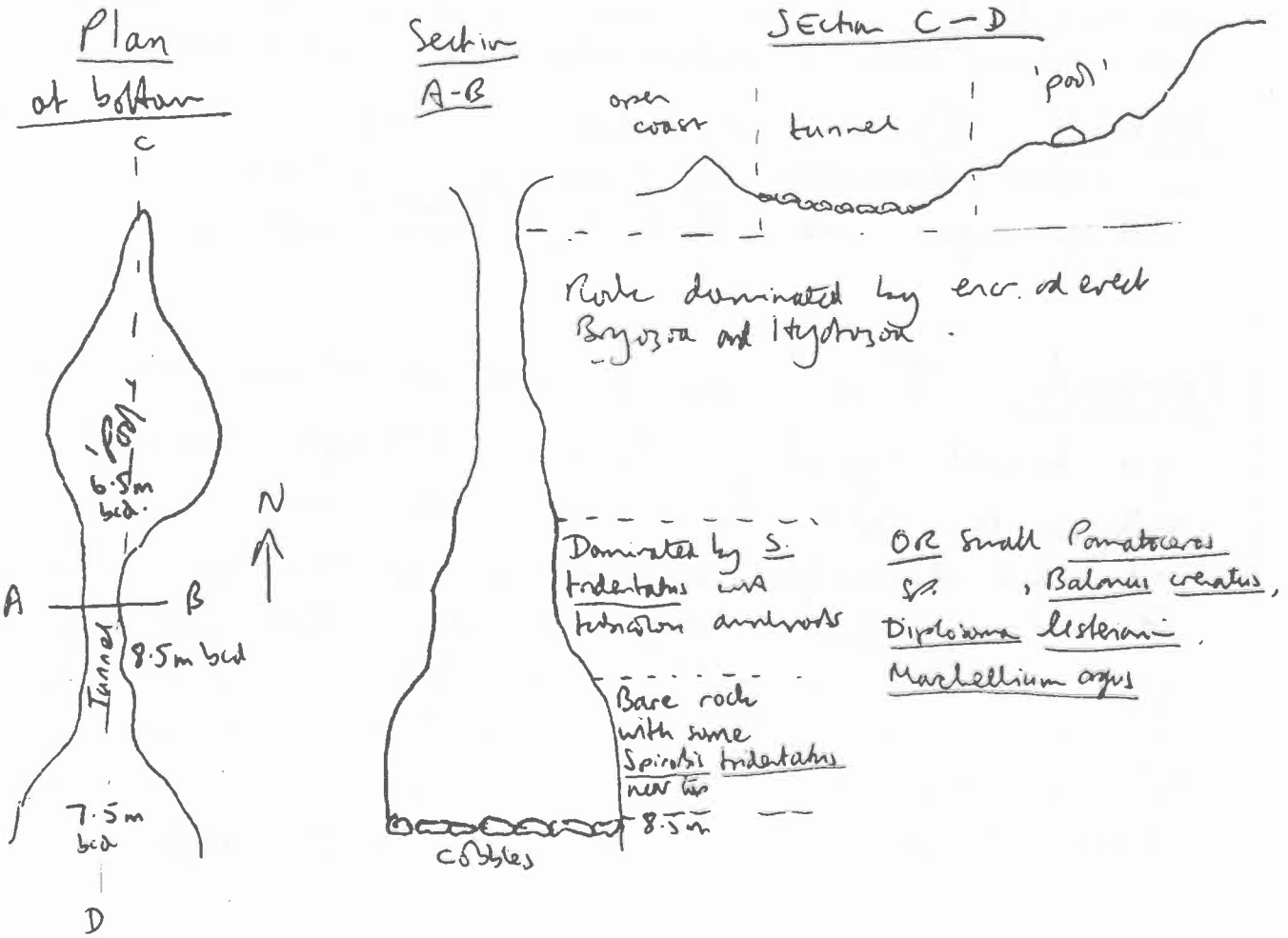
SEDIMENT COVER (SCORE 1-3)		STN./HABITAT 1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)





SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 67

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

Habitats 1, 2, 3, 4. Vertical walls of inner gulley (pool) at 0.5 to 5.3m. Fairly unbroken walls dominated by foliose algae with Scrupocellaria reptans, Tubularia indivisa, Plumularia setacea and Corynactis viridis. Patches of Balanophyllia regia occured on the east side in areas with sediment settled on the surfaces.

Habitat 5. Lower walls of tunnel at 8.5 to 5.0m. Almost completely bare slate rock in the lower 1m but with sparse colonisation near the top - Spirorbis tridentatus ~~in places~~ with tubicolous amphipods in places and scattered Pomatoceros sp, Balanus crenatus and ascidians elsewhere. At the entrance to the tunnel, very large numbers of Centrolabrus exoletus were present and in the tunnel, large numbers of Trisopterus sp.

Habitat 6 Upper walls of tunnel including crevices at 2 to 5m. Colonised by a variety of encrusting and erect Bryozoa and Hydrozoa with Tubularia indivisa most conspicuous. Some crevices with Palaemon serratus, Galathea strigosa and Cellepora pumicosa.

Habitat 7 Open coast broken rock surfaces with some sand on rocks dominated by Laminaria hyperbarea over crustose algae with foliose algae and Corallina and tufts of .

General. This was a well developed example of a tunnel-gulley which, although obviously subject to severe scour within the tunnel, had rich and distinctive communities near the top. Also, the presence of quite large numbers of Balanophyllia regia in the inner gulley was notable as were the very large numbers of Centrolabrus exoletus over kelps debris at the entrance. At low water, the inner gulley appears to be a large rock pool at the surface.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Perlee Tunnel (67/1) GRID REFERENCE: SX442 487

DATE: 13/07/82 NAME OF RECORDER: AE Little

KEY TO HABITAT COLUMNS:

1. Vertical walls of inner gulley, 0.5–1.5m (Algae only)
2. " " " , 3.5m "
3. " " " 4.5, 5.5m "
4. " " " (Animals only)
5. Lower walls of tunnel.
6. Upper walls of tunnel

7 or 2(1) Rock surfaces outside tunnel.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula						
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides		F				
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus	F	F				
Chylocladia verticillata						
Corallina officinalis	C	C	R			
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa		C	F			
Delesseria sanguinea						
Dilsea carnosa	O	O	O			
Drachiella spectabilis	O	O				
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina	O					
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii		F	O/F			
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata	O					
Peyssonelia sp.						
Phyllophora crispa	O	O				
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii	C	F				
Polyneura hilliae						
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica		F	O			
Radicilingua thysanorhizans						
Rhodomela confervoides	O					
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.) pink	C	F	O			
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum	F	O				
Stenogramme interrupta						
Rhodophyta indet (enc) red.	A	C	A			
Phyllophora traillii	F		O			
? Audouinella sp.	C					
~~Petrocelis polycarpa~~						
Porphyra sp.	O					
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME: 67 (1)

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata						
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma		o				
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea		o				
Laminaria ochroleuca						
Laminaria saccharina						
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa			R			
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)		R				
Cladophora sp			R			
ANGIOSPERMAE						
Zostera marina						

#1 of 2

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Penlee tunnel (67)(1) GRID REFERENCE: SX 442 487

DATE: 13-7-86 NAME OF RECORDER: K. Hiscock

KEY TO HABITAT COLUMNS:

1. Vertical walls of ~~pool~~ inner gulley at 0.5 to 1.5m (algae only)
2. Vertical walls of inner gulley at 3.3m (algae only)
3. Vertical walls of inner gulley at 4.3 to 5.3m (algae only)
4. ~~Lower walls of tunnel~~ Vertical walls of inner gulley (animals only)
5. ~~Upper walls of tunnel~~ Lower walls of tunnel (Fish recorded near entrance)
6. ~~Rock surface outside of tunnel at 7.5m~~ Upper walls of tunnel incl crevices

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi				O		
PORIFERA:CALCAREA						
Clathrina coriacea						O
Grantia compressa						
Leuconia barbata				O		O
Leucosolenia botryoides					O	O
Scypha ciliata				x)		
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis				O		
Halichondria panicea						
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						O
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						
Porifera indet (encr citrus yellow)				R		
? Hymedesmia sp						F

	1	2	3	4	5	6	
COELENTERATA:HYDROZOA							
Abietinaria abietina							
Aglaophenia pluma				O		F	✓
Aglaophenia tubulifera							
Campanularia angulata							
Halecium beanii							
Halecium halecinum							
Hydractinia echinata							
Hydrallmania falcata							
Nemertesia antennina							
Nemertesia ramosa							
Obelia dichotoma							
Obelia geniculata						F	✓
Plumularia setacea				F			✓
Sertularella polyzonias							
Sertularia argentea							
Sertularia cupressina							
Tubularia indivisa				C		F	✓
Tubularia larynx							
Coryne van-beneden						C	✓
COELENTERATA:ANTHOZOA							
Actinothoe sphyrodeta							
Adamsia carciniopados							
Alcyonium digitatum							
Anemonia viridis							
Caryophyllia smithii				O			✓
Cereus pedunculatus							
Cerianthus lloydii							
Corynactis viridis				F			✓
Edwardsia claparedii							
Epizoanthus couchii							
Isozoanthus sulcatus							
Metridium senile							
Sagartia elegans				F			✓
Sagartia troglodytes							
Sagartiogetan undatus							
Urticina felina				O			✓
Balanophyllia regia				O			✓

SITE NAME: 67 01

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)				O	F	
Sabella pavonina						
Terebellidae indet.						
Serpula vermicularis					C	
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus					F	
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)					C	
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus					x	O
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						O
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						x
Macropodia rostrata						
Maja squinado				x		
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						F
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea				x		
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						F
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea				C		F
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans				C		F
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
Schizomavella linearis				O		
Cribrilina punctata				F		F
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis				x		
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: Three Tunnels (?)

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						<1
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri				F		
Ciona intestinalis						
Clavelina lepadiformis				F		
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum				F	F	F
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Molgula manhattensis						
Morchellium argus					F	
Phallusia mammillata						
Polycarpa rustica				<1		
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Molgula socialis						
Styela clava						
Didemnidae indet (yellow)				F		
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus					A	
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus					C	
Callionymus scorpius					<1	

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Perlee Tunnel (67)(2) GRID REFERENCE: SX 442 487

DATE: 13.7.86 NAME OF RECORDER: AEL

KEY TO HABITAT COLUMNS:

1. Rock surfaces outside tunnel. Tops
2. " " " " verticals.
3.
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum	F	O				
Ahnfeltia plicata						
Antithamnion plumula						
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides	A					
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata	O	F				
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus	F	O				
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa		O				
Delesseria sanguinea		O				
Dilsea carnosa	O	O				
Drachiella spectabilis	O	O				
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina	F/C					
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii						
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata		O				
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides		R				
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii		O				
Polyneura hilliae						
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides	F					
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.) pink	A					
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum	F					
Stenogramme interrupta						
Polysiphonia		O				
?Audouinella sp.	C					
Rhodophyta indet (encr) red	C					
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME: 67 (2)

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus	F					
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata						
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
Laminaria saccharina						
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
Taonia atomaria		O				
'Aglaozonia parvula'	F					
?Mesogloia lacosa	R					
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera marina						
Asperococcus sp.		F				

#2 of 2

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Fenlee tunnel (67)(2) GRID REFERENCE: SX 4462 487

DATE: 13.7.86 NAME OF RECORDER: K. Hiscock

KEY TO HABITAT COLUMNS:

1. Rock surface outside of tunnel at 7.5m (Additional animal species)
2.
3.
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea						
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina	:					
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata						
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta		.				
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						

SITE NAME: b7 (2)

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)						
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado	0					
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica	R					
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa	A					
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: Perler tunnel (2)

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus	F					
Lissoclinum perforatum						
Molgula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Synoicum pulmonaria						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus	●					
Trisopterus luscus						

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: TINKER SHOAL S. — SITE NO.: 68

SURVEY AREA: PLYMOUTH — SEA AREA: PLYMOUTH.

OS GRID REF.:

	E - W	N - S	TO	E - W	N - S
SX	483	480			

LAT. LONG.

	°	'	°	'	W/E	TO	°	'	°	'	W/E
		:		:				:		:	

RECORDER: B. BULLIMORE — DATE: 14 D 07 M 86 Y

TIME IN 1053 — TIME OUT 1141 BST/ — DURATION 48 GMT

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 4.6. m

DEPTH RANGE SURVEYED 14-15 M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 8+ m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	✓
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	✓
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	✓
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	✓
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	✓
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	✓

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	✓
NOT KNOWN	56	
OTHER (tick and note below)	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

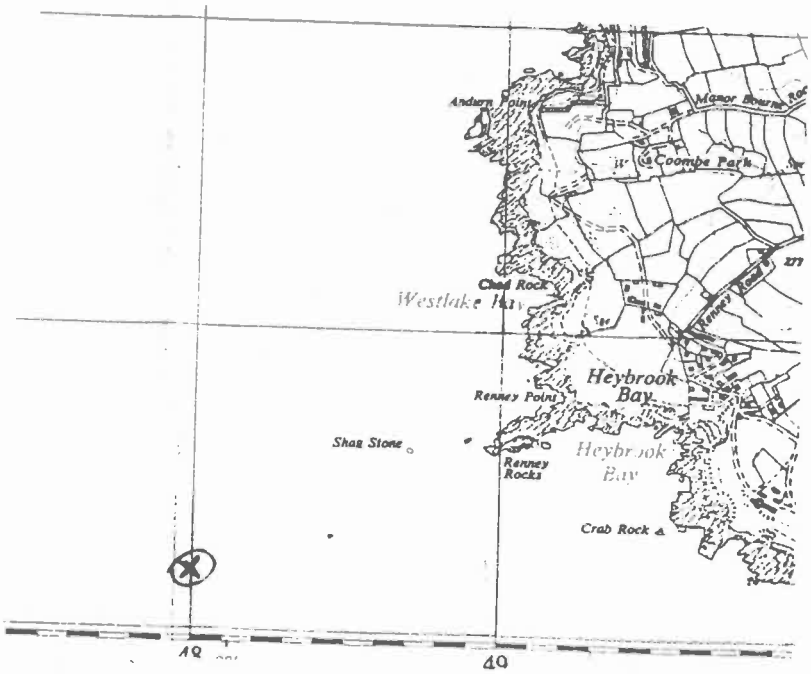
UNDERWATER DATA

SITE NO. 68

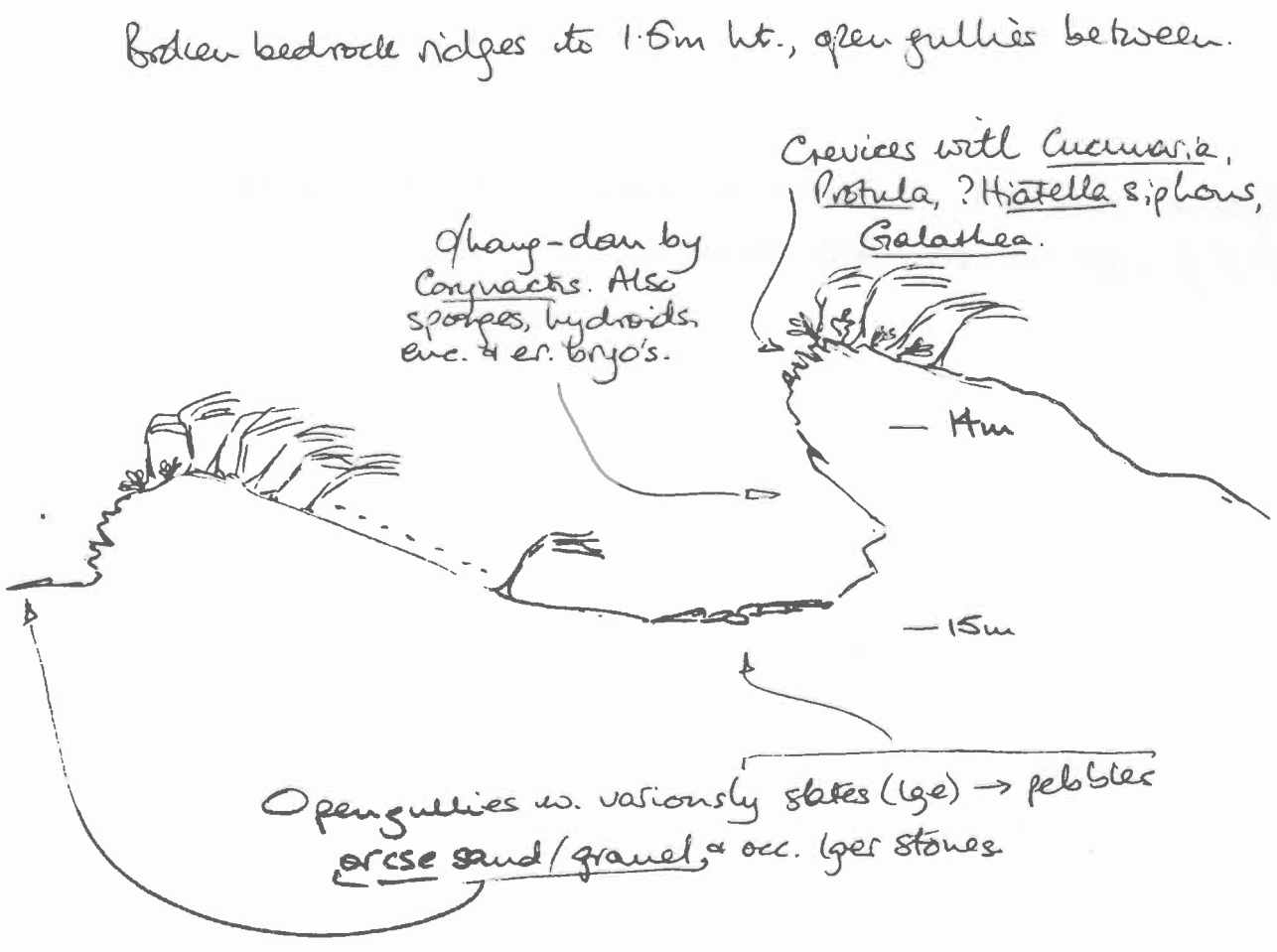
DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101	✓		✓			
LOWER INFRALITTORAL	102		✓				
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107						
5-10	108						
10-20	109	✓	✓	✓			
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	3	3				
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115	2					
LG. SLATES (128-256 mm)	116	2					
SM. ANGULAR COBBLES (64-128 mm)	117	2					
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119	2					
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120	2					
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122	1					
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126	2					
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY		3					
ALGAL MEADOW		2					
ALGAL TURF							
ALGAL CRUST		2					
FAUNAL TURF							
FAUNAL BED							

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170		✓				
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174						
HORIZONTAL	175	✓					
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176	3	3				
(UNBROKEN ROCK	177						
(BROKEN ROCK	178	3	3				
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181	2	3				
OPEN GULLIES	182	3					
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185	2	2				
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197	1					
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 68

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

(1) Broken bedrock - ridges to 1.5m tall. ——— with deep (10cm+) small crevices. ↳ Edges of ridges very broken

Kelp forest on up facing surfs - bordering with kelp park. Red foliose algal meadows at junction of up facing and steeper rock surfaces. Animals densest on steeper slopes and most broken areas. Dense patches of barnacle spat (Verruca) on free areas of rock. Aplysia and Asterina gibbosa occas amongst algae.

(2) Overhangs. Several extensive overhangs on lger ridges. c30° from vertical and approx 1m high. Dom by Corynactis with patches encrust bryos, and occasional erect bryo's, hydroids and sponges. Cucumaria, Protula + ?Hiatella siphons in crevices.

(3) Algae as substrate. Obelia on kelp fronds & Electra on red foliose (mostly Dellesseria) algae

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: TINKER SHOAL S (68) GRID REFERENCE: SX 483480

DATE: 140786 NAME OF RECORDER: COLLECTED B. BULLIMORE ID'D A. LITTLE.

KEY TO HABITAT COLUMNS:

1. BROKEN BEDROCK.
2.
3.
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum	P					
Ahnfeltia plicata						
Antithamnion plumula						
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides	P					
Bonnemaisonia hamifera						
Brongniartella byssoides	P					
Calliblepharis ciliata	P					
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata	P					
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)	D					
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa						
Delesseria sanguinea	P					
Dilsea carnosa	P					
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina aciicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum	P					
Heterosiphonia plumosa	P					
Hypoglossum woodwardii						
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa	P					
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum	P					
Polyides rotundus						
Polyneura gmelinii	P					
Polyneura hilliae						
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata						
Rhodophyllis sp.	P					
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata	P					
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum	P					
Stenogramme interrupta						
P. tailii	P					
Phycodrys rubens	P					
~~LITHO~~	~~O~~					
ENC. REDS	F					
Rhodymenia pseudopalmata 'spikey'	P					
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME: 68

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata						
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma	P					
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina	P					
Laminaria digitata						
Laminaria hyperborea	A					
Laminaria ochroleuca						
Laminaria saccharina						
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
?Halopteris scoparia	P					
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera marina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: TINKER SHOAL S. (68) GRID REFERENCE: SX 483480

DATE: 140786. NAME OF RECORDER: B. BULLIMORE

KEY TO HABITAT COLUMNS:

1. BROKEN BEDROCK
2. OVERHANGS. (WITH CREVICES)
3. ALGAE AS SUBSTRATE
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
✓ Scypha ciliata		O				
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
✓ Cliona celata		R				
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
✓ Halichondria panicea	O					
Halichondria bowerbanki						
Haliclona oculata						
✓ Hemimycale columella	R					
Hymeniacidon perleve						
Myxilla incrustans						
✓ Pachymatisma johnstonia		R				
Phorbas fictitius						
✓ Polymastia mamillaris		R				
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						
✓ Haliclona ?viscosa		O				
✓ Enc. indet (Porifera)		R				
✓ Axinella polypoides		R				
✓ A. damicornis		R				
120 ✓ Stelligera rigida — in rock pool						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii		O				✓
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina	:					
Nemertesia ramosa		R				✓
Obelia dichotoma						
Obelia geniculata			C			✓
Plumularia ~~setacea~~ sp.		O				✓
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum	O	F				✓
Anemonia viridis						
Caryophyllia smithii	R	O				✓
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis	·	C				✓
Edwardsia claparedii						
Epizoanthus couchii		·	·			
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						

SITE NAME: 68

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)	F	O				
Sabella pavonina						
Terebellidae indet.						
Protula		R				
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia						
Balanidae spat	F					
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera	O					
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber	R					
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata	F					
Archidoris pseudoargus						
Polycera faeroensis	P					
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
Hiatella? siphons.	O					
Anomia sp.	P					
Phoronis sp.	O					
BRYOZOA						
Alcyonidium diaphanum	O					
Bowerbankia pustulosa						
Bicellariella ciliata		R				
Bryozoa indet. (encr.)	O	F				
Bugula flabellata	R	O				
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.	A	P				
Electra pilosa			C			
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea		O				
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens	O					
Henricia oculatata						
Marthasterias glacialis	O					
Ophiocomina nigra						
Ophiothrix fragilis	P					
Ophiura texturata						

SITE NAME: 60

	1	2	3	4	5	6
Asterina gibbosa	O					
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus	F					
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.	O					
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium ~~punctum~~ ? glabrum	R					
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri	O					
Ciona intestinalis						
Clavelina lepadiformis	O	F				
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum	O	O				
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Moqula manhattensis						
Morchellium argus	F					
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
Tridemnin	R					
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus	P					
Crenilabrus melaps						
Ctenolabrus rupestris	P					
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus	P					
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius	P					
Pomataschistus minutus						

	1	2	3	4	5	6
Syngnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus	P					
Trisopterus luscus						
Parablennius gattorugine	P					

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: East Tinker Buoy

SITE NO.: 69

SURVEY AREA: Plymouth

SEA AREA:

OS GRID REF.:

	E - W	N - S	TO	E - W	N - S
SX	480	488			

LAT. LONG.

	°	'	°	'	W/E	TO	°	'	°	'	W/E
		:		:				:		:	

RECORDER: J.J. Moore / A.E. Little

DATE: 14 D 07 M 86 Y

TIME IN: 1206

TIME OUT: 1248 BST/

DURATION: 42 GMT

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 4.5 m

DEPTH RANGE SURVEYED 12.5 M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 15 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	✓
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	
COASTAL LAGOON	16	
HARBOUR	17	
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SHELTERED (strong wind rare)	33	
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EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
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NORMAL (around 34°/oo)	41	✓
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	✓
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	✓
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
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OTHER (tick and note below)	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURBANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	✓
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C-U	82	✓
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SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

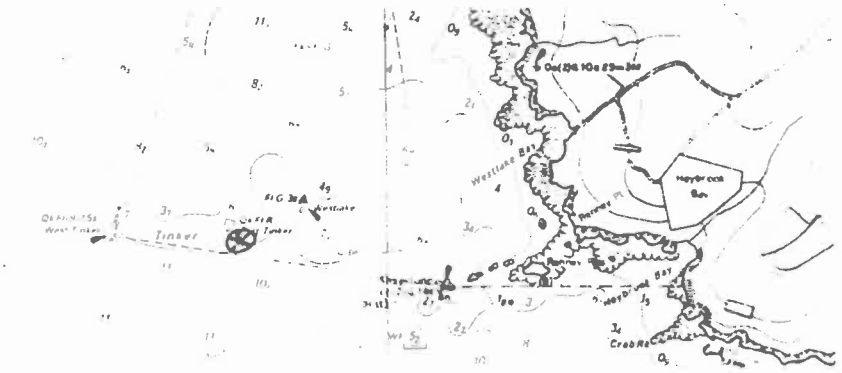
UNDERWATER DATA

SITE NO. 69

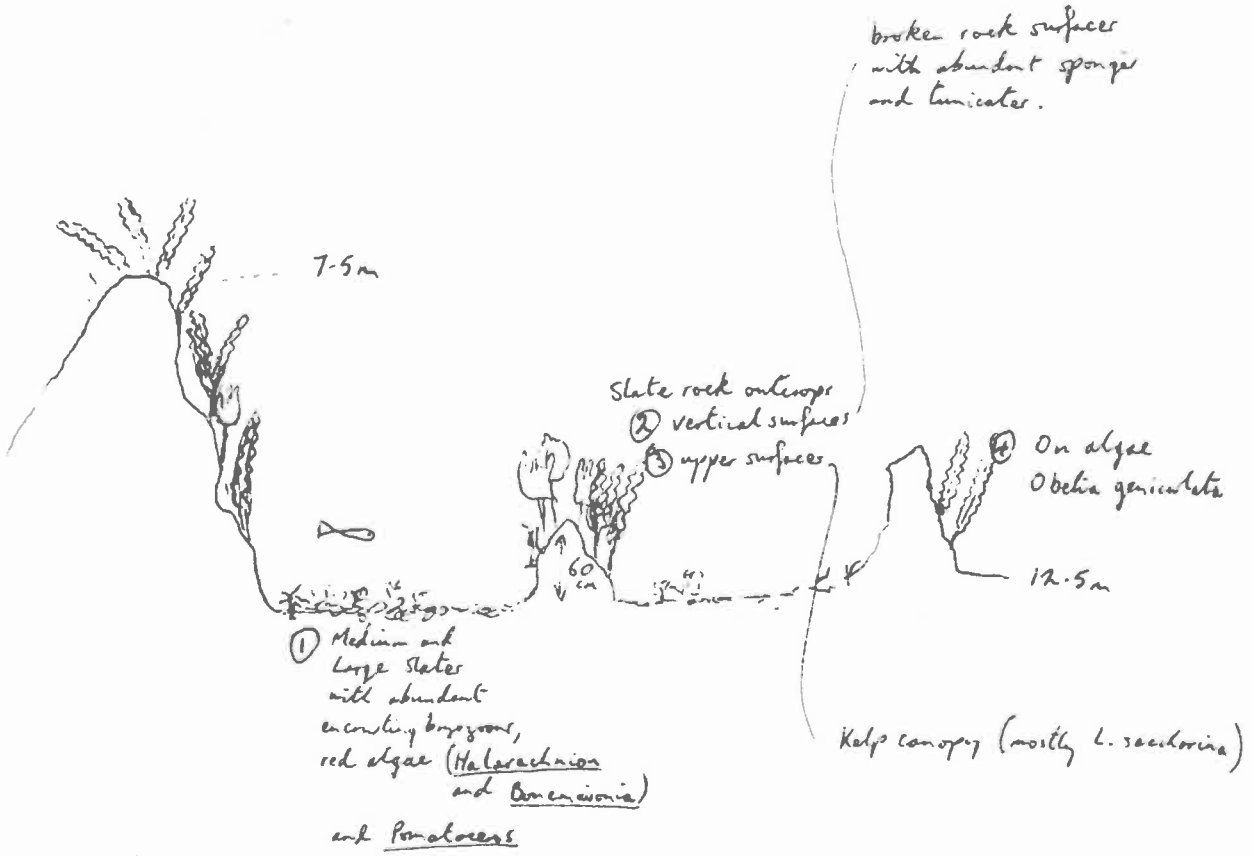
DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101			✓			
LOWER INFRALITTORAL	102	✓	✓	✓			
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107						
5-10	108			✓			
10-20	109	✓	✓	✓			
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112		3	3			
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116	3					
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119	3					
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY				2			
ALGAL MEADOW		2					
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF		1	2				
FAUNAL BED							

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171		✓				
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174			✓			
HORIZONTAL	175	✓					
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176		2				
(UNBROKEN ROCK	177						
(BROKEN ROCK	178		3	3			
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181		3				
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185		2				
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191	3					
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198	1					
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 69

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

(1) Small and large slates at 17m (lower infralittoral). Some red algae, particularly Bonnemaisonia and Heterosiphonia. Pomatoceros and orange encrusting bryozoan Escharoides coccinea common. Occasional Terebellids and Colletteids under slates.

(2) Vertical surfaces of slate bedrock outcrops. Broken rock with some cracks and crevices. Abundant ascidians and sponges, particularly Morchellium argus, Diplosoma listerianum and ? D. spongiforme. Encrusting bryozoans, particularly Escharoides coccinea and Cellepora pumicosa. Barnacle spat of Verruca very dense in patches.

(3) Upper surfaces of bedrock outcrops. Dominated by Kelp (L. saccharina).

(4) Algae as substrate

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS – PLANTS

(Not including species sampled from sediments)

SITE NAME: E. Tinker Buoy (69) GRID REFERENCE: SX 480 488

DATE: 14/07/86. NAME OF RECORDER: A.E. Little

KEY TO HABITAT COLUMNS:

1. large & small slates, 12.5m.
2. Vertical bedrock (shale)
3. Upper " surfaces
4. Algae as substrate.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum			F			
Ahnfeltia plicata						
Antithamnion plumula						
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides	C		F			
Bonnemaisonia hamifera						
Brongniartella byssoides	F		C			
Calliblepharis ciliata	O		F			
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata	O	O	C			
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa			F			
Delesseria sanguinea						
Dilsea carnosa	R		O			
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum	F	R				
Heterosiphonia plumosa		O	F			
Hypoglossum woodwardii	O	O	F			
Kallymenia reniformis	O	O	F			
Lomentaria clavellosa	O					

	1	2	3	4	5	6
Lomentaria orcadensis		O	O			
Membranoptera alata		R				
Meredithia microphylla		O				
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa		O	F			
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum	O	O	O			
Polyides rotundus						
Polyneura gmelinii	D	O	C			
Polyneura hilliae	D					
Polysiphonia elongata						
Polysiphonia sp.	P	P				
Pterosiphonia parasitica			O			
Radicilingua thysanorhizans	O		O			
Rhodomela confervoides	F					
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.) pink			A			
Rhodymenia delicatula	O					
Rhodymenia holmesii						
Rhodymenia pseudopalmata	R					
Scinaia forcellata	O		R			
Scinaia turgida	R					
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum	F					
Stenogramme interrupta						
Phycodrys rubens	O	O	F			
?Nitophyllum punctatum	F					
Phyllophora traillii	O	O	O			
Schottera nicaeensis		O				
Rhodophyta indet encr. (red)			A			
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

x 3 good specs

SITE NAME: 69

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
✓ Desmarestia aculeata	O					
✓ Desmarestia liqulata	R	O				
✓ Desmarestia viridis	F					
Dictyopteris membranacea						
✓ Dictyota dichotoma			O			
Ectocarpoidea indet.						
Halidrys siliquosa						
✓ Halopteris filicina			O			
Laminaria digitata						
✓ Laminaria hyperborea		O				
Laminaria ochroleuca						
Laminaria saccharina	F	[illegible]	A			
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
✓ Cutleria multifida	O					
✓ Phaeophyta indet. (filament.)	F					
✓ Asperococcus sp.	F					
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)						
✓ Filamentous chlorophyta indet.	O					
ANGIOSPERMAE						
Zostera marina						
Phaeophyta cont.						
✓ Mesogloia lanosa	O					
✓ 'Aglaozonia parvula'	F/C		F			
✓ Laminaria sporeling	F					
✓ ?Arthrocladia villosa	O					
✓ Bacillariophyta indet.	O					
Rhodophyta.						
✓ Trailiella intr	P		?P			

✓

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: East Tinker Buoy (69) GRID REFERENCE: SX 430 488

DATE: 14th July 1996 NAME OF RECORDER: J.J. Moore

KEY TO HABITAT COLUMNS:

1. Large and small slates
2. Vertical surfaces on slate rock outcrops
3. Upper surfaces of slate rock outcrops (animals not complete)
4. On algae
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis		R				
Halichondria panicea						
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella		R				
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						
(Blue/grey encrusting (sponge))	O					
Axinella dissimilis		R				

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina						
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata				O		
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						

SITE NAME: 69

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)	c/A	F				
Sabella pavonina						
Terebellidae indet.	O	R				
Serpulidae indet.	F	O				
Myxicola aesthetica		C				
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia		O				
Cirripedia indet (juv)						
Barnacle spat ~~[illegible]~~	F	C				
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
Galathea sp.	O					
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria	O					
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida				R		
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Limacia clavigera		R				
Goniodoris nodosa				R		
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum		R				
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata		O				
Bugula plumosa		O				
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa		O				
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa				R		
Escharoides coccinea	c/A	F/C				
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens		O				
Henricia oculatata						
Marthasterias glacialis	O		R			
Ophiocomina nigra						
Ophiothrix fragilis	R					
Ophiura texturata						
Asterina gibbosa	R	O				

SITE NAME: 69

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.		R				
Holothuria forskali	R					
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri		O				
Ciona intestinalis						
Clavelina lepadiformis		O/F				
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum	R	O				
Diplosoma spongiforme	R	R				
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum	R	O				
Mogula manhattensis						
Morchellium argus	R	F				
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
Didemnum [illegible]	P					
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Syngnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
[illegible]		O				
		D				

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: Staddon Point Gulley — SITE NO.: 70

SURVEY AREA: Plymouth Sound — SEA AREA:

OS GRID REF.:

	E - W	N - S	TO	E - W	N - S
SX	486	507			

LAT. LONG.

	W/E	TO	W/E
° '	° '	° '	° '

RECORDER: J.J. Moore / A.E. Little — DATE: 14 D 07 M 86 Y

TIME IN 1345 — TIME OUT 1442 BST/ — DURATION 053 GMT

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 3 ■

DEPTH RANGE SURVEYED 3-4 M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 10 ■

SITUATION (TICK ONE ONLY)			WAVE EXPOSURE (SURFACE) (TICK)			ROCK TYPE (TICK)		
OPEN SEA (> 1 km offshore	1		VERY EXPOSED (prevailing wind and swell)	30		IGNEOUS	50	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	✓	EXPOSED (prevailing wind)	31	✓	LIMESTONES	51	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3		SEMI-EXPOSED (strong wind frequent)	32		HARD SAND./MUDSTONES	52	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4		SHELTERED (strong wind rare)	33		SOFT SAND./MUDSTONES	53	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5		VERY SHELTERED (fetch <20 km)	34		HARD SLATE/SHALES	54	
			EXTREMELY SHELTERED (fetch <3 km)	35		FRIABLE SLATE/SHALES	55	
COASTAL TYPE (TICK)			MAX. TIDAL STREAM STRENGTH (TICK)			NOT KNOWN	56	
HEADLAND	6	✓	VERY STRONG (6 k+)	36		OTHER (tick and note below)	57	
'LINEAR COAST'	7		STRONG (3-6 k)	37				
BAY	8		MOD. STRONG (1-3 k)	38				
SPIT/BAR	9		WEAK (<1 k)	39				
OFFSHORE SM. ISLAND	10		VERY WEAK (negligible)	40		SITE INFORMATION (TICK)		
AMONGST ROCKS/ISLETS	11		SALINITY (TICK)			MNR, NNR, LNR, SSSI NEARBY	65	
SOUND/NARROWS	12		NORMAL (around 34°/oo)	41	✓	SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
SHALLOW RAPIDS	13		VARIABLE (30°/oo+)	42		OTHER SOURCES OF DISTURANCE (tick & note below)	67	
SEA LOCH	14		LOW (<30°/oo)	43				
ESTUARY/MARINE INLET	15	✓	SALINITY MEASURED (TICK)	44				
COASTAL LAGOON	16		NOT KNOWN	45		OTHER DATA RECORDED		
HARBOUR	17		WATER STRATIFICATION (TICK)			PHOTOGRAPHS: SURF	80	
SEA CAVE	18		THERMOCLINE	46		W-A	81	
WRECK	19		HALOCLINE	47		C-U	82	✓
OTHER (tick and note below)	20		NOT STRATIFIED	48	✓	WATER ANALYSIS	83	
			NOT KNOWN	49		SEDIMENT ANALYSIS	84	
						SPECIMENS COLLECTED	85	✓
						ALGAL CHECKLIST	86	✓
						ANIMAL CHECKLIST	87	✓
						OTHER (tick and note below)	88	

UNDERWATER DATA

SITE NO. 70

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100	✓					
UPPER INFRALITTORAL	101	✓	✓	✓	✓	✓	✓
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓	✓	✓	✓	✓	✓
5-10	108						
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	3	3	3	3	3	
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COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
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SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY		3					
ALGAL MEADOW					1		
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF			2	3			
FAUNAL BED							

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170			✓		✓	
VERTICAL (80-100°)	171		✓			✓	
V. STEEP (40-80°)	172	✓					
STEEP (20-40°)	173						
SHALLOW (<20°)	174				✓		
HORIZONTAL	175						
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177				3	3	
(BROKEN ROCK	178	3	2	2			
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181	2	3			3	
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183	3	3	3	3	3	
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 70

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

① Kelp forest at 3-4m below cd. Abundant Distomus variolosus. Foliose reds abundant on steeper slopes or where kelp slightly thinner otherwise only 'frequent', including Corallina officianalis, Cryptoplewa ramosa, Callophyllis laciniata, Plocamium cartilagenum, Delesseria sanguinea and Strachidia spectabilis

② Outer gulley vertical bedrock at 4m. Broken bedrock surfaces with sponges and ascidians, particularly Hymeniacidon and Halichondria bowerbanki. Also orange encrusting bryozoan - Many foliose red algae including Membranoptera mycrophylla, Kallymenia reniformis, Polyneura gmelinii and Pyllophora pseudoceranoides.

③ Outer gulley overhangs (up to 45°). Abundant sponges, ascidians and bryozoans. Particularly Halichondria bowerbanki, Polymastia mamillaris, Distomus variolosus and Diplosoma listerianum. Algae abundant including Delesseria sanguinea, Polyneura gmelinii and Callophyllis laciniata

④ Outer gulley scoured bedrock. Lithophyllum covering most surfaces. Some Pomatoceros and Patella sp. Mostly bare. Grateloupia filicina abundant, ?Audouinella sp. common otherwise just encrusting red and pink Rhodophyta.

⑤ Inner gulley verticals and bedrock. Smooth scoured walls ~~and floor~~ with large and small rounded cobbles on floor. Occasional Pomatoceros and Balanus crenatus. Some Distomus, Polycarpa rustica, Sagartia elegans and Leucosolenia ~~Rhodophyta~~ some way up walls. Some patches of encrusting red and pink Rhodophyta increasing from base to top of gulley walls other algae sparse.

⑥ Algae on substrate

Epiphytes of Laminaria hyperborea were luxuriant and included Palmaria palmata, Plycodrys rubens, Membranoptera alata, and Cryptoplewa ramosa

Epiphytes of other algae included Rhodophyllis divaricata, Cryptoplewa ramosa, Polysiphonia sp. and Porphyra sp.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Straddon Pt. Gulleys. (70) GRID REFERENCE: SX486507

DATE: 14/07/86 NAME OF RECORDER: A.E. Little.

KEY TO HABITAT COLUMNS:

1. Sub ~~Lit~~ littoral frig & upper infralittoral. Kelp forest.
2. Outer gulley vertical walls.
3. " " overhanging walls
4. " " scoured bedrock & pebbles
5. Inner gulley vertical and overhanging walls
6. Algae as substrate

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum	F					
Ahnfeltia plicata						
Antithamnion plumula						
Antithamnion spirographidis						
Apoglossum ruscifolium	O			O		
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides	O	R		F		
Calliblepharis ciliata						
Callithamnion sp.			O	O		
Callithamnion tetragonum						
Callophyllis laciniata	F	O	F			F
Ceramium rubrum						O
Ceramium sp.						
Chondrus crispus	O	C		C		
Chylocladia verticillata						
Corallina officinalis	C	C	O	F		
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa	F	F	C	O		F
Delesseria sanguinea		F	C			
Dilsea carnosa	O	O	O			
Drachiella spectabilis	O	F	O			
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina				A		
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus				?O		
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii				O		
Kallymenia reniformis	O		O			
Lomentaria clavellosa	O	F				

	1	2	3	4	5	6
Lomentaria orcadensis			O			
Membranoptera alata						O
Meredithia microphylla	O					
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						C
Peyssonelia sp.						
Phyllophora crispa	O					
Phyllophora pseudoceranoides	R					
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum	O			O		
Polyides rotundus						
Polyneura gmelinii			C			
Polyneura hilliae	O	O				
Polysiphonia elongata						
Polysiphonia sp.				F		O
Pterosiphonia parasitica	O	O		O		
Radicilingua thysanorhizans						
Rhodomela confervoides	O					
Rhodophyllis divaricata			O			F
Rhodophyllis sp.						
Rhodophyta indet. (encr.) pink	R		C	A		
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata	F	F				
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum		O		F		
Stenogramme interrupta						
Rhodophyta indet. enc. red.	O	C	A	C		
Mesophyllum lichenoides	F					
Phycodrys rubens						F
Audouinella sp.				?A		
Porphyra sp.						O
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME: 70

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus				O		
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata			O			
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma		O				
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						O
Laminaria hyperborea	A	O				
Laminaria ochroleuca						
Laminaria saccharina				O		
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
ASpherococcus sp.				F		
Phaeophyta indet. (f. Yam)				C		
'Ralfsia'				F		
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa		O				
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)	O			O		O
Cladophora sp.	O	O				
Laminaria sporling				F		
ANGIOSPERMAE						
Zostera marina						
Phaeophyceae						
'Aglaozonia parvula'				F		
Rhodophyceae						
Cystoclonium purpureum				?O		
Compsothamnion thuyoides		?R		R		
Schmitzia hiscockiana				R		

(See specimens.)

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Stoddon Point Gulley (70) GRID REFERENCE: SX 486 507

DATE: 14.7.86 NAME OF RECORDER: J.J. Moore

KEY TO HABITAT COLUMNS:

1. Kelp forest infra. fringe and upper infra. (animals not complete)
2. Outer gulley vertical bedrock
3. Outer gulley overhangs
4. Outer gulley stonered bedrock & gubbles.
5. Inner gulley vertical and overhangs
6. Algae or substrate

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa			R			
Leuconia barbata						
Leucosolenia botryoides			R		R	
Scypha ciliata			R			
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea						
Halichondria bowerbanki		F	A			
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris			F			
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina	:					
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata						F
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii			R			
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis			O			
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans					R	
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						

SITE NAME: 70

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)				O	O	
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus					O	
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
Mysidacea indet.				P		
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado				R		
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea		P				
Buccinum undatum						
Calliostoma zizyphinum	R					
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.				O		
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						F
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans			O			
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis		F				
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis				R		
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: 70

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
✓ Diplosoma listerianum			C			
Diplosoma spongiforme						
Distaplia rosea						
✓ Distomus variolosus	A		F		O	
✓ Lissoclinum perforatum		R	O			
Molgula manhattensis						
✓ Morchellium argus		O	F			
Phallusia mammillata						
✓ Polycarpa rustica					R	
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
✓ Diplosoma sp. (yellow)		F				
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
✓ Gobiusculus flavescens				P		
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: Sd Breakwater — SITE NO.: 71

SURVEY AREA: Plymouth — SEA AREA:

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	473	499	TO		

LAT. LONG.

	°	'	°	'	W/E		°	'	°	'	W/E
		:		:		TO		:		:	

RECORDER: K. Miscock — DATE: 14 D 07 M 86 Y

TIME IN: 1511 — TIME OUT: 1559 — DURATION: 48 — BST/GMT

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 2.3-1.9m

DEPTH RANGE SURVEYED 11-12 M BELOW ~~SEA LEVEL~~/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 10 ■

SITUATION (TICK ONE ONLY)

OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	✓
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)

HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	✓
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)

VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	✓
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	✓
VERY WEAK (negligible)	40	

SALINITY (TICK)

NORMAL (around 34°/oo)	41	✓
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)

THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	✓
NOT KNOWN	49	

ROCK TYPE (TICK)

IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	✓
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below)	57	

SITE INFORMATION (TICK)

MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	✓

Set nets

OTHER DATA RECORDED

PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

SITE NO. 71

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101				✓		
LOWER INFRALITTORAL	102	✓	✓	✓			
UPPER CIRCALITTORAL	103					✓	
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						

DEPTH BAND (m) BELOW CD (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
<0	106						
0-5	107						
5-10	108						
10-20	109	✓	✓	✓	✓	✓	
20-30	110						
>30	111						

SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		STN./HABITAT 1	2	3	4	5	6
BEDROCK	112				3	3	
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116		3	3			
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119		2	2			
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128	3	2	2			
FINE CLEAN SAND	129						
FINE MUDDY SAND	130	2					
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						

ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						

ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY					3		
ALGAL MEADOW			3				
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED							

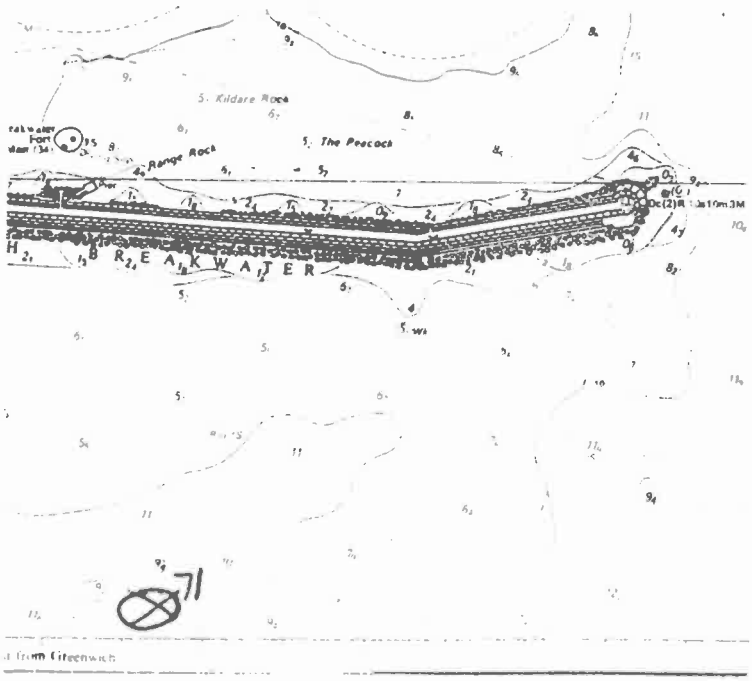
OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170					✓	
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174				✓		
HORIZONTAL	175	✓	✓	✓			

ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176				3	3	
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197				2		
THIN SILT ON ROCKS	198				2		
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						

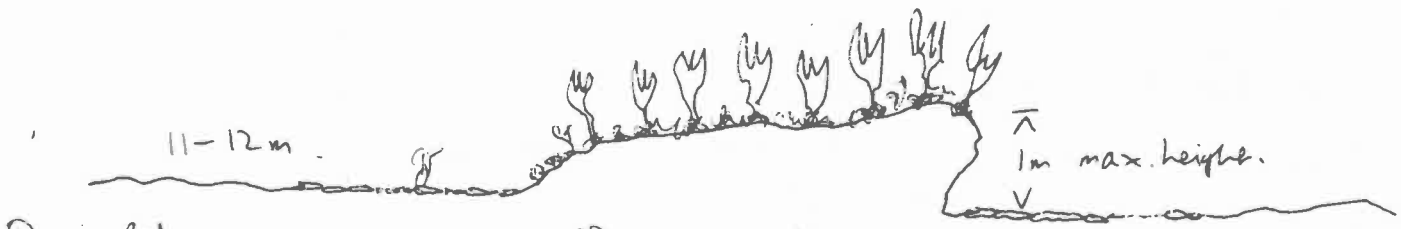
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220	3					
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224	3					
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						

SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



① rippled coarse and muddy sand

② slates on course sand

③ Under slates

④ Upward facing surfaces of shale reefs

⑤ Overhangs

SITE NO.: 71

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

General description. Predominantly low shale reefs with areas of broken shale and coarse sand with muddy sand patches in between at 11 to 12m. Reefs terminate in vertical or overhanging surfaces up to 1m high. Bedrock was sandy or silty and colonised by foliose red algae with Saccorhiza polyschides and some Halidrys siliquosa and Dermatolithon. The lower (scoured) parts and Laminaria hyperborea over encrusting algae and hydroids. Overhanging surfaces were colonised by a wide variety of species usually present in small numbers. Shale were colonised by algae with a small variety of species underneath sediments were mainly bare but with sponges anemones in places and some Cerianthus lloydii. Algal records from this site are very interesting especially those from the loose shales.

Habitat 1. Rippled coarse and muddy sand at 11 to 12m. Found to be sediment with mud shale mixed in below the surface. Cerianthus lloydii was frequent and a small number of other species were present.

Habitat 2. Large and small shales between low reefs at 11 to 12m. These were continuous in places or mixed with coarse sand and coloured by algae, particularly foliose branching species. Animal species were very sparse. Algal diversity was very great here with several species rarely found elsewhere.

Habitat 3. Under shales at 11 to 12m. The fauna was poor but included encrusting Bryozoa, Pomatoceros sp., Venerupis senescens and Ophiothrix fragilis.

Habitat 4. Upward facing surfaces of shale reefs at 11 to 12m. Sandy or silty rock near the lower limit dominated by foliose algae with Saccorhiza polyschides and some Halidrys siliquosa and Dermatolithon near the lower limit and Laminaria hyperborea over encrusting coloured algae with a dense settlement of juvenile barnacles. Many algae grew in dense stands of a single species e.g. Phyllophora pseudoceranoides, Phyllophora crispa, Plocamium cartilagineum.

Habitat 5. Vertical and overhanging rock surfaces at 11 to 12m coloured by encrusting calcareous algae with encrusting Bryozoa and some hydroids (Obelia dichotoma) with scattered ascidians, particularly Morchellium argus and Diplosoma listerianum and with frequent Ophiothrix fragilis present arms of ophiuroids protruding from crevices. Many foliose algal species were present but only Schottera nicaeensis and Phyllophora traillii were more abundant than occasional.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: S. of Breakwater (71) GRID REFERENCE: SX473499

DATE: 18/07/86 NAME OF RECORDER: A.E. Little

KEY TO HABITAT COLUMNS:

1. Rippled coarse and muddy sand, 11-12m.
2. Large and small slates between low reefs, 11-12m
3. Under slates " 11-12m
4. Upward facing shale reef surfaces, 11-12m
5. Vertical and overhanging shale reef surfaces, 11-12m
6. Algae as substrate

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum				O	O	O
Ahnfeltia plicata						
Antithamnion plumula						
Antithamnion spirographidis						O
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides				F		O
Bonnemaisonia hamifera						
Brongniartella byssoides		O		F		
Calliblepharis ciliata		O		O		
Callithamnion sp.				O		
Callithamnion tetragonum						
Callophyllis laciniata		O		O		
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis				O		
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta				R		
Cruoria pellita						
Cryptopleura ramosa				F/c		F
Delesseria sanguinea				A		
Dilsea carnosa				F		
Drachiella spectabilis				O	O	
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum		F		O	R	
Heterosiphonia plumosa				F		
Hypoglossum woodwardii						
Kallymenia reniformis				O		
Lomentaria clavellosa				O	O	R

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla					O	
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa		O		F	O	
Phyllophora pseudoceranoides				O/F		
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum				C		
Polyides rotundus						
Polyneura gmelinii				F	O	
Polyneura hilliae				?F	O	
Polysiphonia elongata		O				
Polysiphonia sp.		O				
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides		O				
Rhodophyllis divaricata						
Rhodophyllis sp.					O	
Rhodophyta indet. (encr.) pink		O		F	O	O
Rhodymenia delicatula						
Rhodymenia holmesii				F/c	O	
Rhodymenia pseudopalmata				F	O	
Scinaia forcellata						
Scinaia turgida		O/F				
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum				O		O
Stenogramme interrupta						
Rhodophyta indet. (encr.) red.				C	F	
Phymatolithon polymorphum				O		
Compsothamnion thuyoides				O		
Gelidium latifolium				R		
Phyllophora traillii				F	C	
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						
Bacillariophyta indet.		F				

Sea spec

SITE NAME: 71

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum		O				
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata		O/F				
Desmarestia ligulata						
Desmarestia viridis				F*		
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.						
Halidrys siliquosa				O*		
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea				C*		
Laminaria ochroleuca						
Laminaria saccharina				O*		
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
'Aglaozonia parvula'						
Phaeophyta indet. (filam)		C			O	C
Cutleria multifida		O				
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.		F				
Ulva sp. (p)						
Chlorophyta indet. filam.		O				
Chaetomorpha sp.				O	O	O
ANGIOSPERMAE						
Zostera marina						
Phaeophyta cont. —						
Asperococcus sp.		F				
Sporochnus pedunculatus		O				
Gloiosiphonia laxosa		O				
? Tilopteris mertensii		O				
Striaria attenuata		O				
Rhodophyta cont. —						
Schottera nicaeensis					O/F	
Rhodymenia pseudopalmata (spiky)					O	
"Trailiella"		F				F
Phycodrys rubens						F
? Naccaria wiggii		F				
Dudresnaya verticillata		F				
Schmitzia neapolitana		O/F				
Lawrencia sp.		R				
Chondria dasyphylla		O				
? Spyridia filamentosa		O				
Audouinella sp.						O

* Added by KH from general description.

benthic branding.

S.H. to check specs.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: S.f. Breakwater (71) GRID REFERENCE: SX 473 499

DATE: 14.7.86 NAME OF RECORDER: K. Hiscock

KEY TO HABITAT COLUMNS:

1. Rippled coarse sand and muddy sand at 11 to 12m.
2. Large and small slates between low reefs at 11 to 12m
3. Under slates at 11 to 12m.
4. Upward facing surfaces of slate reefs at 11 to 12m
5. Vertical and overhanging rock surfaces at 11 to 12m
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
✓ Scypha ciliata					R	
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
✓ Ciocalypta penicillus	r					
✓ Cliona celata					R	
Cliona sp. (boring)						
✓ Dercitus bucklandi					R	
✓ Dysidea fragilis					O	
Halichondria panicea						
Halichondria bowerbanki						
Haliclona oculata						
✓ Hemimycale columella					R	
Hymeniacidon perleve						
Myxilla incrustans						
✓ Pachymatisma johnstonia					R	
Phorbas fictitius						
✓ Polymastia mamillaris	r					
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina						
Nemertesia ramosa						
Obelia dichotoma					C	✓
Obelia geniculata						
Plumularia setacea					R	
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
Coryne cf. Vermicularis				P		✓
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum					O	
Anemonia viridis		R				✓
Caryophyllia smithii					O	✓
Cereus pedunculatus						
Cerianthus lloydii	F					
Corynactis viridis					R	✓
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						
Bicteria mutabilis					r	✓

SITE NAME: 71

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus					R	
Filograna implexa						
Lanice conchilega	O					
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)			F		O	
Sabella pavonina						
Terebellidae indet.			O			
Polychaeta indet (plan tubes)	O					
?Polymnia nebulosa			R			
Protula tubularia					R	
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia			F			
Cirrepedia (juv.)				A	C	
Pyrgoma anglicum					P	
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa					R	
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber					R	
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis			F			
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.			O			
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica					R	
?Gibbula tumida			x1			
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Caryphella sp.		x1				
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)			OF		F	
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa			F			
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea			F			
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
Schizomavella linearis					O	
Parasmittina trispinosa					R	
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata					R	
Marthasterias glacialis		O			F	
Ophiocomina nigra						
Ophiothrix fragilis			F			
Ophiura texturata						

SITE NAME: 11

	1	2	3	4	5	6
Ophiuroidea indet (arm.)	O	R			O	
Asterina gibbosa		O	R	O	F	
Ophiuroidea indet (arms)					O	
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus					O	
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.					F	
Holothuria forskali	R	R				
Neopentadactyla mixta	R					
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis	R				O	
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum		O			F	
Diplosoma spongiforme						
Distaplia rosea		P				
Distomus variolosus						
Lissoclinum perforatum					R	
Mogula manhattensis						
Morchellium argus		O		F	F	
Phallusia mammillata						
Polycarpa rustica					R	
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans					R	
Sidnyum turbinatum						
Molgula colonica socialis					D	
Styela clava						
Didemnidae ad (cream)					O	
Pyura tessellata					R	
Ascidiella sp (juv)		P				
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra	O					
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris					O	
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta				O		
Labrus mixtus				R		
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus					R	
Trisopterus luscus						
Coltus scorpius					R	
Prostheceraeus vittatus					R	
~~Ascidiacea indet~~ *					R	
Corella parallelogramma					R	
Callopora nylandi			P			
Escharella sp			P			
Chorizopora brongniarti			P			
Tubulipora flabellaris			P			

* preserved. Species shaped  x ½
Corella ~~sp~~ parallelogramma

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: N. OF BREAKWATER

SITE NO.: 72

SURVEY AREA: PLYMOUTH

SEA AREA: PLYMOUTH.

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	472	507	TO		

LAT. LONG.

° '	° ' W/E		° '	° ' W/E
		TO		

RECORDER: B. BULLIMORE

DATE: 14 D 07 M 86 Y

TIME IN	1627	DEPTH CORRECTION APPLIED?	NO/YES +/- 1.6 m
TIME OUT	1655 BST/	DEPTH RANGE SURVEYED	14 M BELOW SEA LEVEL/CHART DATUM
DURATION	28 GMT	HORIZONTAL UNDERWATER VISIBILITY	3-4 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	✓

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	✓

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	✓

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	✓
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	✓

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below)	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

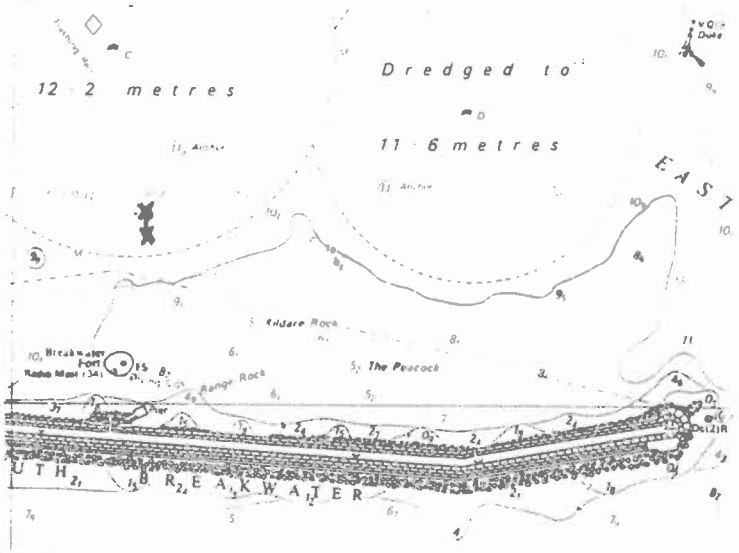
SITE NO. 72

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105	✓					
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107						
5-10	108						
10-20	109	✓					
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112						
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132	3					
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED							

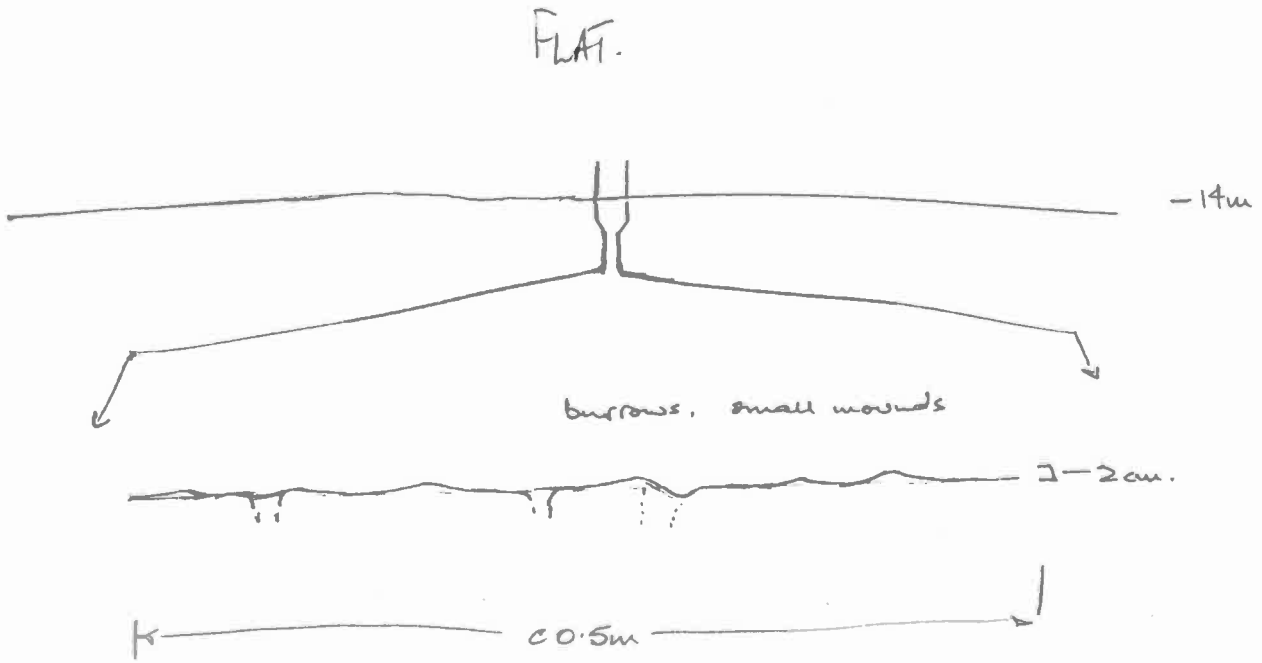
OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174						
HORIZONTAL	175	✓					
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221	3					
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226	3					
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244	2					
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE NO.: 72

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 72

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

Flat soft mud plain. Many burrows - various sizes. 10 -> 100/m², also small (-> 2cm) mounds (? burrow tops).

Epifauna - Asterias, R, Occass. Ophiura sp., one Goneplax on surface, small gobies & Gobius niger. Philine quadripartita - several noted possibly F. also polychaete eggs.

Two large patches of drift algae noted.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: N. of BREAKWATER (72) GRID REFERENCE: SX 472507

DATE: 140786. NAME OF RECORDER: B. BULLIMORE

KEY TO HABITAT COLUMNS:

1. MUD -
2.
3.
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea						
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina	:					
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata						
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
Hydractinia	R					
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii	P					
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile	R					
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						

SITE NAME: 72

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)						
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus	R					
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator	R					
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.	R					
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
Goneplax rhomboides	R					
(juveniles)	C/A					
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Philine quadripartita	O					
Cephalaspidea	x1					
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens	R					
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata	O					

SITE NAME: 72

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Molgula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra	P					
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger	R					
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)	O					
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus ~~minutus~~ sp.	F					

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
Raja clavata	R					

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: Babbery Buoy — SITE NO.: 73 (1)

SURVEY AREA: Plymouth — SEA AREA:

OS GRID REF.: 5X 458 E-W 533 N-S TO E-W N-S

LAT. LONG. ° ' ° ' W/E TO ° ' ° ' W/E

RECORDER: J.J. Moore / A.E. Little — DATE: 18 D 07 M 86 Y

TIME IN 1455 — DEPTH CORRECTION APPLIED? #/YES +/- 4.5 m

TIME OUT 1557 BST/ — DEPTH RANGE SURVEYED 1.5.9 M BELOW SEA LEVEL/CHART DATUM

DURATION 62 ~~GMT~~ — HORIZONTAL UNDERWATER VISIBILITY .....5..... m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	✓
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	✓

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	✓
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	✓
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	✓
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	✓
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below)	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	.
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

SITE NO. 73 (1)

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100	✓				✓	
UPPER INFRALITTORAL	101		✓			✓	
LOWER INFRALITTORAL	102			✓		✓	
UPPER CIRCALITTORAL	103				✓	✓	
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106	✓					
0-5	107		✓	✓			
5-10	108				✓		
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	3					
LG. BOULDERS (500 mm+)	113	2					
SM. BOULDERS (256-500 mm)	114			2	2		
LG. COBBLES (128-256 mm)	115		3	3	3		
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117		2	2	2		
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126		2	2	2		
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134				3		
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY		3					
ALGAL MEADOW			3	2	1		
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF		2					
FAUNAL BED			3	3	3		

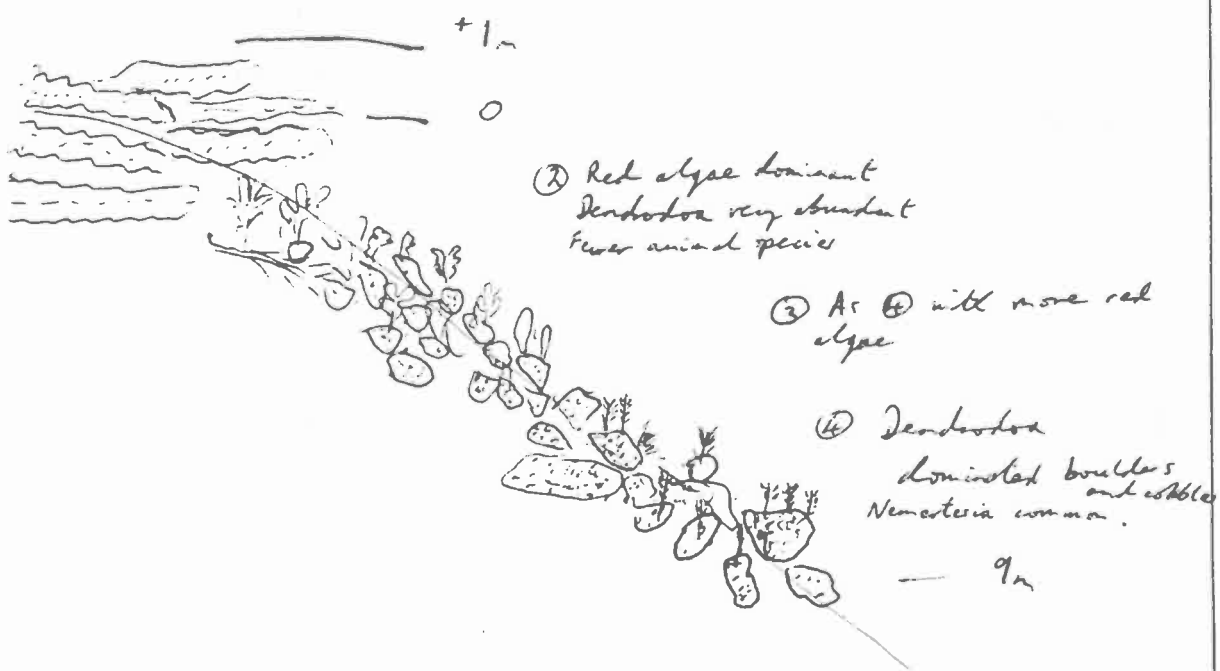
OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173	✓	✓	✓	✓	✓	
SHALLOW (<20°)	174						
HORIZONTAL	175						
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177	2					
(BROKEN ROCK	178	2	2	2	2		
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190	1					
(COBBLE INTERSTICES	191		3	3	3		
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193			2	2		
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198	2	2	2	2		
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE NO.: 73 (L)

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)

See sheet #2

SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 73 (4)

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

① Kelp dominant, covering bedrock and boulders in subtidal fringe and lower intertidal. Dendrodoa dominant on rock surface with barnacles, and Polydora tubes in dense patches

② Upper infralittoral cobbles and boulders with gravel patches between. Dendrodoa dominant and red algae abundant. Fewer animal species than below

③ Lower infralittoral cobbles and boulders with gravel patches. Dendrodoa dominant, Polycarpa frequent, red algae common. Hydroids frequent (incl. Nemertesia antennina, Plumularia spp. and Halecium. Similar to ④ for animals

④ Upper circalittoral cobbles and boulders with gravel patches. Dendrodoa dominant, Polycarpa frequent. Hydroids common, particularly Nemertesia antennina, with N. ramosa occasional, and Plumularia setacea. Clava clata and Hymeniacidon perlevis occasional/frequent. Many fish (wrasse and blennies). Diplosoma frequent, often covering Dendrodoa.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Battery Buoy inner (73) (1) GRID REFERENCE: SX458 533

DATE: 15/07/86 & 18/07/86 NAME OF RECORDER: A.E. Little

KEY TO HABITAT COLUMNS: +1 – 0m

1. Sublittoral fringe bedrock — Hypoglossum ~5.5m to west.
2. Upper infralittoral bedrock — 0.5 – 1.5m
3. Lower infralittoral boulders — 2.5 – 3.5m
4. Upper circalittoral boulders with shell gravel — 4.5 – 6.5m
5. Algae as substrate.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula						
Antithamnion spirographidis						
Apoglossum ruscifolium		O	O			
Asparagopsis armata						
Bonnemaisonia asparagoides			O	R		
Bonnemaisonia hamifera						
Brongniartella byssoides			O/F			
Calliblepharis ciliata						
Callithamnion sp.		O	F			
Callithamnion tetragonum						
Callophyllis laciniata	F/C	F	C	O		
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis	O	O				
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa		O	C	R		
Delesseria sanguinea	R/O					
Dilsea carnosa	O	O				
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii		O	O	R		
Kallymenia reniformis	O	O	F	R		
Lomentaria clavellosa					O	

	1	2	3	4	5	6
Lomentaria orcadensis			O			
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum			O	R		
Palmaria palmata	O	O				
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii				O/F		
Polyneura hilliae		O				
Polysiphonia elongata						
Polysiphonia sp.			O	R		
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata			R	O		
Rhodophyllis sp.			F			
Rhodophyta indet. (encr.) pink		O				
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
Rhodophyta indet (encr) red				R		
Myriogramme bom/Polyneura hilliae		O	F	R		
Bonnemaisonia hamifera		O/F	F			
Phymatolitho. polymorphum		O				
Plumularia elegans	?R					
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						
?Bacillariophyta indet (red encr)				R		

SH. h check spec

SEE SPECS.

SITE NAME: 73(1)

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata			O			
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata		?o				
Laminaria hyperborea						
Laminaria ochroleuca						
Laminaria saccharina	A	A	R			
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
Lam sacc juv.			F	O		
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)	R		O			
Cladophora sp.	R		O			
Chaetomorpha sp.	R					
ANGIOSPERMAE						
Zostera marina						

A 1 of 2

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Battery Buoy (73)(1) GRID REFERENCE: SX 458 533

DATE: 18.7.86 NAME OF RECORDER: J.J. Moore

KEY TO HABITAT COLUMNS:

1. Sublittoral fringe
2. Upper infralittoral boulders and bedrock
3. Lower infralittoral boulders and cobbles
4. Upper circalittoral boulders and cobbles
5. Algae or substrate
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)		R	O	O		
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea	R	R	O	O		
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve	R	R	F	F		
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus-domuncula		R				
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum			O			
Hydractinia echinata						
Hydrallmania falcata			R			
Nemertesia antennina			R	C		
Nemertesia ramosa			R	O		
Obelia dichotoma						
Obelia geniculata					C	
Plumularia setacea			F	F		
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
~~Sertularia~~ pinnata Kirchenpauria			R			
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii		.	.	.		
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans				O		
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						

SITE NAME: 73 (1)

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.	C	O				
Pomatoceros sp. (p)	R	O	F	F		
Sabella pavonina						
Terebellidae indet.			R	R		
?Laconereis glauca				P		
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus	F	O	O	O		
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus				R		
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber			R			
Macropodia rostrata						
Maja squinado						
Paguridae indet.	R					
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria			O	O		
Nassarius incrassatus					O	
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata			R	R		
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa					O	
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea					F	
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: 73 (1)

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii		R	R	R		
Botryllus schlosseri		O	O	O		
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia	A	A	A	A	·	
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum			F	F		
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Mogula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica		F	F	F		
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: BATTERY ROCK SITE NO.: 73 (2)

SURVEY AREA: PLYMOUTH SEA AREA: PLYMOUTH.

OS GRID REF.:

	E - W	N - S	TO	E - W	N - S
SX	458	533			

LAT. LONG.

	° '	° ' W/E	TO	° '	° ' W/E

RECORDER: B. BULLIMORE / J. MOORE / A. LITTLE DATE: 15 D 07 M 86 Y

TIME IN 1134

TIME OUT 1215 BST/~~GMT~~

DURATION 41

DEPTH CORRECTION APPLIED? ~~NO~~/YES ~~+1~~ -4.5 m

DEPTH RANGE SURVEYED 2 - 25 m BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 6 m

SITUATION (TICK ONE ONLY)

OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)

HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	✓
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)

VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	✓
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	✓
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)

NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)

THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	✓

ROCK TYPE (TICK)

IGNEOUS	50	
LIMESTONES	51	✓
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below)	57	

SITE INFORMATION (TICK)

MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED

PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

SITE NO. 73 (2)

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103	✓					
LOWER CIRCALITTORAL	104	✓	✓	✓			
NOT KNOWN	105						

DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓					
5-10	108	✓					
10-20	109		✓				
20-30	110			✓			
>30	111						

SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112			3			
LG. BOULDERS (500 mm+)	113	1	2				
SM. BOULDERS (256-500 mm)	114	2	3	2			
LG. COBBLES (128-256 mm)	115			2			
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117	2	2				
SM. ROUND COBBLES (64-128 mm)	118			2			
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121			2			
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123	2	1				
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126			2			
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						

ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						

ROCK COVER (SCORE 1-3)	1	2	3	4	5	6
KELP CANOPY						
ALGAL MEADOW	1					
ALGAL TURF						
ALGAL CRUST						
FAUNAL TURF						
FAUNAL BED	3	3	3			

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173	✓	✓	✓			
SHALLOW (<20°)	174						
HORIZONTAL	175						

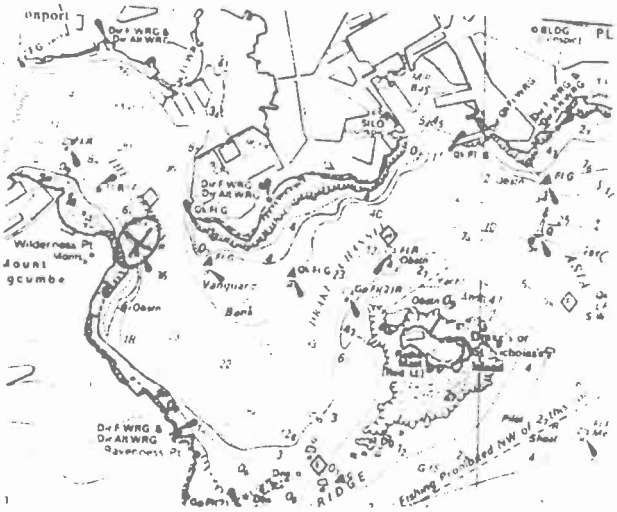
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177			2			
(BROKEN ROCK	178	3	3	3			
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184			1			
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190	2	2	2			
(COBBLE INTERSTICES	191	2	2	2			
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193	3	3	2			
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198	2	2	2			
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						

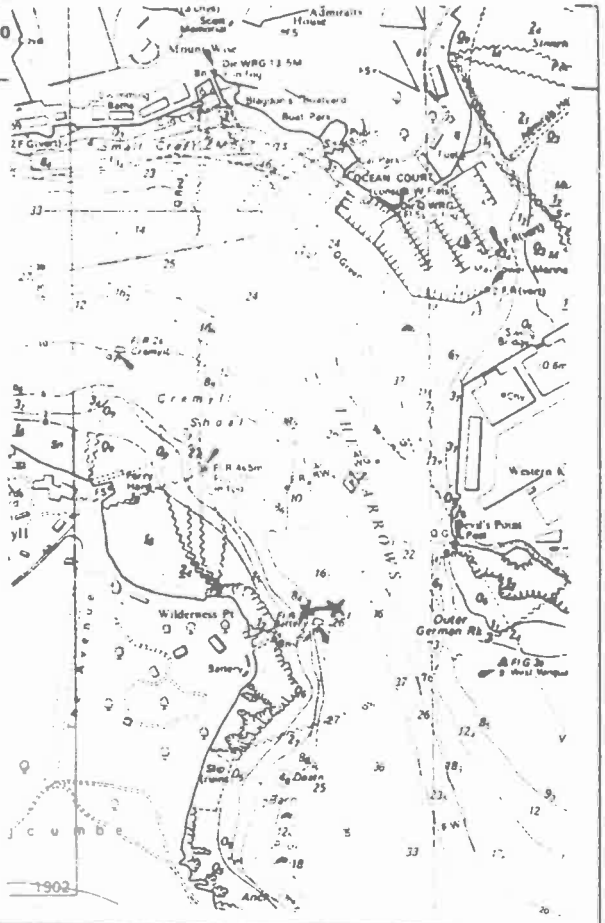
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						

SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

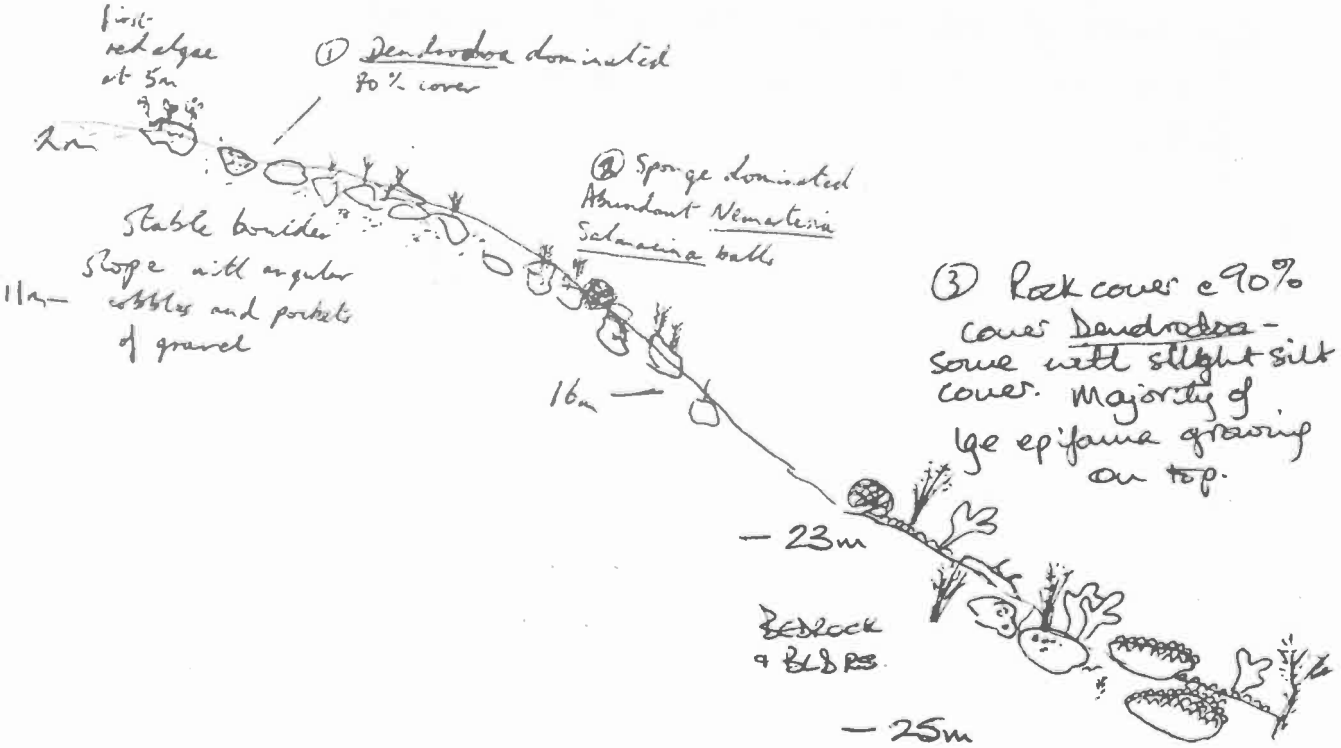
Site No: 73 (2)

SITE LOCATION DETAILS (large- and small-scale maps, details fo
transit marks etc.)





SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 73 (R)

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

(1) Dendrodoa dominated boulders and cobbles on steep slope with gravel pockets. 6-5 – 0.
Nemertesia antennina common and N. ramosa occasional. Hymeniacidon, Suberites domuncula. Red algae appearing at 5·5m and significant by 2·5m
No algal records

(2) Small and medium sized boulders, small angular cobble and gravel pockets on steep slope 16-11m
Halichondria panicea and Amphilectus fucorum common. Abundant Nemertesia antennina. Large colonies of Salmacina Hymeniacidon. Patches of Phoronis. Hydrallmania. Boring Clione celata.

(3) Mixed bedrock/bldr steep slope. Bldrs round, med size → lge pebbles. A.dig., Halichondria, Hymeniacedon & N. antennina dom. together with 90% cover of small Dendrodoa.
Lge 'balls' of Salmacina occ. (to 12cm dia).
Occassional Hydrallmania, and erect bryozoans & Botryllus.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS
(Not including species sampled from sediments)

SITE NAME: BATTERY BOUY (73)(2) GRID REFERENCE: SX 458 533

DATE: 150786. NAME OF RECORDER: B. BULLIMORE (3) J. MOORE (1+2)

KEY TO HABITAT COLUMNS:

1. Dendrodoa dominated boulders and cobbles upper circalittoral
2. Boulders and cobbles with gravel pockets
3. LOWER CIRCALIT- BEDROCK/BLDR SLOPE 25-23m
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
✓ Leucosolenia botryoides		R				
✓ Scypha ciliata		R				
PORIFERA:DEMOSPONGIAE						
✓ Amphilectus fucorum		C	F			
Ciocalypta penicillus						
Cliona celata						
✓ Cliona sp. (boring)		O/F	O			
Dercitus bucklandi						
Dysidea fragilis						
✓ Halichondria panicea		C	C			
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
✓ Hymeniacidon perleve	F	O/F	F			
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ~~ficus~~ domuncula						
Tethya aurantium						
✓ Suberites domuncula	O	O	O			
✓ Halichondria sp.	R					

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata	O	O	O			
Nemertesia antennina	C	A	C			
Nemertesia ramosa	O	O	O			
Obelia dichotoma						
Obelia geniculata						
Plumularia setacea			F			
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx		R				
~~Hydrozoa sp.~~		a	.			
Kirchenpauria pinnata			P			
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta			F			
Adamsia carciniopados						
Alcyonium digitatum	O		C			
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						

SITE NAME: 73(2)

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)						
Sabella pavonina						
Terebellidae indet.						
Salmacina dysteri		O	O			
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus	O					
Elminius modestus						
Verruca stroemia		O				
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus	R	R	O			
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
Inachus dorsettensis			P			
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea		R				

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica		R				
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus			P			
Doto fragilis		R	O			
Complette lineate		R	O			
- - forma ? (coll)	R					
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
Phoronis	O	O	R			
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata		O	O			
Bryozoa indet. (encr.)			O			
Bugula flabellata		O				
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa	:					
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.			F			
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: 75 (2)

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri		R	O			
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia	A	R	A			
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum	O	R	R			
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus		O				
Lissoclinum perforatum						
Molgula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris	P	P	P			
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
Parablennius gatto-rugine.	P					



SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: N Devil's Point

SITE NO.: 74

SURVEY AREA: Plymouth

SEA AREA:

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	459	534	TO		

LAT. LONG.

		W/E			W/E
			TO		

RECORDER: K. Hiscock

DATE: 15 D 07 M 86 Y

TIME IN: 1230

TIME OUT: 1256 BST/

DURATION: 21 GMT

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 4.3 ■

DEPTH RANGE SURVEYED 8-26 M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 5 ■

SITUATION (TICK ONE ONLY)

OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)

HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	✓
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)

VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	✓

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	✓
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)

NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	✓
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)

THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	

ROCK TYPE (TICK)

IGNEOUS	50	
LIMESTONES	51	✓
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below)	57	

SITE INFORMATION (TICK)

MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	✓

Angling, Boat traffic

OTHER DATA RECORDED

PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	
ALGAL CHECKLIST	86	
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

SITE NO. 74

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101		•				
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104	✓	✓	✓			
NOT KNOWN	105						

DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107						
5-10	108	✓					
10-20	109		✓				
20-30	110			✓			
>30	111						

SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	3	3	2			
LG. BOULDERS (500 mm+)	113			3			
SM. BOULDERS (256-500 mm)	114			2			
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						

ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150			1			
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						

ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED Dendrodoa		3	3	3			

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171		·				
V. STEEP (40-80°)	172		✓				
STEEP (20-40°)	173	✓		✓			
SHALLOW (<20°)	174						
HORIZONTAL	175						

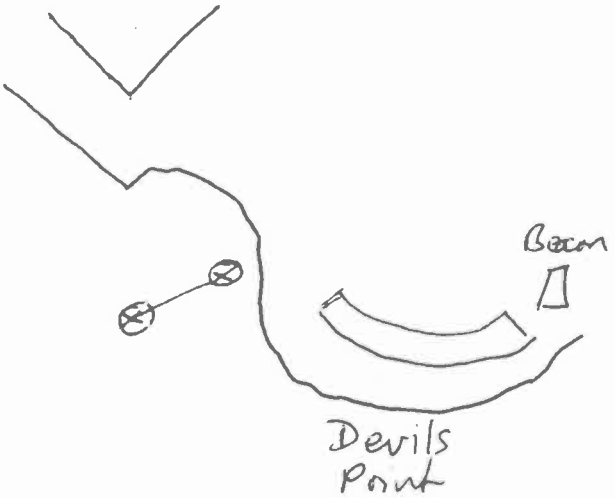
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177	3	3				
(BROKEN ROCK	178		1				
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181		2				
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193			2			
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						

SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						

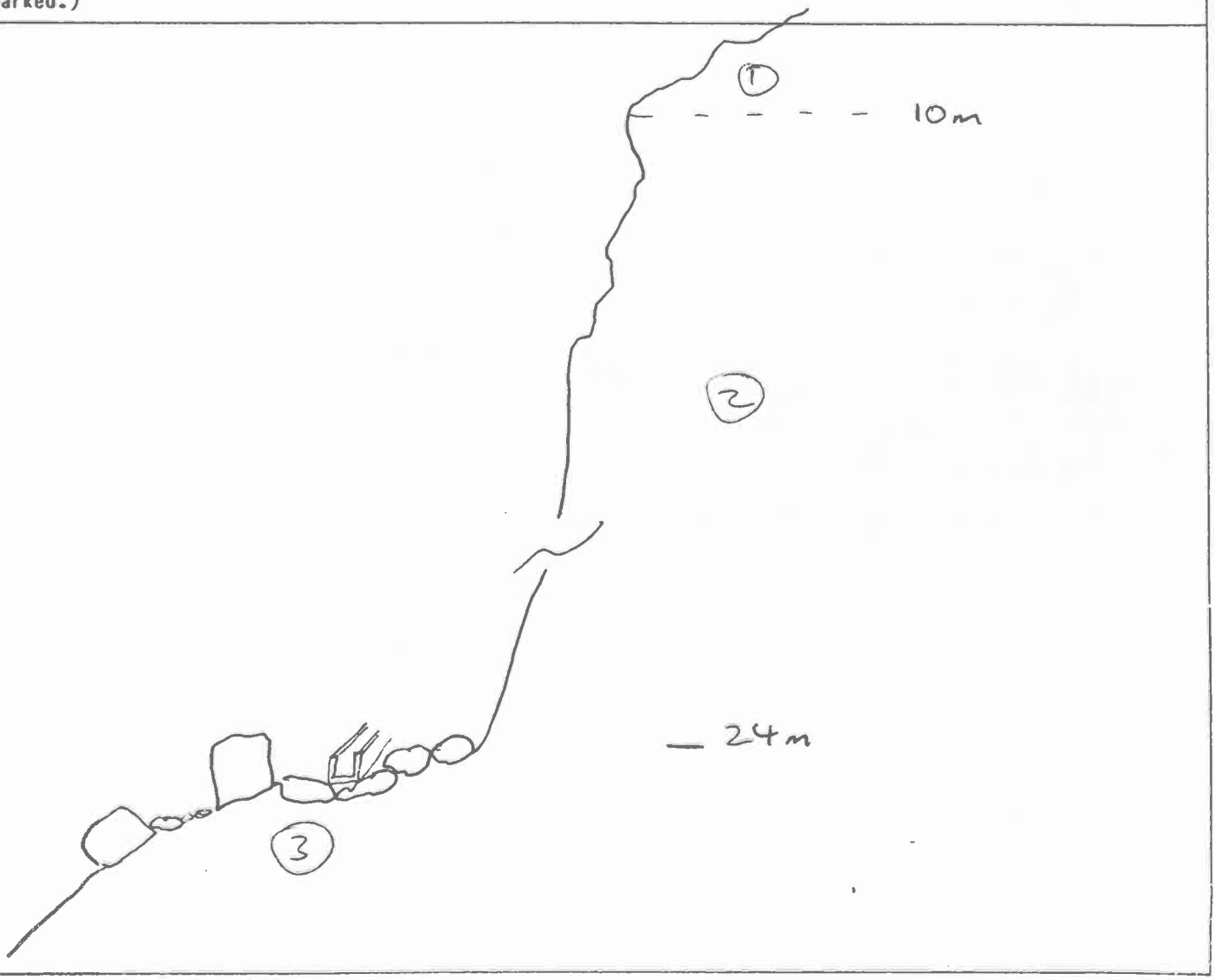
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE NO.: 74

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 74

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

General Description. Steeply sloping a vertical limestone bedrock with Laminaria saccharina and scattered foliose algae in shallow depths but with very similar Dendrodoa grossularia - dominated communities over ~~bedr~~ steeply sloping bedrock, cliff and boulders. Rock surfaces have some overhangs and caves but are mostly featureless.

Habitat 1. Steeply sloping bedrock at 8 to 10 m dominated by Dendrodoa grossularia with carpets large but scattered Halichondria oculata and abundant Nemertesia spp. Tubularia indivisa ~~frequent~~ present in large amounts at the upper edge of the cliff.

Habitat 2. Cliff at 10 to 24 m dominated by Dendrodoa grossularia with Halichondria panicea and Nemertesia spp. A Diplosoma-like ascidian common over the Dendrodoa

Habitat 3. Sloping shelf of large and small boulders at 24 to 26 m dominated by Dendrodoa grossularia with Nemertesia spp and living Cliona

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: N. Devils Point (74) GRID REFERENCE: SX 459 534

DATE: 15.7.86 NAME OF RECORDER: K. Hiscock

KEY TO HABITAT COLUMNS:

1. Steeply sloping bedrock at at 8 to 10m (incomplete records)
2. Cliff at 10 to 24 m
3. Stony shelf & large od. small boulders at 24 to 26m
4. On Tubularia indivisa from c 12m.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)			C			
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea		C	F			
Halichondria bowerbanki						
Hliclona oculata	F	O	F			
Hemimycale columella						
Hymeniacidon perleve	F	O	O			
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						
Suberita sp		✓				

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma		×				
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii		O	O			
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina	A	C	C			
Nemertesia ramosa	F	F	C			
Obelia dichotoma	P	P	P			
Obelia geniculata						
Plumularia setacea	?P	?P	O			
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa	F					
Tubularia larynx						
Plumularia catharina	F	F				
Coryne muscoides		O				
Calycella syringa				P		
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta		R				
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis		O				
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						

SITE NAME: N Devils Pt 74

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa		O	R			
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)						
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)		F				
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus			O			
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber			x1			
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Polycera faveolina			x1			
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata	O	O	F			
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa				P		
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: N Denis FF 74

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri		O	O			
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia	D	D	D			
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Mogula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava	x1					
Diplosoma listerianum		C				
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris	F	O	F			
Gobius niger	O					
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
Blennius oscellaris	O	O				
Pharynis hippocrepia	x1					
Bougainvillia ramosa				P		
Sertularia pumila	P	P				
Obelia flabellata	P					

120

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: RAMSCLIFF PT. SITE NO.: 75.

SURVEY AREA: PLYMOUTH. SEA AREA: PLYMOUTH.

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	482	514	TO		

LAT. LONG.

	°	'	°	'	W/E		°	'	°	'	W/E
		:		:		TO		:		:	

RECORDER: B. BULLIMORE. DATE: 15 D 07 M 86 Y

TIME IN 1342

TIME OUT 1425 BST/

DURATION 43 ~~GMT~~

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 3.8 m

DEPTH RANGE SURVEYED 1-4 m BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 6 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	✓
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	✓
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	✓
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	✓
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	✓
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	✓

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	✓
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below)	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

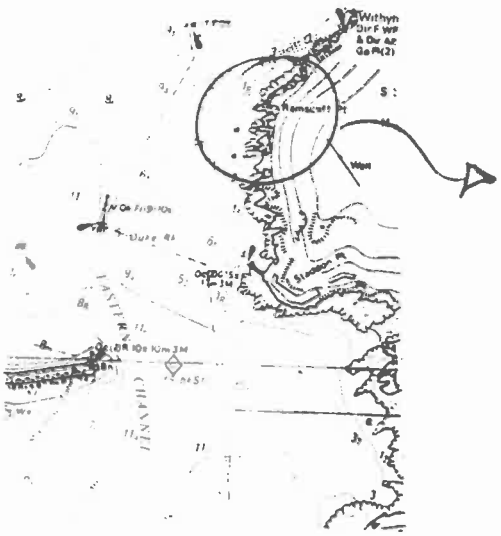
UNDERWATER DATA

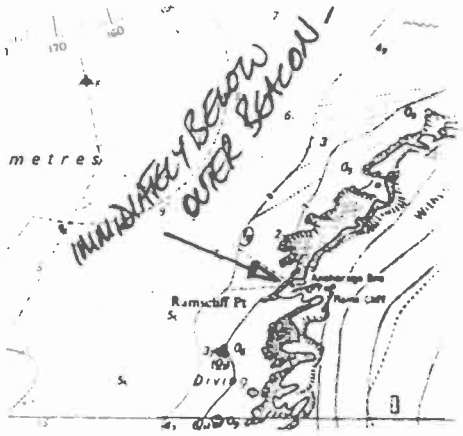
SITE NO. 75

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101	✓					
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓					
5-10	108						
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	3					
LG. BOULDERS (500 mm+)	113	2					
SM. BOULDERS (256-500 mm)	114	2					
LG. COBBLES (128-256 mm)	115	2					
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134	2					
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW		2					
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED		3					

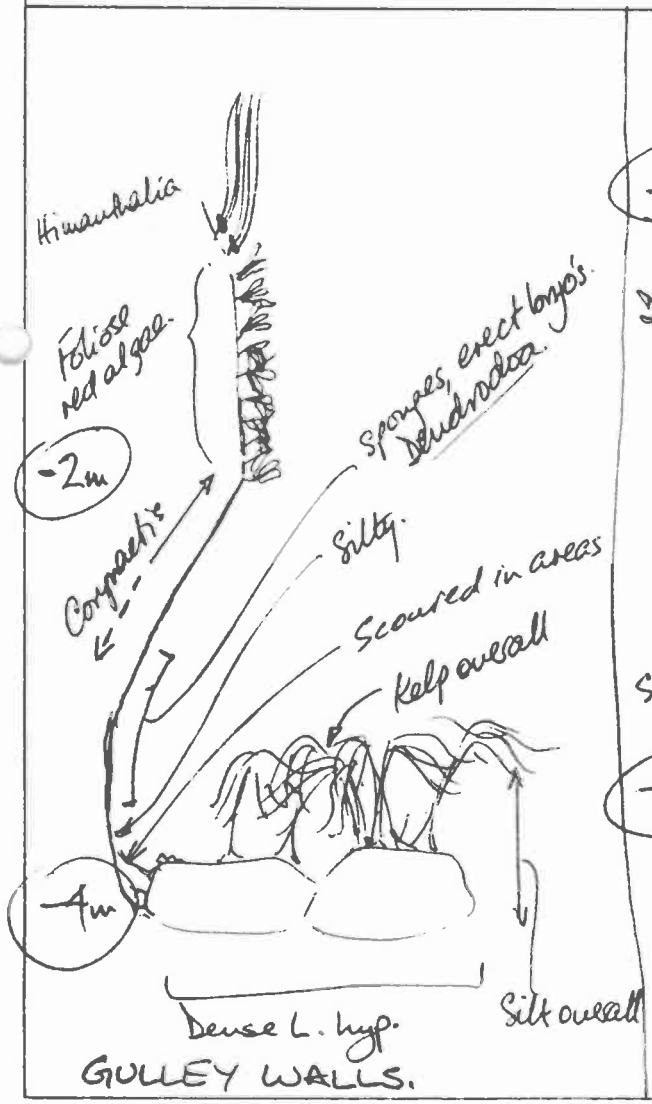
OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171	✓					
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174						
HORIZONTAL	175						
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177	3					
(BROKEN ROCK	178	1					
(TERRACES	179						
(LEDGES	180	2					
ROCK WALLS	181	3					
OPEN GULLIES	182	3					
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186	3					
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195	2					
SCOURED ROCK	196	2					
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198	2					
THICK/FLOC. SILT ON ROCKS	199	2					
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

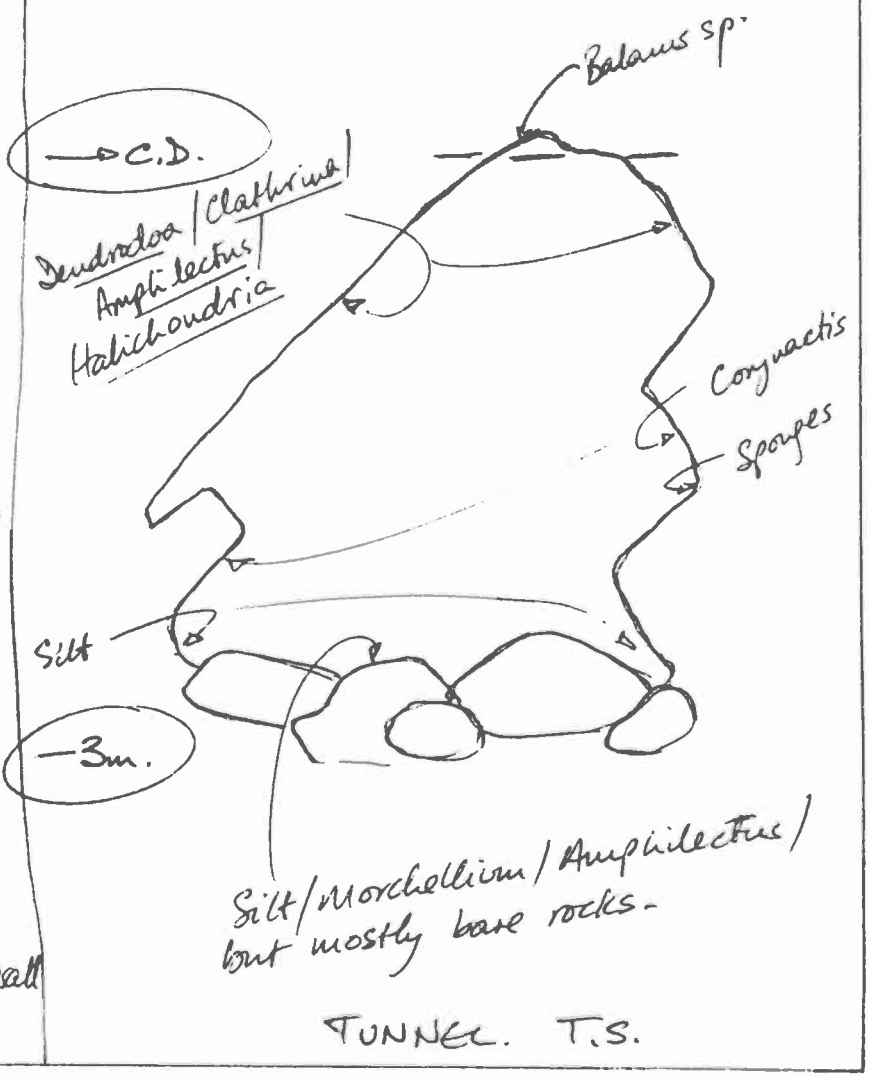
SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)





SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)





SITE NO.: 75

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

Vertical to overhanging bedrock walls becoming roughly triangular tunnel. Top of tunnel possibly intertidal. Floor of tunnel lge-bldrs → lge cobbles - mostly bare at inshore end, → silty at mouth and floor of gully. Floor of outer gully dense kelp forest with heavy silt o/all. (& mobile)

Gully walls - verticals - total cover of red foliose algae. Overhanging walls dominated by Corynactis with sponges, and occas. erect bryo's & hydroids.

Silt on up facing rock near base of wall, tho' some areas bare and scoured. Some pockets of silt anoxic.

Tunnel - mostly dominated by Sundadoa with Clathrina also Holichondria, Amphilectus, S. ciliata & G. compressa. but patches of Corynactis dom. - extensively approx ½ way up walls.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: RAMSCLIFF PT. (75) GRID REFERENCE: SX 482 514.

DATE: 150786. NAME OF RECORDER: B. BULLIMORE

KEY TO HABITAT COLUMNS:

1. UPPER INFRALITT. VERTICAL GULLY WALLS / TUNNEL.
2. ALGAE AS SUBSTRATE
3.
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
✓ Clathrina coriacea	O					
✓ Grantia compressa	O					
Leuconia barbata						
Leucosolenia botryoides						
✓ Scypha ciliata	O					
PORIFERA:DEMOSPONGIAE						
✓ Amphilectus fucorum	F					
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
✓ Dysidea fragilis	O					
✓ Halichondria panicea	F					
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
✓ Polymastia mamillaris	R					
Polymastia boletiforme						
✓ Raspailia hispida	O					
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						
✓ Suberites carnosus	O					
✓ Leucosia nivea	R					

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina						
Nemertesia ramosa						
Obelia dichotoma		F				✓
Obelia geniculata						
Plumularia setacea	F					✓
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii	O					✓
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis	[O/locally A]					✓
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes	P					✓
Sagartiogetan undatus						
Urticina felina						

SITE NAME: 75

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)	O					
Sabella pavonina						
Terebellidae indet.						
Spirorbis corallinae		F				
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum	R					
Crepidula fornicata						
Gibbula cineraria	R					
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Caphella lineata	R					
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata	O					
Bryozoa indet. (encr.)	O					
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa	F					
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.	F					
Umbonula littoralis						
Vesicularia spinosa						
Bugula plumosa	O					
Celleporina lafosei	P					
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens	R					
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: 15

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis	F					
Dendrodoa grossularia	F/A-(locally)					
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Mogula manhattensis						
Morchellium argus	O					
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
Tridemnum	R					
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: Duke Rock Buoy

SITE NO.: 76

SURVEY AREA: Plymouth Sound

SEA AREA:

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	480	509	TO		

LAT. LONG.

° '	° ' W/E		° '	° ' W/E
		TO		

RECORDER: J.J Moore / A.E. Little

DATE: 15 D 07 M 86 Y

TIME IN	1504	DEPTH CORRECTION APPLIED?	~~NO~~/YES +/- 2:8 m
TIME OUT	1546 BST/	DEPTH RANGE SURVEYED	11-8 M BELOW SEA LEVEL/CHART DATUM
DURATION	42 ~~GMT~~	HORIZONTAL UNDERWATER VISIBILITY	6 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	✓
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	✓
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	✓
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	✓
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	✓
NOT KNOWN	56	
OTHER (tick and note below)	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

① Boulders upper surfaces at 8-9m. Abundant red algae Abundant *Nemertesia* spp. (both but mostly *N. ramosa*) and *Monbellium ungus*. *Suberites domuncula* and *Lissoclinum perforatum* occasional. Dense patches of small muddy tubes (Amphipods?) on top of rocks amongst algae.

② Boulder vertical surfaces at 8-9m. Abundant sponges (*Raspailia ramosa*, *Lissoclinum perforatum* and *Suberites domuncula*), hydroids (*Nemertesia ramosa*) and ascidians (*Stolonica socialis*?, *Monbellium ungus*).

③ Cobbles and pebbles amongst gravel and silty sand at 10-11m. Cobles (*Pomatoschistus minutus*) *Alcyonidium diaphanum* abundant. Many *Cerianthus*, *Monbellium*, *Nemertesia antennina* and *N. ramosa*, *Pecten maximus*, *Asterias*.

④ Algae as substrate. *Obelia geniculata* and *Dendrodoa grossularia*

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Duke Rock Buoy (76) GRID REFERENCE: SX 480 509

DATE: 15/07/86 NAME OF RECORDER: A E Little

KEY TO HABITAT COLUMNS:

1. Bedrock boulders. 8 - 10m
2. ~~cobbles in muddy shingle 11 - 10m 8m~~ vertical bedrock 8 - 10m
3. cobbles in muddy shingle 8 - 11m
4. Algae as substrate
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum	O		O	O		
Ahnfeltia plicata						
Antithamnion plumula			C			
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides	O		O	O		
Bonnemaisonia hamifera						
Brongniartella byssoides	O		O	O		
Calliblepharis ciliata	C					
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata	O					
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta	O					
Cruoria pellita						
Cryptopleura ramosa			O	F		
Delesseria sanguinea	F					
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum			F			
Heterosiphonia plumosa	F		O			
Hypoglossum woodwardii						
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum			R			
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa	O	O				
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum	O		R	R		
Polyides rotundus						
Polyneura gmelinii	O		O			
Polyneura hilliae		O	O			
Polysiphonia elongata						
Polysiphonia sp.			O/F			
Pterosiphonia parasitica						
Radicilingua thysanorhizans	O		F			
Rhodomela confervoides	O		F			
Rhodophyllis divaricata	O			O		
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii		O				
Rhodymenia pseudopalmata	O	F				
Scinaia forcellata			O			
Scinaia turgida			O			
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta	F		C			
Dudresnaya	O		F			
Schmitzia hiscockiana			R			
S. neapolitana			?O			
Rhodymenia pseu. (spiky)		O				
? Naccaria wiggii			O			
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)	O		O	O		
?( )						

(Red) ✓

as first day Blaise cobbles hairy one like Nacc. wigg. no pinkie middle.

SITE NAME: 76

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa			O			
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata	O		O			
Desmarestia viridis			R			
Dictyopteris membranacea						
Dictyota dichotoma	O					
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea	O					
Laminaria ochroleuca						
Laminaria saccharina						
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
Sporochnus		O				
Filamentous Phaeophyta indet.	F	F		F		
Laminaria sporelings			O			
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa				R		
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.	O		O			
Ulva sp. (p)						
Laminaria						
ANGIOSPERMAE						
Zostera marina						
Red weed						
Phyoodrys rubens			R			
Phymatolithon polymorphum	O		O			
Schottera nicaeensis		O				
Trailliella				O		
Chondria desyphylla	O					
Polysiphonia ? elongata			O			
Polysiphonia ? macrocarpa			O			
Bacillariophyta indet.			O			
Antithamnion cruciatum			O			

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS – ANIMALS

(Not including species sampled from sediments)

SITE NAME: Duke Rock Buoy (76) GRID REFERENCE: SX 480 509

DATE: 15·7·86 NAME OF RECORDER: J.J Moore

KEY TO HABITAT COLUMNS:

1. Boulder, upper surface at 8-9m & bedrock
2. Boulder, vertical surface at 8-9m
3. Cobbles and pebbles amongst gravel and sand 8-11m
4. Algae on substrate
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea						
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa		R				
Stelletta grubii						
Stelligera stuposa						
Suberites ficus / domuncula	O		O			
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum		O				
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina	F	F	O			
Nemertesia ramosa	C	F	O			
Obelia dichotoma						
Obelia geniculata				O		
Plumularia setacea						
Sertularella polyzonias		O				
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii		R				
Cereus pedunculatus						
Cerianthus lloydii			F			
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii		O				
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						

SITE NAME: 76

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis			R			
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)						
Sabella pavonina						
Terebellidae indet.			R			
Pectinaria auricoma			R			
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
Maera othonis	? C					
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.			R			
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis		O				
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata			R			
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Embletonia pallida				R		
Doto fragilis		R				
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus			O			
Clamys varia			R			
BRYOZOA						
Alcyonidium diaphanum	O		C			
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata		O				
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
Bowerbankia imbricata		R				
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens			O			
Henricia oculatata						
Marthasterias glacialis			R			
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata			O			

SITE NAME: 76

	1	2	3	4	5	6
Asterina gibbosa			R			
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri		R	R			
Ciona intestinalis						
Clavelina lepadiformis	R		R			
Dendrodoa grossularia				R		
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum	R		R			
Mogula manhattensis						
Morchellium argus	C	C	O			
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis		O				
Styela clava	R					
Didemnum [illegible]			O			
Didemnum sp.			P			
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger			R			
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus			F			

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: N of Drakes Island SITE NO.: 77

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	470	529	TO		

LAT. LONG.

	°	'	°	'	W/E		°	'	°	'	W/E
		:		:		TO		:		:	

RECORDER: A.E. Little / K. Hiscock DATE: 16 D 07 M 86 Y

TIME IN 1023

TIME OUT 1053 BST/

DURATION 30 GMT

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- +1 m

DEPTH RANGE SURVEYED 0.5 to 2 M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 3-4 m

SITUATION (TICK ONE ONLY)

OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)

HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	✓
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)

VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	✓
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	✓
VERY WEAK (negligible)	40	

SALINITY (TICK)

NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)

THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	✓

ROCK TYPE (TICK)

IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below)	57	

SITE INFORMATION (TICK)

MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	✓
OTHER SOURCES OF DISTURBANCE (tick & note below)	67	✓

moorings & other water sports

OTHER DATA RECORDED

PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

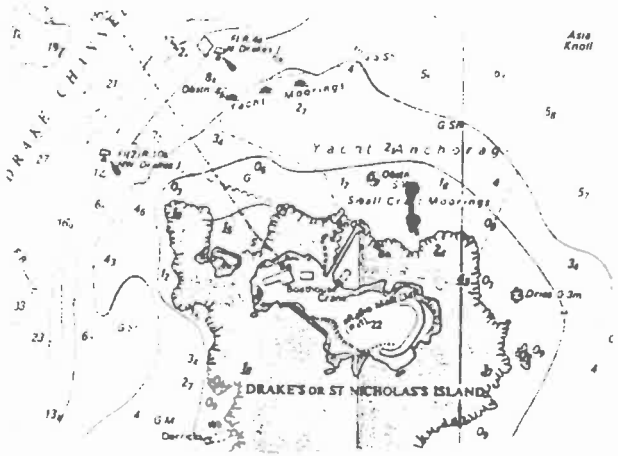
UNDERWATER DATA

SITE NO. 77

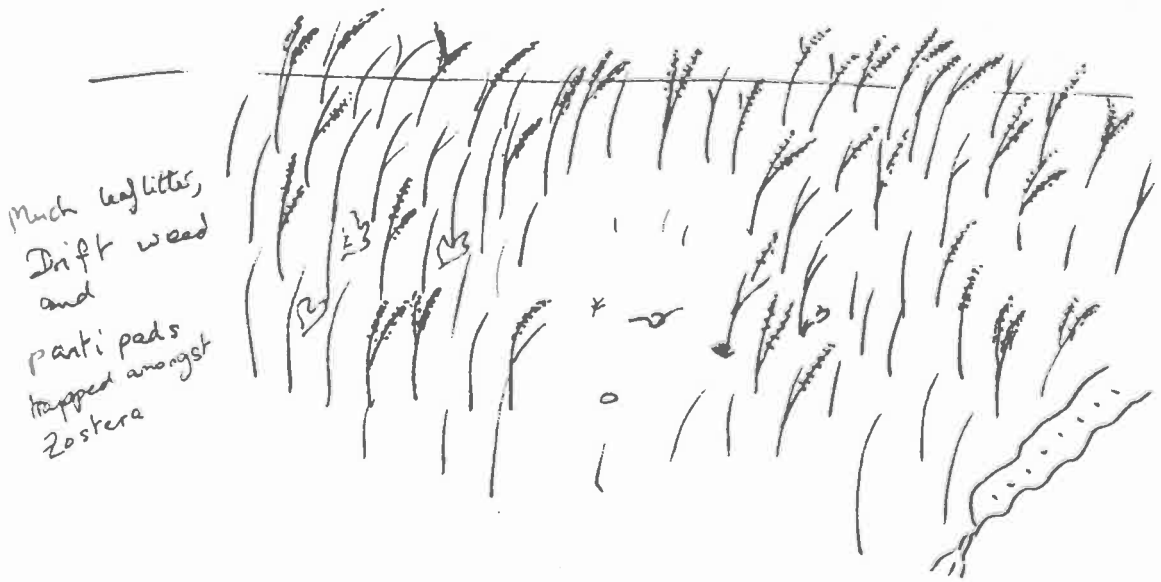
DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101	✓					
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓					
5-10	108						
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112						
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130	3					
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153	✓					
Plastic backed party pads		1					
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED							

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174						
HORIZONTAL	175	✓					
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220	3					
SOFT	221						
SMOOTH	222						
WORKED	223	1					
RIPPLED	224						
MOUNDS	225						
BURROWS	226	1					
SHELLS (INTACT)	227	1					
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240	3					
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244	2					
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 77

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

Dense bed of large heavily epiphyted Zostera marina with clinging fauna in fine sand with some silt. Sponge dibrid amongst the Zostera. Little variety of fish, and fauna on the Zostera leaves. Some 'flowers' 0.5 to 2m. The bed was impoverished

(1) On Seabed of fine muddy sand. Groups of Nassarius reticulatus feeding on Echinocardium cordatum amongst other things. A few paired siphons of Ensis sp plus (?) also Arenicola workings. Otherwise many female dragonets and Sand gobies, and several plaice and juvenile flatfish. Attached algae were scarce.

(2) On the Zostera leaves. There was dense growth of filamentous brown algae and colonial diatoms. older leaves also had minute foliose red algae, encrusting red algae, small brown foliose algae and the edges were fringed with Audouinella sp tufts.

(3) Over leaves - There was very little pelagic fish life but much drift algae amongst the plants.

(4) On attached algae - There were only a small number of species of which filamentous brown algae and Ceramium rubrum were most common.

5. On drift algae Polysiphonia quadrilineata was found on the many drift Polysiphonia lanosa plants.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: N. Drake's Island (77) GRID REFERENCE: SX 470 529

DATE: 16/07/86 NAME OF RECORDER: A.E. Lillie

KEY TO HABITAT COLUMNS:

1. Fine sand somewhat silty (occasional shells, stones, pebbles)
2. Zostera leaves as substrate
3. Water column amongst zostera
4. Algae as substrate (attached)
5. " " " (Drift)
6.

} use animal shell titles.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula						
Antithamnion spirographidis				R		
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides						
Calliblepharis ciliata						
Callithamnion sp.				O		
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum	F	F		F		
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata	R					
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa	O			F		
Delesseria sanguinea						
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii						
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum	R					
Palmaria palmata				O		
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii						
Polyneura hilliae						
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans	R					
Rhodomela confervoides	O					
Rhodophyllis divaricata						
Rhodophyllis sp.				O		
Rhodophyta indet. (encr.) pink		R				
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata		R				
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta	O					
Gracilaria verrucosa	O					
Porphyra sp.		R				
Audouinella sp.		F		O		
?Rhodophysema sp. (seaspec)		R				
Rhodophyta indet (foliose)		O				
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						
Enc. Rhodophyta indet red		F				

SITE NAME: 77

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata						
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma						
✓ Ectocarpoidea indet.	C	C		P		
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
✓ Laminaria saccharina	O					
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
✓ Saccorhiza polyschides	R					
Sargassum muticum						
~~Filamentous phaeophyta indet.~~	~~C~~	~~C~~		~~F~~		
✓ ? Punctaria latifolia		R				
✓ Asperococcus compressus				R		
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium.						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
✓ Enteromorpha sp.	O	R				
✓ Ulva sp. (p)	F					
ANGIOSPERMAE						
✓ Zostera marina	A					
✓ ~~Chrysophyta~~ ~~Bacillariophyta~~ indet ~~(as MH)~~	F	C		O		
~~Pelsea~~						
✓ ? Fosliella limitata		R				
✓ Polysiphonia sp.		O				
✓ Antithamnion cruciatum				R		
✓ Nitophyllum punctatum				O		

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: N. of Drakes Island (77) GRID REFERENCE: SX 470 529

DATE: 16.7.86 NAME OF RECORDER: K. Hiscock

KEY TO HABITAT COLUMNS:

1. Sealed of fine muddy sand below/between Zostera at 0.5 to 2m
2. On leaves of Zostera marina at 0.5 to 2m.
3. Over Zostera leaves (water column) at 0.5 to 2m.
4. On attached algae below Zostera at 0.5 to 2m
5. On drift algae between Zostera at 0.5 to 2m
6.

	1	2	3	4	5	6
PROTOZOA						
Paliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea						
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina						
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata		F			O	✓
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta					1	✓
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						

SITE NAME: 77

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)	O					
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega	R					
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)						
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)		R				
Caprellidae indet.		P				
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado	R					
Paguridae indet.						
Pagurus berhardus	R					
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria		O		O	O	
Nassarius incrassatus						
Nassarius reticulatus	O					
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
Lacuna vincta		R*				
Nassarius reticulatus (egg)		R				✓250
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Polycera quadrilineata		R		O	O	
Doridella obscura	x1					
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
Bivalve indet. (siphons)	R					✓250
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa					O	
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: / /

	1	2	3	4	5	6
✓ Ophiuroidea indet (juv)	R					
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Molgula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
✓ Callionymus lyra	O					
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
✓ Pleuronectidae indet. (juv.)	R					
Pleuronectys platessa						
✓ Pollachius pollachius						
✓ Pomataschistus minutus	R					

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						

* L. vincta / ad eggs were only observed at the deepest part of the Zostera

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: Below Tinnel

SITE NO.: 78

SURVEY AREA: 420 642

SEA AREA:

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	420	642	TO		

LAT. LONG.

	° '	° ' W/E		° '	° ' W/E
			TO		

RECORDER: K. Hiscock

DATE: 16 D 07 M 86 Y

TIME IN 1229

TIME OUT 1249 BST/

DURATION 20 GMT

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 4.6 m

DEPTH RANGE SURVEYED +2 to 4 m BELOW ~~SEA-LEVEL~~/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 0.4 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	✓

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	✓
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	✓
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	✓
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	✓
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below)	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	
ALGAL CHECKLIST	86	
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

SITE NO. 78

DEPTH ZONE (OPEN ROCK) (TICK ONE)		SIN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104	✓	✓				
NOT KNOWN	105						

DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓	✓				
5-10	108						
10-20	109						
20-30	110						
>30	111						

SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	3	3				
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114		2				
LG. COBBLES (128-256 mm)	115		1				
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						

ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						

ROCK COVER (SCORE 1-3)	1	2	3	4	5	6
KELP CANOPY						
ALGAL MEADOW						
ALGAL TURF						
ALGAL CRUST						
FAUNAL TURF		3				
FAUNAL BED						

OVERALL INCLINATION (TICK ONE)		SIN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172	✓					
STEEP (20-40°)	173						
SHALLOW (<20°)	174		✓				
HORIZONTAL	175						

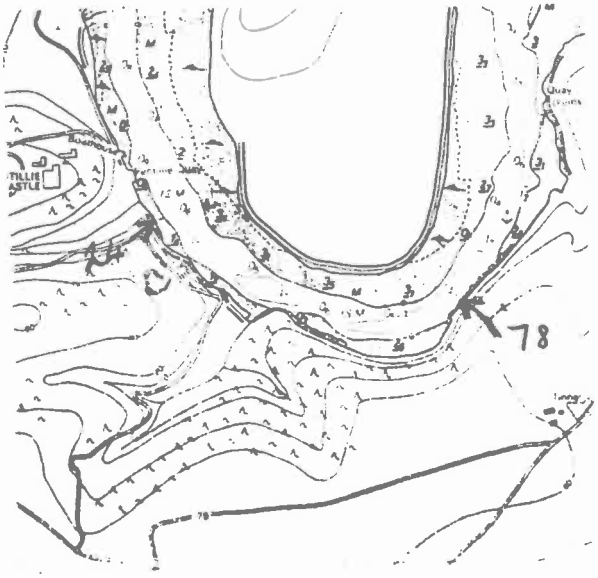
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178	3					
(TERRACES	179						
(LEDGES	180	2					
ROCK WALLS	181	2					
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196		3				
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						

SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						

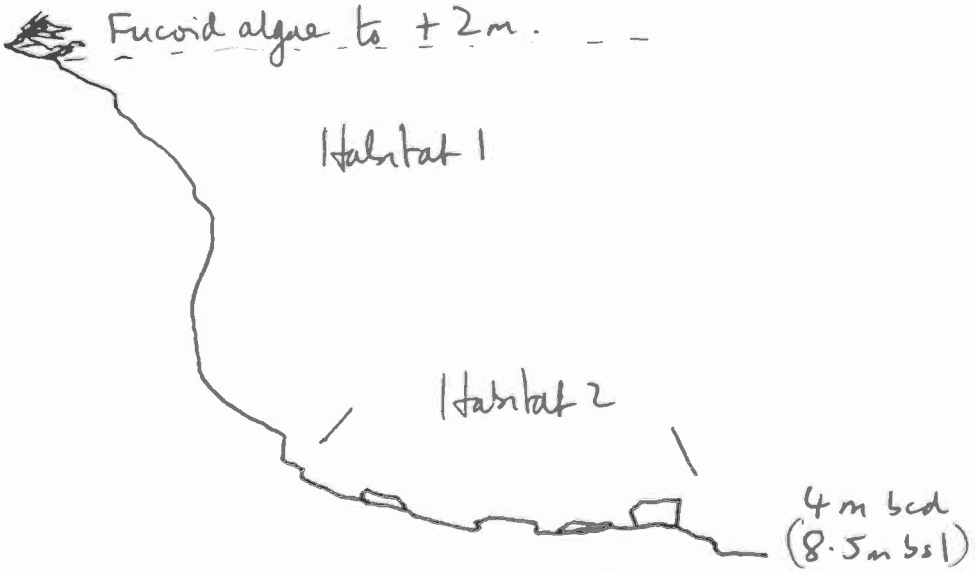
SEDIMENT COVER (SCORE 1-3)	1	2	3	4	5	6
SEAGRASS BED	240					
ALGAL MEADOW	241					
ALGAL TURF	242					
ALGAL MAT	243					
UNATTACHED ALGAE	244					
LIVE MAERL BED	245					
FAUNAL BED	246					

SITE NO.: 78

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 78

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

General Steeply sloping slate rock with ledges and overhangs dominated by Cordylophora lacustris at +1m to c. 3m where bedrock slopes gradually to an almost level seabed of bare (scoured) rock with small boulders.

Habitat 1 Steeply sloping broken slate rock at +1 to 3m. Dominated by Cordylophora lacustris (100% cover)

Habitat 2 Gradually sloping or horizontal bedrock and small boulders ~~largely bare~~ at 3 to 4m. Almost entirely bare except for a few scattered C. lacustris & smaller rocks, frequent Electra crustulata and rare Balanus sp.

SITE NO.: 89 (2)

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

General: Extensive broken, creviced, bedrock outcrops to 1.5m high overall, with coarse muddy sediment between (Ratio approx 3:1, bedrock : sedi) and rare cobbles & small bldrs.

Sedi at 13m. Top of b/rock c. 11.5m.

Upward facing surfaces dominated by >90% red foliose algae, mainly Delesseria, covered commonly with Electra. Sparse kelp plants of L. hyperborea & few Saccorhiza. Obelia & Membranipora on kelp. Actinothoe / Hemimycale / Halichondria between algae. A. digitatum occasional amongst algae.

Vertical - overhanging - steep slopes dominated by ascidians. Distomus most common at algae/animal interface (ie. least steep areas). Also frequent were Rycroclavella, & Morchellium & occasionally B. balanchii, B. schlosseri, Stolonica & Clavellina. Trididemnum are Halichondria, Hemimycale & other sponges on verts with occass. hydroids & erect bryozoans/encrust bryos. Barnacles frequent with spat occassionally occuring on bare rock in dense patches, mostly below o/hangs near sediment. Also near sedi/rock interface: Urticina / Pomatoceros / A. diaphanum. Anemones distributed widely but occassionally, also A. digitatum.

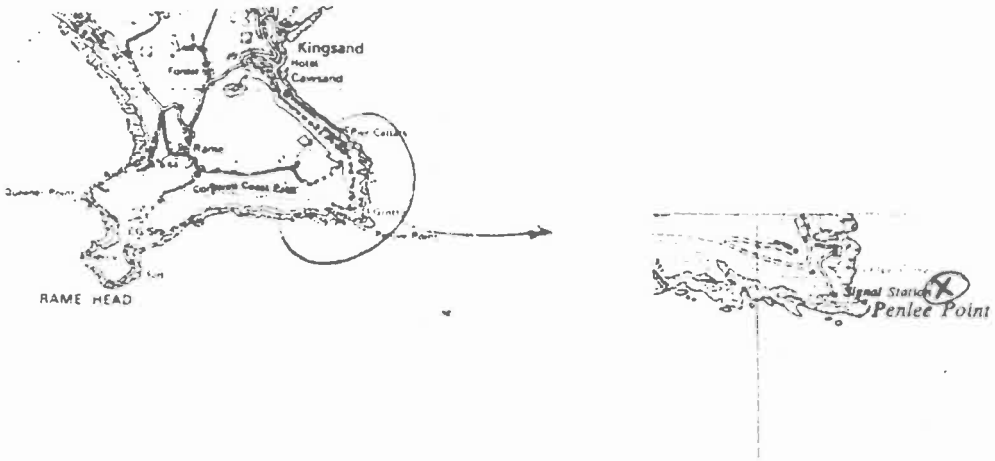
Crevices/caves Orange enc. bryo's, barnacles & barnacle spat & B. flabelliate freq. Also colonial ascidians, occassional Galathea & Eucumaria, several Sabella & single crabs, Cowes, Holothuria, Terebellids in crevice / sedi interface. + Antedon.

Sediment - Coarse muddy shell gravel / gravel with 2° pebbles and rare sm. cobbles → bldrs. Lifeless but for 1x Lanice, several Ophiothrix, Gobies & Calliongmus.

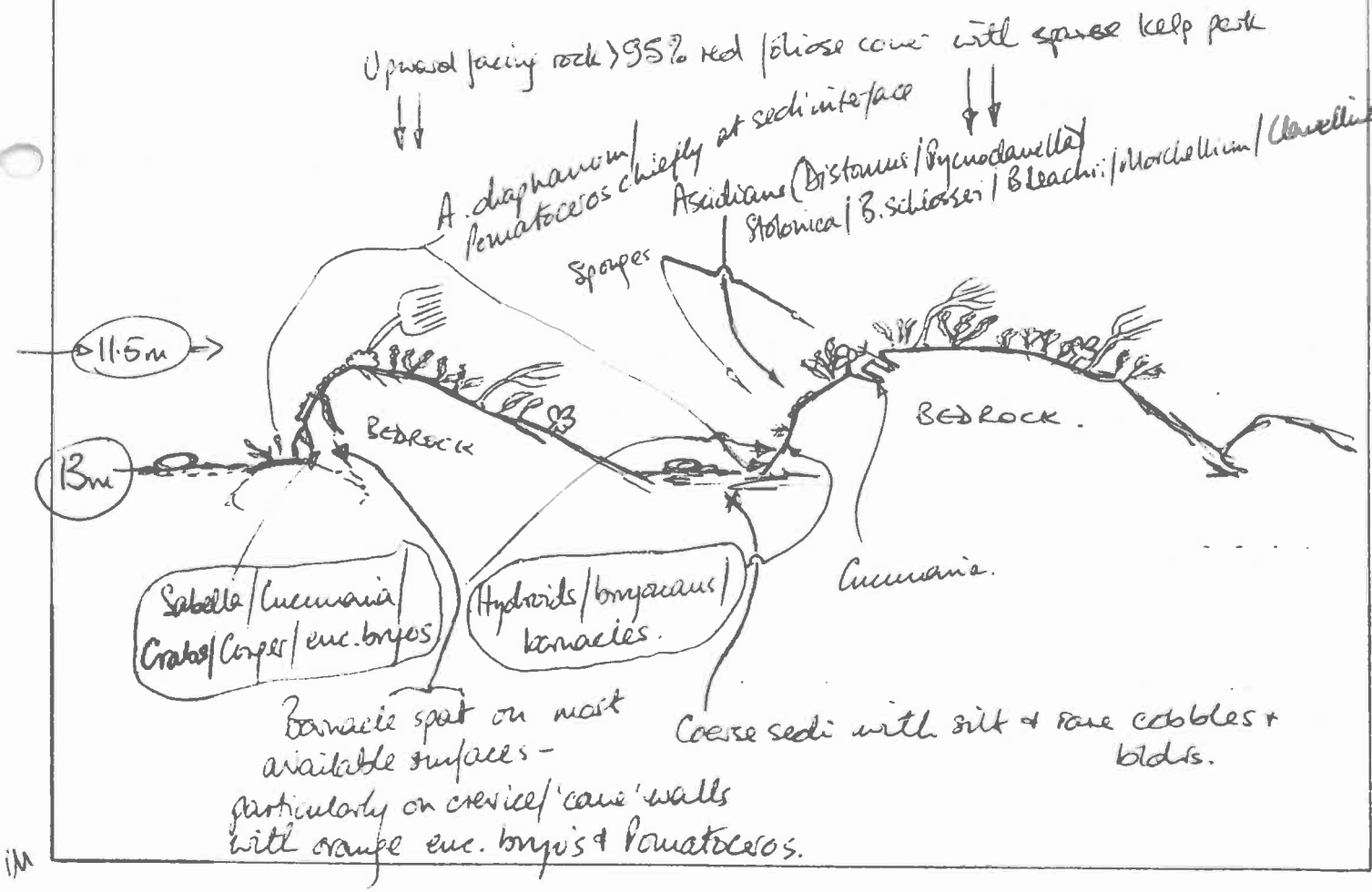
Asteroid echinoderms rare → frequent over all habitats.

SITE NO.: 89. (2)

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



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UNDERWATER DATA

SITE NO. 3) 12 \

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102	✓	✓	✓	✓	✓	
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107						
5-10	108						
10-20	109	✓	✓	✓	✓	✓	
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	3	3	3			
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114	1			1		
LG. COBBLES (128-256 mm)	115				1		
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117				1		
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120				2		
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122				2		
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124				2		
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127				3		
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134	2				3	
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY		2					
ALGAL MEADOW		3	2				
ALGAL TURF							
ALGAL CRUST		1	2				
FAUNAL TURF			2	2		2	
FAUNAL BED		2	2				

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170			✓			
VERTICAL (80-100°)	171		✓				
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174	✓					
HORIZONTAL	175				✓		
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176	3	3	3			
(UNBROKEN ROCK	177						
(BROKEN ROCK	178	3	3	3			
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181		2				
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184	2	2	3			
(SMALL FISSURES/CREV. (FINGER)	185	2	2	3			
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187		1	3			
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197	2					
THIN SILT ON ROCKS	198	2	1				
THICK/FLOC. SILT ON ROCKS	199	·					
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222			·	3		
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

#242

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: PENLEE PT. SITE NO.: 81 B

SURVEY AREA: PLYMOUTH SEA AREA: PLYMOUTH.

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX			TO SX	447	487

LAT. LONG.

	°	'	°	'	W/E		°	'	°	'	W/E
		:		:		TO		:		:	

RECORDER: S. BULLIMORE. DATE: 20 D 07 M 86 Y

TIME IN 1050

TIME OUT 1135 BST/

DURATION 45 GMT

DEPTH CORRECTION APPLIED? ~~NO~~ YES +/- 1.2 m

DEPTH RANGE SURVEYED 11.5-13 m BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 4 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	✓
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	✓
'LINEAR COAST'	7	
BAY	8	✓
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	✓
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	✓
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	✓
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	✓
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	✓
NOT KNOWN	56	
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

SITE NAME: Penlee Point (89) (1)

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali		R				
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri	O			F		
Ciona intestinalis						
Clavelina lepadiformis				F		
Dendrodoa grossularia	O	F		C		
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum		-	O	F		
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus	O	C		F		
Lissoclinum perforatum						
Mogula manhattensis						
Morchellium argus		R		F		
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius		F				
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis				R		
Thorogobius ephippiatus						
Trisopterus luscus						

SITE NAME: 89(1) Penlee Point

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)					C	
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)	R			O		
Sabella pavonina						
Terebellidae indet.						
Spirorbidae (on Corallina)	C					
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus	F			C		
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
Corophium sp		P				
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado	R	–		R	R	
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea	O	R				
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria	F	F	O	O		
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica ~~monacha~~			R			
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Jorunna tomentosa			R			
Kentrodoris rubra			R			
MOLLUSCA:BIVALVIA						
Chlamys opercularis				–		
Mytilus edulis				–		
Ostrea edulis						
Pecten maximus						
Tapes sp			P			
Musculus marmoratus *			P			
BRYOZOA						
Alcyonidium diaphanum	R					
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata				O		
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa	C					
Escharoides coccinea			O			
Flustra foliacea						
Membranipora membranacea	F					
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata				–		
Scrupocellaria reptans				–		
Scrupocellaria scrupea				–		
Scrupocellaria scruposa				–		
Scrupocellaria sp.				–		
Umbonula littoralis	F	C		F		
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens		O			R	
Henricia oculatata						
Marthasterias glacialis				R		
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

* With Distomum colini

#1 of 2

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS
(Not including species sampled from sediments)

SITE NAME: Penlee, PLYMT (89)(16) GRID REFERENCE: 443 487

DATE: 20.07.86 NAME OF RECORDER: DIXON / BENNETT

KEY TO HABITAT COLUMNS:

1. Sublittoral fringe at <0.3m (All depths CD)
2. Kelp forest at 1.8m
3. Kelp stipes at 1.8m
4. Current-swept gully sides between 1.8 - 3.0
5. Sediment in gully bottom at 3.0m
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata		R				
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Oysidea fragilis						
Halichondria panicea		O	F	O		
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina	:					
Nemertesia ramosa						
Obelia dichotoma	F	O				
Obelia geniculata						
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
Dynamena pumila			P			
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans		O		O		
Sagartia troglodytes					R	
Sagartiogetan undatus						
Urticina felina		R		O		

SITE NAME: 89(1)

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
✓ Cladostephus spongiosus				O		
Cystoseira baccata						
Desmarestia aculeata						
✓ Desmarestia ligulata				O		
Desmarestia viridis						
Dictyopteris membranacea		-				
Dictyota dichotoma						
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
✓ Laminaria hyperborea	A	P				
Laminaria ochroleuca						
✓ Laminaria saccharina	C			O		
✓ Phaeophyta indet. (encr.)	O					
Pseudolithoderma sp.						
✓ Saccorhiza polyschides	F	F				
Sargassum muticum						
✓ Fucus serratus	O					
✓ Himanthalia elongata	F					
heat ✓ Cystoseira foeniculacea	F	O				
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
✓ Chaetomorpha melagonium				O		
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
✓ Ulva sp. (p)	O	O	O	O		
✓ Cladophora sp		O		F		
ANGIOSPERMAE						
Zostera marina						

#1 of 2

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Penlee Point (89) (1) GRID REFERENCE: SX 443 487

DATE: 26/7/86 NAME OF RECORDER: Teresa Bennett

KEY TO HABITAT COLUMNS:

1. Sublittoral fringe <0.8m bcd
2. Kelp forest 0.3m bcd
3. Kelp stipes 0.8m bcd
4. Current swept gully sides 0.8–3.8m bcd
5. Sediment in gully bottom 3.8m bcd.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum				O		
Ahnfeltia plicata	F			O		
Antithamnion plumula						
Antithamnion spirographidis						
Apoglossum ruscifolium				O		
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Bronqniartella byssoides				O		
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata	O	O		O		
Ceramium rubrum (occ)	C			F		
Ceramium sp.						
Chondrus crispus	F			O		
Chylocladia verticillata						
Corallina officinalis	C	C		O		
Corallinaceae indet. (pink encr.)	F	F				
Cordylecladia erecta	O					
Cruoria pellita						
Cryptopleura ramosa	F	C		F		
Delesseria sanguinea	O	F				
Dilsea carnosa	F	F		O		
Drachiella spectabilis						
Furcellaria lumbricalis	O					
Gastroclonium ovatum				O		
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina				O		
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa		O		O		
Hypoglossum woodwardii				O		
Kallymenia reniformis		O				
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata			O			
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum				O		
Palmaria palmata			C			
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus	O					
Polyneura gmelinii						
Polyneura hilliae	O	O		O		
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica				O		
Radicilingua thysanorhizans						
Rhodomela confervoides	O					
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.)	O					
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
Calliblepharis jubata	O					
Lomentaria articulata	O					
Phycodrys rubens			O			
Rhodota plumosa	O					
Ceramium echionotum				O		
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NO.: 99(1)

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

HABITAT 1. Sublittoral fringe. This community occured just below that of the Fucus serratus zone on shore. Kelp dominated the habitat with a good cover of foliose red algae (eg Ceramium rubrum, Corallina officinalis, Chondrus crispus & Dilsea carnosa). beneath. The broken bedrock bottom varied in slope and had patches of sediment in places between some of the boulders.

HABITAT 2. A rock plateau at 0.8m bcd supporting kelp forest of L. hyperborea and Saccorhiza polyschides. Red foliose algae such as Cryptopleura ramosa, Delesseria sanguinea and Heterosiphonia plumosa were found beneath.

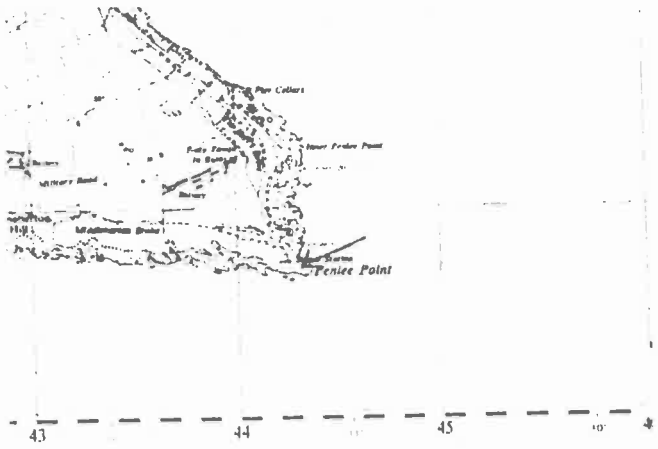
HABITAT 3. Kelp stipes were mainly covered with Palmaria palmata, but a few Phycodrys rubens, Membranoptera alata and Ulva sp plants were also attached.

HABITAT 4. Vertical gully sides having a patchy distribution of plants and animals. No kelp present here but red & green algae present such as Cryptopleura ramosa, Cladophora sp. and Ceramium rubrum plus many more. Smaller side gullies branched off from the main gully in places.

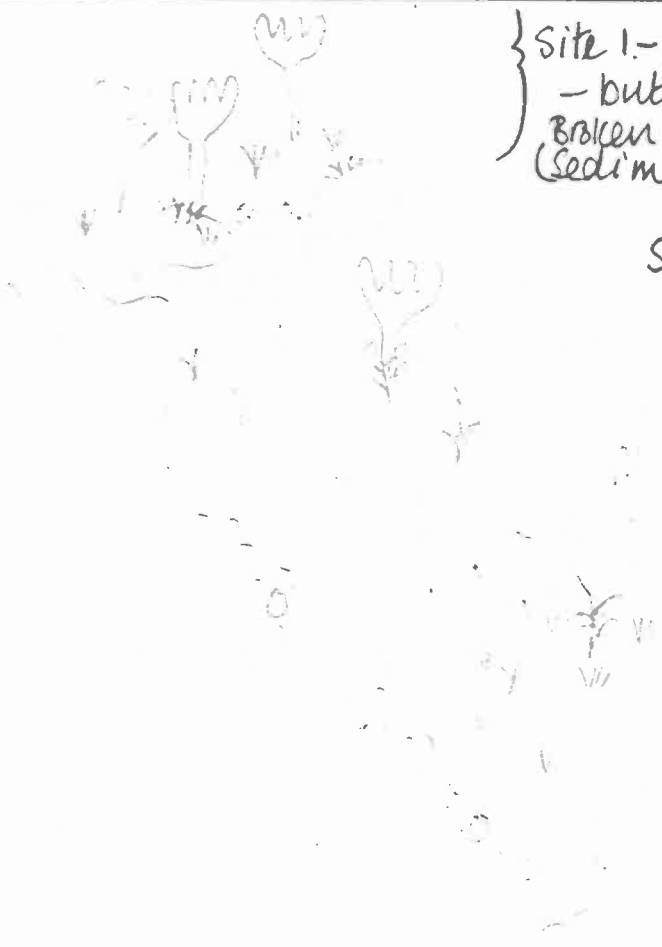
HABITAT 5. Sediment in gully bottom consisting of muddy gravel with patches of cobbles. Dead seaweed was trapped in places & was decomposing (fungi seen on top). Gas bubbling from sediment also, plus dead crab occasional (Liocarcinus pusber, Pagurus bernhardus, Cancer pagurus)

SITE NO.: 89 (1)

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



Site 1.- Sublittoral fringe - overall gently sloping - but of variable slope within that area. Broken bedrock with a few sediment patches. (Sediment as in site 5)

Site 2. - Rock platform at 0.3m bcd with kelp forest and a fairly good cover of red foliose algae.

Site 3. - Kelp stipes

Site 4. - Gully sides - vertical faces swept by current. About 50% cover of algae - (red foliose) No kelp in gully. Plant species having a patchy distribution.

Site 5. - Sediment & cobbles in gully bottom - Patchy dishibution of the larger cobbles along the bottom.

↖ Gully

UNDERWATER DATA

SITE NO. 89 11

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100	✓					
UPPER INFRALITTORAL	101		✓	✓			
LOWER INFRALITTORAL	102				✓		
UPPER CIRCALITTORAL	103					✓	
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓	✓	✓	✓	✓	
5-10	108						
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	3	3		3		
LG. BOULDERS (500 mm+)	113	1					
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121					2	
MED. & SM. PEBBLES (4-16 mm)	122					1	
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130					3	
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134			3			
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY		2	3	3			
ALGAL MEADOW		3	2		1		
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF		2	2		1		
FAUNAL BED						1	

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171				✓		
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174	✓					
HORIZONTAL	175		✓			✓	
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177		3				
(BROKEN ROCK	178	3					
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183				3		
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221					1	
SMOOTH	222						
WORKED	223					1	
RIPPLED	224						
MOUNDS	225					1	
BURROWS	226					1	
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED (Arenicola)	246					1	

#1 of 2

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: PENLEE POINT (89) SITE NO.: 89A

SURVEY AREA: SEA AREA:

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	443	487	TO		

LAT. LONG.

	°	'	°	'	W/E		°	'	°	'	W/E
		:		:		TO		:		:	

RECORDER: Teresa Bennett, Iain Dixon

DATE: 20 D 07 M 86 Y

TIME IN 1045

TIME OUT 1150 BST/~~GMT~~

DURATION 65

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 1.2 m

DEPTH RANGE SURVEYED 0-3.8 M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 4 m

SITUATION (TICK ONE ONLY)

OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	✓
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)

HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	✓

ROCKY COAST IN SHELTER OF HEADLAND

WAVE EXPOSURE (SURFACE) (TICK)

VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	✓
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)

NORMAL (around 34°/oo)	41	✓
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)

THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	✓

ROCK TYPE (TICK)

IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	✓
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)

MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED

PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

SITE NAME: 88

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus	E	O				
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.		F				
Holothuria forskali	C	O				
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula		F				
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis	F	O				
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Mogula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis		R				
Styela clava						
Diazona violacea		R				
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris		O				
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta	O					
Labrus mixtus	R					
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus		F				

SITE NAME: 88

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Ponatoceros sp. (p)						
Sabella pavonina						
Terebellidae indet.						
Salmacina dysteri	O					
Pomia tubularia		x1				
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia		A				
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum		x1				
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Dorid indet.	R					
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum	F					
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata		R				
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa		O				
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa		O				
Pentapora foliacea	C		O			
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
Omalozecia ramulosa	O					
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens	O	C				
Henricia oculatata						
Marthasterias glacialis	O	O				
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Entrance, Plymouth Sound (88) GRID REFERENCE: SX 477 460

DATE: 19-7-86 NAME OF RECORDER: J.J. Moore + K Hiscock

KEY TO HABITAT COLUMNS:

1. Bottom Upward facing slate bedrock at 27 to 30m
2. Vertical and overhanging slate bedrock at 30 to 34m.
3. In Eunicella verrucosa at 30-32m.
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Caliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
✓ Leucosolenia botryoides		O				
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
✓ Cliona celata	O	O				
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea						
✓ Halichondria bowerbanki	O					
Haliclona oculata						
✓ Hemimycale columella		x1				
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
✓ Raspailia ramosa	O					
Stellata grubii						
Stelligera stupesa						
Suberites ficus						
Tethya aurantium						
✓ Axinella damicornis		O				
✓ Axinella infundibuliformis		O				
✓ Axinella polypoides	R					

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera	R					
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina	F	O				
Nemertesia ramosa	F					
Obelia dichotoma						
Obelia geniculata						
Plumularia setacea	O	O				
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
Sertularella polyzonias		R				
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum	F	F	O			
Anemonia viridis						
Caryophyllia smithii	C	A				
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis		F				
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						
Eunicella verrucosa	A*	O				
Parazoanthus axinellae	F	F				
Alcyonium glomeratum	O	F				
? Amphithoas dohrni			P			
Leptopsammia pruvoti + incl 2 white		O				

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia liqulata						
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma			--			
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
Laminaria saccharina						
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera marina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Entrance 88 GRID REFERENCE: SX 477 460

DATE: 15/07/86 NAME OF RECORDER: AELith

KEY TO HABITAT COLUMNS:

1. upward facing rocks
2.
3.
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula						
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides						
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa						
Delesseria sanguinea						
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii						
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii	?0					
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides	:					
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii	0					
Polyneura hilliae						
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.) pink	[illegible]					
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
Rhodo indet encr red	Off					
Rhodymenia pseu (spiky)	0					
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

check spec

✓

✓

✓

✓

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

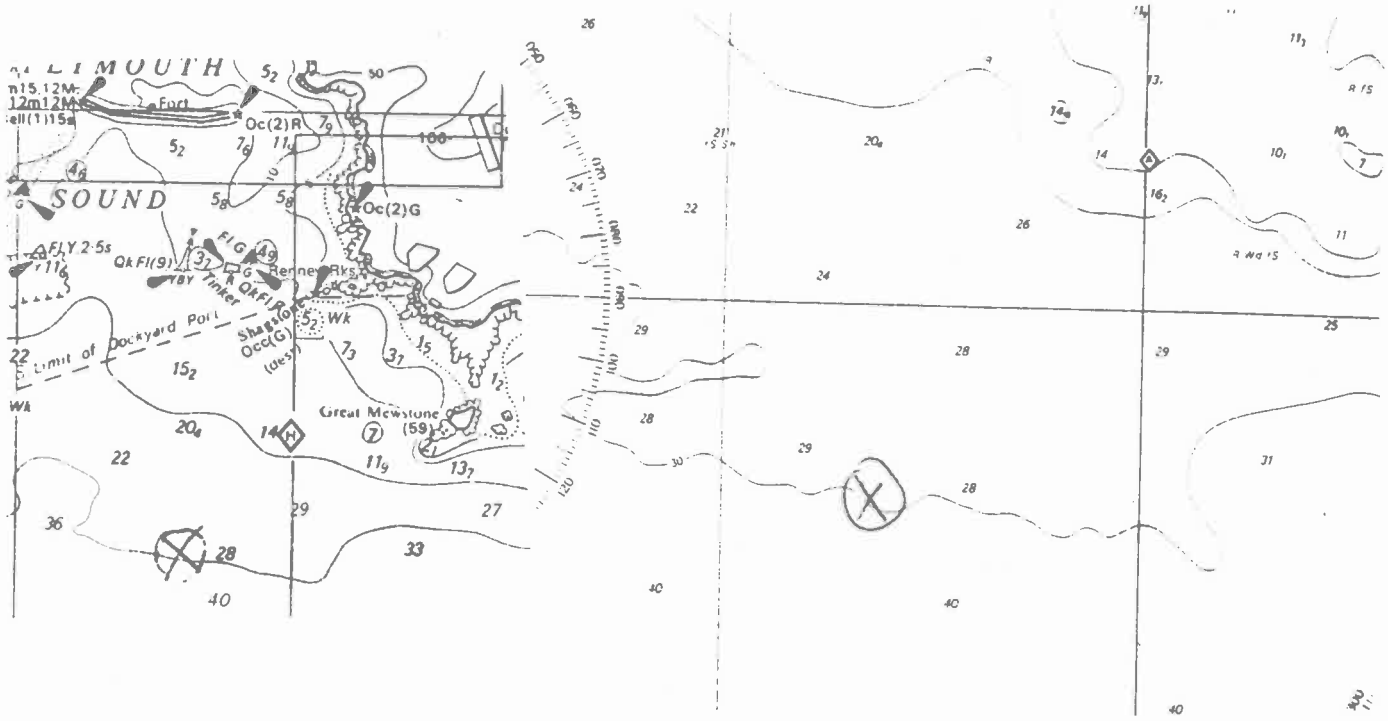
General Broken platform of slate bedrock at 27m bcd extending to areas of vertical and overhanging rock generally 2 to 3m high extending deeper than 34m. Spectacular beds of Eunicella verrucosa and notable record of Leptopsammia pruvoti. 2 × white Eunicella. Sparse erect Bryozoans and hydroids and low density of sponges.

Habitat 1 Broken upward facing slate bedrock at 27 to 30m colonised most conspicuously by Common Eunicella verrucosa, Pentapora foliacea, Holothuria forskali and Echinus esculentus and with Abundant Caryophyllia smithii on rocks below. Eunicella becomes Abundant near to the edge of the cliff. Sparse erect Bryozoa and Hydrozoa.

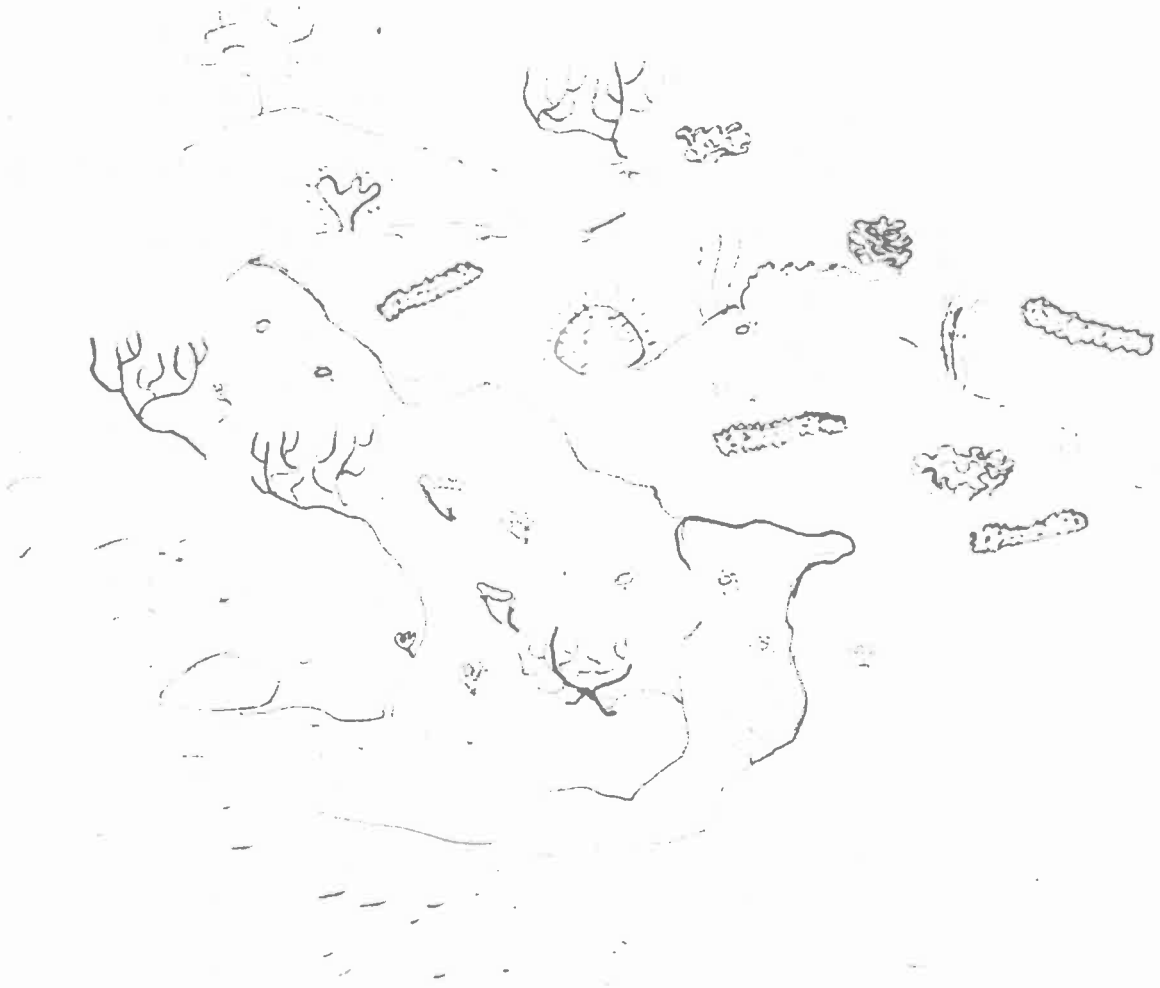
Habitat 2 Vertical and overhanging slate bedrock at 30 to 34m with high density of Verruca stroemia and Caryophyllia smithii and scattered large species including Frequent Ascidia mentula and Cucumaria sp with patches of Alcyonium glomeratum and Parazoanthus axinellae. One group of about 50 Leptopsammia pruvoti in an enclosed area of vertical rock

Habitat 3. On Eunicella verrucosa at 30-32m. Not thoroughly investigated but including Pentapora foliacea, Alcyonium digitatum and possibly Amphianthus dohrni

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



UNDERWATER DATA

SITE NO. 88

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102	✓					
UPPER CIRCALITTORAL	103	✓					
LOWER CIRCALITTORAL	104		✓	✓			
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107						
5-10	108						
10-20	109						
20-30	110	✓					
>30	111		✓	✓			
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	3	3				
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
FREE BRANCHES	136						
OTHER (score & note type below)	137						
Eunicella remnants				3			
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED		2	2				

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171		✓				
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174						
HORIZONTAL	175	✓					
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178	3	3				
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182		2				
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: Entrance, Plymouth Sound

SITE NO.: 88

SURVEY AREA: Plymouth

SEA AREA:

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	477	460	TO		

LAT. LONG.

	°	'	°	'	W/E		°	'	°	'	W/E
		:		:		TO		:		:	

RECORDER: J. Moore, T. Bennett, A.E. Little, K. Hiscock

DATE: 19 D 07 M 86 Y

TIME IN: 1123 BST/GMT

TIME OUT: 1252 BST/GMT

DURATION: 1:29

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 3.5 m

DEPTH RANGE SURVEYED 27.5-33.5 M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 15 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	✓
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	✓
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	✓
EXPOSED (prevailing wind)	31	✓
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	✓
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	✓
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	✓
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	✓
NOT KNOWN	56	
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURBANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	✓
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

SITE NAME: 87

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
✓ Ascidia mentula				x1		
Ascidiella aspersa						
✓ Botrylloides leachii	R					
✓ Botryllus schlosseri			x1			
Ciona intestinalis						
✓ Clavelina lepadiformis			C	F		
✓ Dendrodoa grossularia	R		O			
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
✓ Diplosoma listerianum	O			F		
Diplosoma spongiforme						
✓ Distaplia rosea		x1				
✓ Distomus variolosus		F	A			
Lissoclinum perforatum						
Mogula manhattensis						
✓ Morchellium argus			O	x1		
Phallusia mammillata						
✓ Polycarpa rustica	O	O	O			
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
✓ Styela clava		x1				
✓ 'Diplosoma indet' (pres from Deri's)		O				
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
✓ Ctenolabrus rupestris		F		O		
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6	
Sygnathus acus							
Taurulus bubalis			x1				✓
Thorogobius ephippiatus							
Trisopterus luscus							
Pharaus hippocrepis		x1					✓
Eridhomus punctatus			P		23	08	✓
Corophium ? bonelli			P		23	08	✓
Janira maculosa			P		23	07	✓
Corophium sextonae			P		23	08	✓

Present in limestone collected at 12m (Hat

? Thalassema thalassemum 200000 ✓
Apseudes talpa 2306 ✓
Sabella flabellata 2201 ✓
Cirriformia tentaculata 2201 ✓
Nereis pelagica 2201 ✓
Cattyana cirrosa 2201 ✓
Hiatella arctica ✓
Harmothoe spinifera 2201 ✓
Harmothoe impar 2201 ✓
Nicolea zostericola 2201

SITE NAME: 81

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
~~Filograna implexa~~ Salmacina dysteri	x1	R	R	R		
Lanice conchilega						
Myxicola infundibulum		x2				
Polydora sp.	O	O	A	C		
Pomatoceros sp. (p)	O					
Sabella pavonina						
Terebellidae indet.	R					
Myxicola aesthetica	A	A				
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus		P				
Elminius modestus						
Verruca stroemia		P				
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
Caraphium sp			P			
CRUSTACEA:DECAPODA						
Cancer pagurus	x1	x1				
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber	R	O	x1			
Macropodia rostrata		x1				
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria	O					
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus			x1			
Rostranga rubra	x1					
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
? Hiatella arctica				C		
Heteranomia squamula		P				
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata			F			
Bryozoa indet. (encr.)		R				
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa	:					
Cellepora pumicosa	O					
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa			P			
Scrupocellaria sp.		F	F/C			
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida			F	F		
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Eastern King Point (87) GRID REFERENCE: Sx 467 534

DATE: 18.7.86 NAME OF RECORDER: K Hiscock

KEY TO HABITAT COLUMNS:

1. Bedrock, cobbles and small boulders at 3.5m.
2. Bedrock, cobbles and small boulders at 6.5m.
3. Upwardward facing bedrock 10 to 14m.
4. Vertical and overhanging bedrock cliffs at 14 to 16m.
5. In limestone collected at 12m
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
✓ Scypha ciliata	R					
PORIFERA:DEMOSPONGIAE						
✓ Amphilectus fucorum				R		
Ciocalypta penicillus						
✓ Cliona celata			x1			
✓ Cliona sp. (boring)	F	O				
Dercitus bucklandi						
Dysidea fragilis						
✓ Halichondria panicea				?O		
Halichondria bowerbanki						
✓ Haliclona oculata			R	F		
Hemimycale columella						
✓ Hymeniacidon perleve	F	F	F	O		
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
✓ Polymastia mamillaris		R				
Polymastia boletiforme						
Raspailia hispida						
✓ Raspailia ramosa		R				
Stellata grubii						
Stelligera stuposa						
✓ Suberites ficus		F	F	x1		
Tethya aurantium						
✓ Porifera indet (yellow encr.)			P			

	1	2	3	4	5	6	
COELENTERATA:HYDROZOA							
Abietinaria abietina							
Aglaophenia pluma							
Aglaophenia tubulifera							
Campanularia angulata							
Halecium beanii			C	O			✓
Halecium halecinum		O					✓
Hydractinia echinata							
Hydrallmania falcata							
Nemertesia antennina	O	C	C				✓
Nemertesia ramosa	O	C	F				✓
Obelia dichotoma	O			F			✓
Obelia geniculata							
Plumularia setacea	F						✓
Sertularella polyzonias			x1				✓
Sertularia argentea							
Sertularia cupressina							
Tubularia indivisa							
Tubularia larynx							
Plumularia sp(p)		O/F	R				✓
Sagartia elegans nivea			F	C			✓
Sagartia elegans nivea				x1			✓
COELENTERATA:ANTHOZOA							
Actinothoe sphyrodeta	O	O	O				✓
Adamsia carciniopados							
Alcyonium digitatum							
Anemonia viridis							
Caryophyllia smithii							
Cereus pedunculatus	R	O	F				✓
Cerianthus lloydii							
Corynactis viridis			F	F			✓
Edwardsia claparedii							
Epizoanthus couchii							
Isozoanthus sulcatus							
Metridium senile			F	F			✓
Sagartia elegans							
Sagartia troglodytes							
Sagartiogetan undatus							
Urticina felina			F				✓

SITE NAME: 8 1

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata	F					
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
Laminaria saccharina	F					
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
Laminaria Sporling!	O					
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)	O					
ANGIOSPERMAE						
Zostera marina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: EASTERN KING POINT 187 GRID REFERENCE: SX 467 534

DATE: 18/7/86 NAME OF RECORDER: TERRY BENNETT

KEY TO HABITAT COLUMNS:

1. Bedrock, cobbles & small boulders at 3.5m
2. Bedrock, cobbles & small boulders at 6.5m
3. Upward facing bedrock 10-16m
4. Vertical and overhanging bedrock cliffs at 14-16m
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
✓ Acrosorium uncinatum	O					
Ahnfeltia plicata						
✓ Antithamnion plumula	O					
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
✓ Bonnemaisonia asparagoides	O					
Bonnemaisonia hamifera						
✓ Brongniartella byssoides	O					
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
✓ Callophyllis laciniata	R					
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
✓ Corallinaceae indet. (pink encr.	O	O				
Cordylecladia erecta						
Cruoria pellita						
✓ Cryptopleura ramosa	O					
Delesseria sanguinea						
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa						
✓ Hypoglossum woodwardii	O	O				
✓ Kallymenia reniformis	F	O				
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum	O					
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa		O				
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii	C	O				
Polyneura hilliae	F	O				
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

General Extensive gradual slope of limestone bedrock, small boulders and cobbles with some patches of coarse gravel. Hard substrata dominated by foliose algae and ?Myxicola aesthetica in shallow depths and Polydora sp and Distomus variolosus in deeper water. Nemertesia spp particularly abundant and conspicuous amongst quite a wide variety of other species. The slope terminates at ~~the~~ a cliff at 14m which extends to deep water. The cliff was colonised by Polydora sp with Hiatella siphons showing and with patches of Sagartia elegans nivea in large numbers and Metridium senile particularly at the tops of cliffs and small 'headlands'. Antedon bifida was frequent here. The deepest foliose algae recorded was at 8m bcd

Habitat 1 Bedrock cobbles and small boulders at 3.5m Dense foliose algae with some drift Laminaria saccharina Rocks mainly dominated by ?Myxicola aesthetica with sponge and hydroids.

Habitat 2 Bedrock, cobbles and small boulders at 6.5m Sparse algae with rocks dominated by ?Myxicola aesthetica and with common Nemertesia spp

Habitat 3. Upward facing bedrock at 10 to 14m dominated by Polydora sp with high cover of hydroids and sponges and frequent Antedon bifida. No algae

Habitat 4. Vertical and overhanging ~~and~~ bedrock cliffs at 14 to 16m colonised by Polydora sp and patches of Sagartia elegans nivea with frequent Halichlora oculata near the top, Corynactis viridis and Antedon bifida, amongst others, frequent

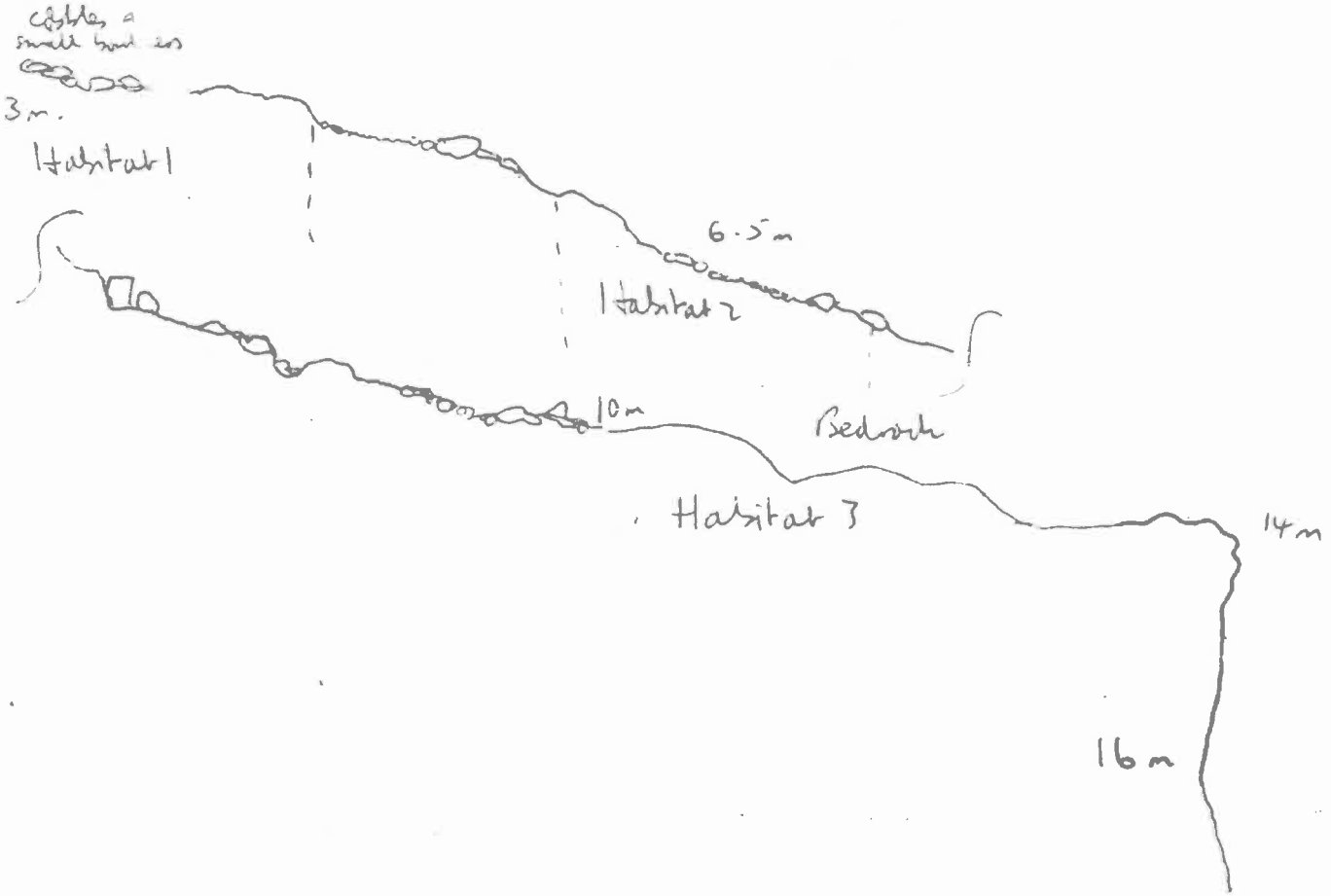
Habitat 4. In limestone collected at 12m. ~~Rocks~~ Small boulders and cobbles collected to investigate boring fauna revealed large numbers of Hiatella arctica, ?Myxicola aesthetica and various polychaetes especially.

SITE NO.: 87

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



UNDERWATER DATA

SITE NO. 87

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102	✓					
UPPER CIRCALITTORAL	103		✓				
LOWER CIRCALITTORAL	104			✓	✓		
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓					
5-10	108		✓				
10-20	109			✓	✓		
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	1	2	3	3		
LG. BOULDERS (500 mm+)	113	1	1				
SM. BOULDERS (256-500 mm)	114	2	2				
LG. COBBLES (128-256 mm)	115	2	2				
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117	2	2				
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120	2	2				
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124		1				
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW		2					
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED							

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171				✓		
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174	✓	✓	✓			
HORIZONTAL	175						
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177			3	3		
(BROKEN ROCK	178			2	1		
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181				3		
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: Eastern King Point — SITE NO.: 87

SURVEY AREA: Plymouth — SEA AREA:

OS GRID REF.:

	E – W	N – S	TO	E – W	N – S
SX	467	534			

LAT. LONG.

	°	'	°	'	W/E	TO	°	'	°	'	W/E

RECORDER: K. Hiscock — DATE: 18 D 06 M 96 Y

TIME IN: 1611

TIME OUT: 1703 BST/~~GMT~~

DURATION: 51

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 4.5 m

DEPTH RANGE SURVEYED 3 - 16 m BELOW ~~SEA LEVEL~~/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 4 m

SITUATION (TICK ONE ONLY)			WAVE EXPOSURE (SURFACE) (TICK)			ROCK TYPE (TICK)		
OPEN SEA (> 1 km offshore	1		VERY EXPOSED (prevailing wind and swell)	30		IGNEOUS	50	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2		EXPOSED (prevailing wind)	31		LIMESTONES	51	✓
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3		SEMI-EXPOSED (strong wind frequent)	32		HARD SAND./MUDSTONES	52	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓	SHELTERED (strong wind rare)	33		SOFT SAND./MUDSTONES	53	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5		VERY SHELTERED (fetch <20 km)	34	✓	HARD SLATE/SHALES	54	
			EXTREMELY SHELTERED (fetch <3 km)	35		FRIABLE SLATE/SHALES	55	
						NOT KNOWN	56	
						OTHER (tick and note below) :	57	

COASTAL TYPE (TICK)			MAX. TIDAL STREAM STRENGTH (TICK)			SITE INFORMATION (TICK)		
HEADLAND	6		VERY STRONG (6 k+)	36		MNR, NNR, LNR, SSSI NEARBY	65	
'LINEAR COAST'	7		STRONG (3-6 k)	37		SEWAGE/INDUSTRIAL OUTFALL NEAR	66	✓
BAY	8		MOD. STRONG (1-3 k)	38	✓	OTHER SOURCES OF DISTURANCE (tick & note below)	67	
SPIT/BAR	9		WEAK (<1 k)	39				
OFFSHORE SM. ISLAND	10		VERY WEAK (negligible)	40				
AMONGST ROCKS/ISLETS	11		**SALINITY (TICK)**					
SOUND/NARROWS	12		NORMAL (around 34°/oo)	41				
SHALLOW RAPIDS	13		VARIABLE (30°/oo+)	42	✓	**OTHER DATA RECORDED**		
SEA LOCH	14		LOW (<30°/oo)	43		PHOTOGRAPHS: SURF	80	
ESTUARY/MARINE INLET	15	✓	SALINITY MEASURED (TICK)	44		W-A	81	✓
COASTAL LAGOON	16		NOT KNOWN	45		C-U	82	✓
HARBOUR	17		**WATER STRATIFICATION (TICK)**			WATER ANALYSIS	83	
SEA CAVE	18		THERMOCLINE	46		SEDIMENT ANALYSIS	84	
WRECK	19		HALOCLINE	47		SPECIMENS COLLECTED	85	
OTHER (tick and note below)	20		NOT STRATIFIED	48		ALGAL CHECKLIST	86	✓
			NOT KNOWN	49		ANIMAL CHECKLIST	87	✓
						OTHER (tick and note below)	88	

SITE NAME: S of Knap Shoal 86

	1	2	3	4	5	6
Ophiuroidea indet (arms)			O			
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus		O				
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.	F					
Holothuria forskali		F	x1			
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula	O					
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis	O	O				
Dendrodoa grossularia						
Didemnidae indet. (yellow)	x1					
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum		O				
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Mogula manhattensis						
Morchellium argus	O	F				
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis	R					
Styela clava						
Pycnoclavella auriculans		x1				
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra			O			
Centrolabrus exoletus		O				
Crenilabrus melaps						
Ctenolabrus rupestris		F				
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta		R				
Labrus mixtus		O				
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus	x1					
Trisopterus luscus	O	F				
Carger carger	x1					
Squid eggs *			F			
Scyphistomae	R					

*  brown x1

SITE NAME: 86

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)			F			
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega			O			
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)	O	R				
Sabella pavonina						
Terebellidae indet.						
Protula tubularia	O					
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus		C				
Elminius modestus						
Verruca stroemia	A					
Cirripedia indet (juv)	A					
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus			<1			
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
Corystes cassivelaun			<2			
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Polycera faeroensis	<1					
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
Bivalvia indet (Syphons)			O			
BRYOZOA						
Alcyonidium diaphanum	O	F				
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata	O					
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa	O					
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa	O	F				
Pentapora foliacea		<1				
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
Cellaria salicornoides		R				
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens		R	F			
Henricia oculatata						
Marthasterias glacialis		C	R			
Ophiocomina nigra						
Ophiothrix fragilis	R					
Ophiura texturata						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: South of Knap Shoal (86) GRID REFERENCE: SX 463484 - 463486

DATE: 18.7.86 NAME OF RECORDER: K. Hiscock

KEY TO HABITAT COLUMNS:

1. Vertical and overhanging rock (including some upfacing for algae) at 16 to 17m
2. Bedrock and large boulders at 17 to 17.5m.
3. Muddy sand at ~~20~~ 18m.
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
✓ Leucosolenia botryoides		R				
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
✓ Cliona celata		x1				
Cliona sp. (boring)						
Dercitus bucklandi						
✓ Dysidea fragilis	R					
Halichondria panicea						
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
✓ Pachymatisma johnstonia	x1					
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6	
COELENTERATA:HYDROZOA							
Abietinaria abietina							
Aglaophenia pluma							
Aglaophenia tubulifera		x1					✓
Campanularia angulata							
Halecium beanii							
Halecium halecinum							
Hydractinia echinata							
Hydrallmania falcata							
Nemertesia antennina	C	F					✓
Nemertesia ramosa		F					✓
Obelia dichotoma	?F	?O					✓
Obelia geniculata							
Plumularia setacea	P	P					✓
Sertularella polyzonias	R						✓
Sertularia argentea							
Sertularia cupressina							
Tubularia indivisa							
Tubularia larynx							
Aglaophenia tubulifera		x1					✓
Plumularia catharina		P					✓
Plumularia cf halecinoides		P					✓
COELENTERATA:ANTHOZOA							
Actinothoe sphyrodeta							
Adamsia carciniopados							
Alcyonium digitatum	C	C					✓
Anemonia viridis							
Caryophyllia smithii	C	O					✓
Cereus pedunculatus							
Cerianthus lloydii							
Corynactis viridis	F						✓
Edwardsia claparedii							
Epizoanthus couchii		O					✓
Isozoanthus sulcatus							
Metridium senile							
Sagartia elegans							
Sagartia troglodytes							
Sagartiogetan undatus							
Urticina felina							
Eunicella verrucosa		F					✓
Corynthropodium corallioides	O						✓
Haplangia durotrix	R						✓
Parazoanthus ~~anguis~~ axinellae	R						✓
Alcyonium glomeratum	O						✓

SITE NAME: 86

	1	2	3	4	5	6	
PHAEOPHYTA							
Arthrocladia villosa							
Chorda filum							
Cladostephus spongiosus							
Cystoseira baccata							
Desmarestia aculeata							
Desmarestia ligulata	O						✓
Desmarestia viridis	D						✓
Dictyopteris membranacea	F						✓
Dictyota dichotoma	O	O					✓
Ectocarpoidea indet.							
Halidrys siliquosa							
Halopteris filicina							
Laminaria digitata							
Laminaria hyperborea							
Laminaria ochroleuca							
Laminaria saccharina							
Phaeophyta indet. (encr.)							
Pseudolithoderma sp.							
Saccorhiza polyschides							
Sargassum muticum							
Carpomitra costata		R					✓
Laminaria spurelings	R						✓
CHLOROPHYTA							
Bryopsis hypnoides							
Bryopsis plumosa							
Chaetomorpha melagonium							
Cladophora pellucida							
Cladophora pygmaea							
Cladophora rupestris							
Enteromorpha sp.							
Ulva sp. (p)							
ANGIOSPERMAE							
Zostera marina							

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS – PLANTS

(Not including species sampled from sediments)

SITE NAME: SOUTH OF KNAPP SHOAL (36) GRID REFERENCE: SX 463484 – 463486

DATE: 8/7/86 NAME OF RECORDER: TERESA BENNETT

KEY TO HABITAT COLUMNS:

1. Vertical and overhanging rock (mic. some upfacing for algae) at 6–7m
2. Bedrock and large boulders at 7–7.5m
3. Muddy sand at 8m.
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula						
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides	O					
Bonnemaisonia hamifera						
Brongniartella byssoides	F	O				
Calliblepharis ciliata	O					
Callithamnion sp.	O	O				
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)		O				
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa						
Delesseria sanguinea		O				
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa	O	O				
Hypoglossum woodwardii						
Kallymenia reniformis	O					
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum ?	O					
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa	O	F				
Phyllophora pseudoceranoides	:					
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum	C	O				
Polyides rotundus						
Polyneura gmelinii						
Polyneura hilliae		O				
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides	F	O				
Rhodophyllis divaricata						
Rhodophyllis sp.	F	C				
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata	O					
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
Rhodymenia pseudopalmata (spikey)	F					
Schottera nicaeensis		O				
Myriogramme sp.	O					
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NO.: 86

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

General Bedrock reef fringed by boulders with a steep dropoff from 16m to 18m where overhangs and vertical surfaces occurred. Top of reef (at edge) at 16m dominated by foliose algae (not described) leading down a rock slope and onto boulders dominated by Balanus crenatus under silt and with Common Alcyonium digitatum etc described below. Vertical and overhanging surfaces including small caves occurred in places. Bedrock and boulders terminated abruptly along a sharp front at a band of waved coarse sand leading to a fairly level plain of washed muddy sand with bivalve siphons and gastrinoid arms. Particularly notable species included Carpomitra costata, Porerythropodium corallioides and Hoplangia durotrix.

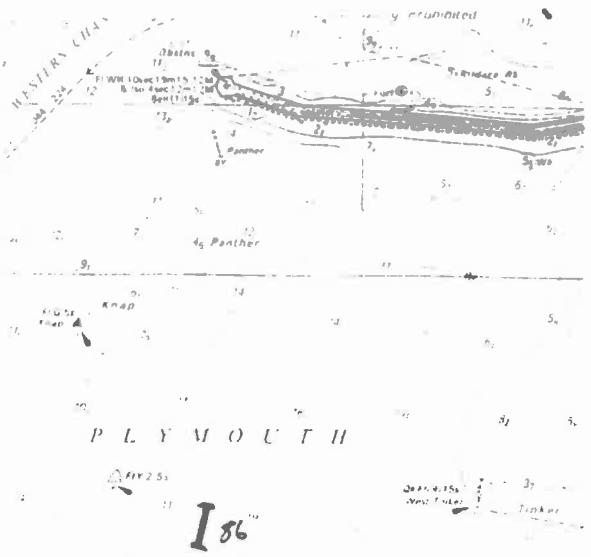
Habitat 1. Vertical and overhanging rock ~~for~~ at 16 to 17m. Predominantly covered by Verruca stroemia with Abundant Alcyonium digitatum and common Coryophyllia smithii amongst a small variety of other species which included Alcyonium glomeratum on vertical rock. Small caves formed under overhangs held small populations of Porerythropodium corallioides, Hoplangia durotrix and Parazoanthus axinellae.

Habitat 2 Bedrock and large boulders at 17 to 17.5m. Upward facing surfaces here were colonised by a sparse cover of algae with Frequent Eunicella verrucosa, Nemertesia spp etc on Balanus crenatus dominated rock.

SITE NO.: 86

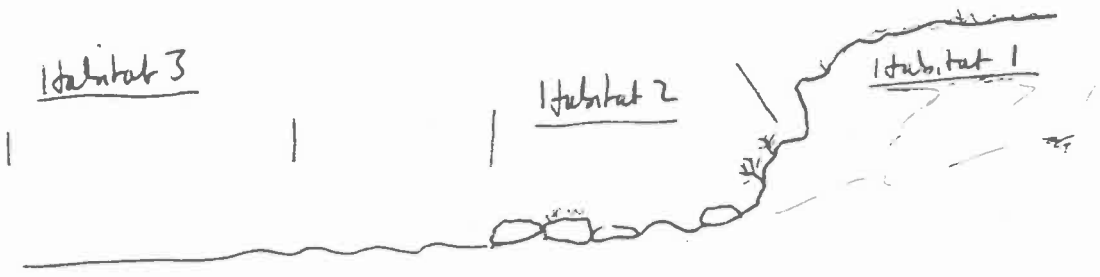
SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)

Bearings for rock area:
Light House W end breakwater = 10°M
Fort Bovisand signal mast ~ 55°M
Coastguard Hse, Penlee = 275°M
Middle Pickleridge Fort = 347°M



I 86

SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



UNDERWATER DATA

SITE NO. 86

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101		✓				
LOWER INFRALITTORAL	102	✓	✓				
UPPER CIRCALITTORAL	103			✓			
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107						
5-10	108						
10-20	109	✓	✓	✓			
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	3	2				
LG. BOULDERS (500 mm+)	113		3				
SM. BOULDERS (256-500 mm)	114		1				
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130			3			
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW		2					
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED							

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170		·				
VERTICAL (80-100°)	171		✓				
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174	✓					
HORIZONTAL	175			✓			
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178	3					
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181		2				
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187		1				
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220			3			
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: South of Knap Shoal

SITE NO.: 86

SURVEY AREA: Plymouth

SEA AREA:

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	463	484	TO	SX	463	486

LAT. LONG.

	°	'	°	'	W/E		°	'	°	'	W/E
		:		:		TO		:		:	

RECORDER: K. Hiscock

DATE: 19 D 07 M 86 Y

TIME IN 1647

TIME OUT 1121 BST/~~GMT~~

DURATION 26

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 2.3-2.5 m

DEPTH RANGE SURVEYED 16-18 m BELOW ~~SEA LEVEL~~/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 6 m

SITUATION (TICK ONE ONLY)

OPEN SEA (> 1 km offshore	1	✓
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)

HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	✓
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)

VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	✓
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	✓
VERY WEAK (negligible)	40	

SALINITY (TICK)

NORMAL (around 34°/oo)	41	✓
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)

THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	

ROCK TYPE (TICK)

IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	✓
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)

MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED

PHOTOGRAPHS: SURF	80	
W-A	81	✓
C-U	82	
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

SITE NAME: 85

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Molgula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
✓ Pleuronectidae indet. (juv.)	0					
Pleuronectys platessa						
Pollachius pollachius						
Pomatoschistus minutus						

	1	2	3	4	5	6
Syngnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
Pomatoschistus sp.	F					
Syngnathus acus	R					

SITE NAME: DO

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)	F (overall locally C)					
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega	C (overall locally C)					
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)						
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus	P					
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas	F					
Crangon [redacted] sp.	O					
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.	F					
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
Mysid indet	F					
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa	P					
Bicellariella ciliata						
Bryozoa indet. (encr.)	P	F				
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
? Plus Mysidae 'A'	F					
Bowerbankia imbricata	P					
Conopeum ?reticulata	P.					
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: STEER PT. (85) GRID REFERENCE: SX545497 → 455495.

DATE: 170786. NAME OF RECORDER: B. BULLIMORE

KEY TO HABITAT COLUMNS:

1. LWR. INFRA. FIRM MUDDY SAND PLAIN + DEBRIS
2. POWER CABLE at 1m
3.
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
✓ Cliona sp. (boring)		R				
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea						
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
✓ Hymeniacidon perleve	O	O				
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						
✓ Suberites domuncula	R					

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata	O					✓
Hydrallmania falcata						
Nemertesia antennina						
Nemertesia ramosa						
Obelia dichotoma	P					✓
Obelia geniculata						
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina	O	O				✓
Tubularia indivisa						
Tubularia larynx						
Hartlaubella gelatinosa	P					✓
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus		R				✓
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile	R	C				✓
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						

	1	2	3	4	5	6	
PHAEOPHYTA							
Arthrocladia villosa							
Chorda filum	✓						
Cladostephus spongiosus							
Cystoseira baccata							
Desmarestia aculeata							
Desmarestia ligulata							
Desmarestia viridis							
Dictyopteris membranacea							
Dictyota dichotoma							
Ectocarpoidea indet.							
Halidrys siliquosa							
Halopteris filicina							
Laminaria digitata							
Laminaria hyperborea							
Laminaria ochroleuca							
Laminaria saccharina							
Phaeophyta indet. (encr.)							
Pseudolithoderma sp.							
Saccorhiza polyschides							
Sargassum muticum							
Fucus sp (? alive)	✓						covered in live epiphytes.
CHLOROPHYTA							
Bryopsis hypnoides							
Bryopsis plumosa							
Chaetomorpha melagonium							
Cladophora pellucida							
Cladophora pygmaea							
Cladophora rupestris							
Enteromorpha sp.	✓	✓					
Ulva sp. (p)	✓						
ANGIOSPERMAE							
Zostera marina							

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: 85 GRID REFERENCE: SX 545 497 to SX 455 495.

DATE: 17/07/86. NAME OF RECORDER: Blaise Bullimore / AEL.

KEY TO HABITAT COLUMNS:

1. ?slates (occasional ~ ?mud see Animal sheet) } Presence/Absence only from collection by B.B.
2. Algae as substrate
3.
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula	✓					
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides						
Calliblepharis ciliata						
Callithamnion sp.	✓	✓				
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum		✓				
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa						
Delesseria sanguinea						
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii		✓				
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii						
Polyneura hilliae						
Polysiphonia elongata						
Polysiphonia sp.	✓					✓
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr. pink)	✓					
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
Rhodophyta indet (encr) red.	✓					✓
Gracilaria verrucosa	✓					✓
Polysiphonia ? nigra	✓	✓				✓
Polysiphonia ? macrocarpa	✓					✓
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						
Bacillariophyta indet.	✓					✓

SITE NO.: 85

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

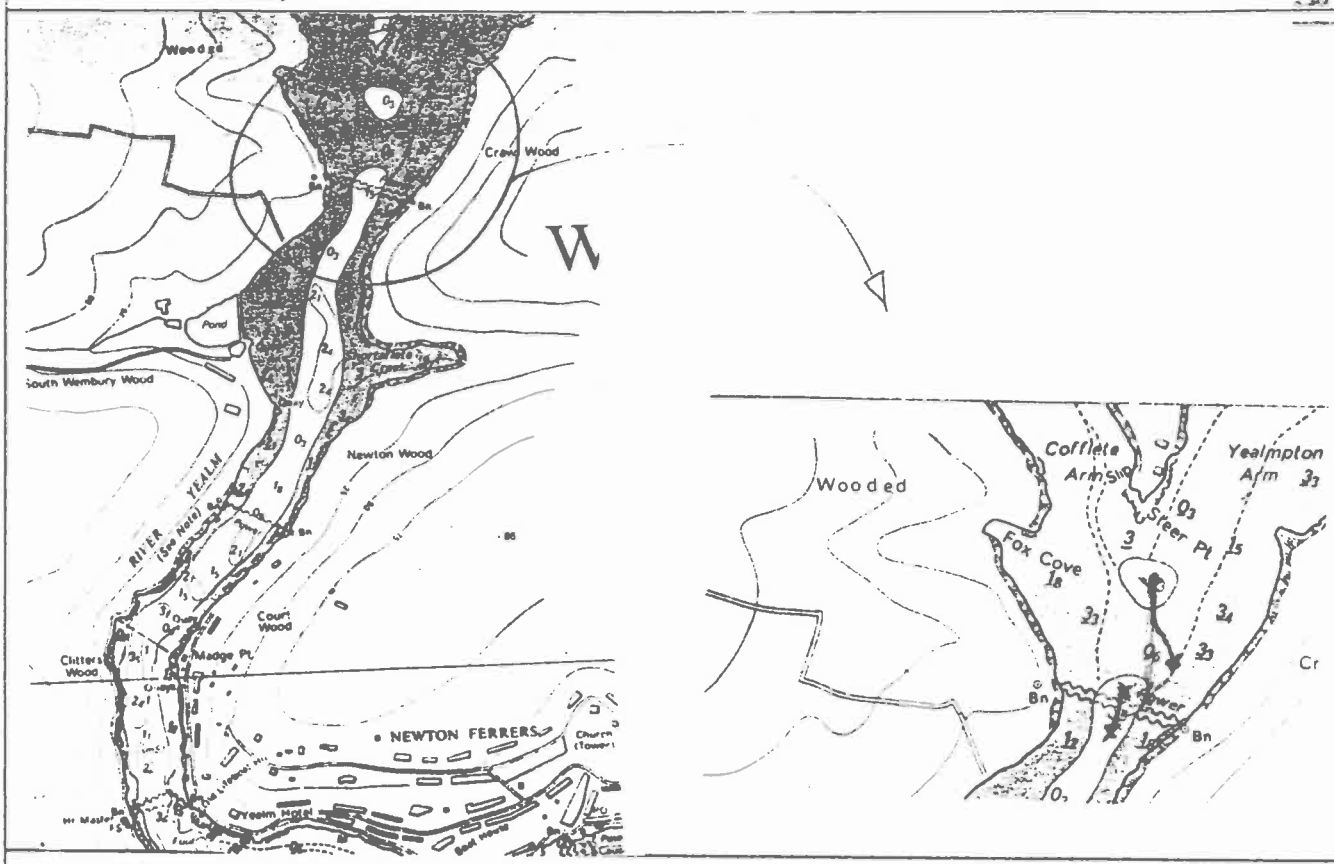
(1) Firm muddy sand plain. Stick/leaf etc. debris of all but also in extensive patches. Arenicola casts to 10+/m² generally. Lanice in several areas → 10+/0.01m² – mostly in debris areas. Large (>20cm) & small unattached Hymeniacedon occ. several Pagurus with Suberites on shell, others with Hydractinia. Juv. flatties, gobies, mysids. Carcinus & single Sygnathus present
B. cren common on bottle, occ. elsewhere,

Scrub shells. Stir leaves.

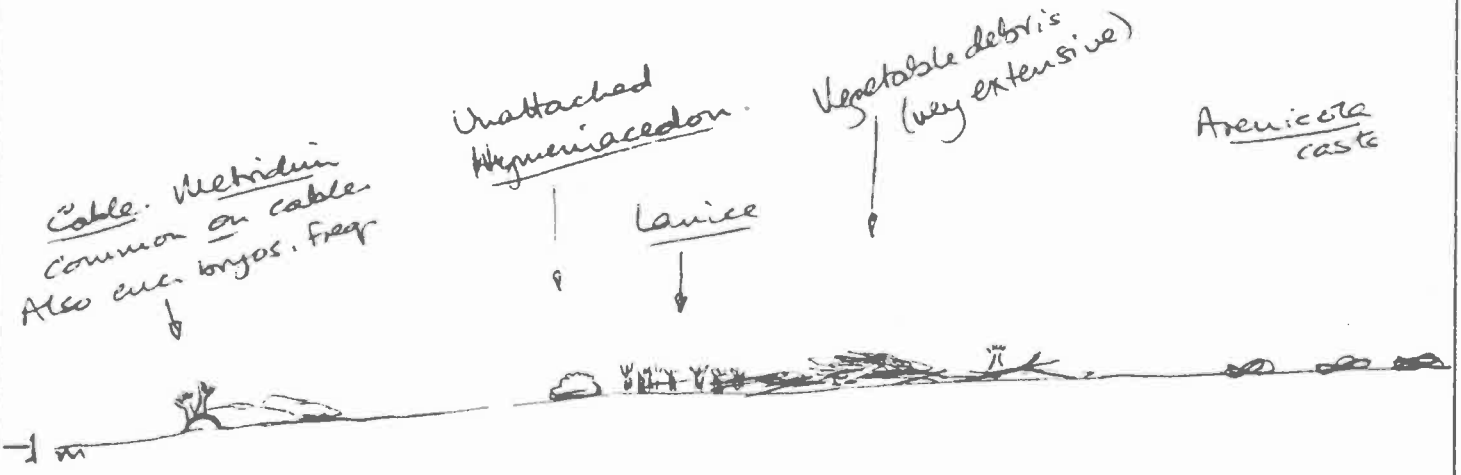
(2) Power cable. Growing on cable: Metridium: C, enc. bryo's F. Cable trapping drift debris and algae → sponges (Hymeniacedon) Suberites hydroids, algae, Cereus in + on debris.

SITE NO.: 85

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



Sertularia/Hydroniacedon
Boxobaulia over in algal mat held upstream by cable.

UNDERWATER DATA

SITE NO. 85

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102	✓	✓				
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓	✓				
5-10	108						
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112						
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64mm)	121						
MED. & SM. PEBBLES (4-16mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153		✓				
POWER CABLE							
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED							

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174						
HORIZONTAL	175						
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: STEER PT. (R. YEALM) SITE NO.: 85.

SURVEY AREA: PLYMOUTH. SEA AREA: PLYMOUTH.

OS GRID REF.:

	E-W	N-S		E-W	N-S
SX	545	497	TO SX	455	495

LAT. LONG.

	°	'	°	'	W/E		°	'	°	'	W/E
						TO					

RECORDER: B. BULLIMORE. DATE: 17 D 07 M 86 Y

TIME IN 1531

TIME OUT 1622 BST/~~GMT~~

DURATION 45

DEPTH CORRECTION APPLIED? ~~NO~~/YES -4.1 m

DEPTH RANGE SURVEYED 0-1 M BELOW ~~SEA LEVEL~~/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 1.5 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENCLOSED COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	✓

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	✓
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	?
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	✓

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	✓
HALOCLINE	47	✓
NOT STRATIFIED	48	
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	✓
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURBANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	✓
C-U	82	
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

SITE NAME: 84

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Molgula manhattensis						
Morchellium argus	R					
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)	0					
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
Pomatoschistus sp.	F					
Sygnathus acus	R					

SITE NAME: 64

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)						
Sabella pavonina	R (x1 ONLY)					
Terebellidae indet.	P					
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus	P					
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas	O					
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.	F					
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
Mysids indet	F					
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus	P					
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis	R (x1 ONLY)					
Pecten maximus						
Venerupis pellucstra	R (x1 ONLY)					
Venus striata	R (x1 ONLY)					
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
Bowerbankia imbricata	P					
Conopeum ?reticulata	P					
Unid sp A?	F					
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: SHORTAFLETE CREEK (R. TAMAR) (84) GRID REFERENCE: SX543 492

DATE: 170786. NAME OF RECORDER: B. BULLIMORE

KEY TO HABITAT COLUMNS:

1. LWR INFRA. SOFT SANDY MUD PLAIN. OCC. DEBRIS.
2.
3.
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea						
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve	O					
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						
Suberites domuncula	O					

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata	O					✓
Hydrallmania falcata						
Nemertesia antennina						
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata						
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina	O					✓
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus	R (X1 ONLY)					✓
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes	R					✓
Sagartiogetan undatus	O					✓
Urticina felina						

STN. NAT: 84

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata						
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
Laminaria saccharina						
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa		✓				
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)						
Cladophora sp		✓				
Chaetomorpha sp	✓					
ANGIOSPERMAE						
Zostera marina						
Bacillariophyta indet	✓	✓				

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: SHORTAFLEET CREEK (F.R. YEALM) (94) GRID REFERENCE: SX 543492

DATE: 170786 NAME OF RECORDER: [illegible]

KEY TO HABITAT COLUMNS:

1. LWR INFRALITT. SOFT SANDY MUD PLAIN. OCC. DEBRIS
2. ALGAE AS SUBSTRATE.
3.
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula	✓	✓				
Antithamnion spirographidis	✓	✓				
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides						
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum		✓				
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa		✓				
Delesseria sanguinea						
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides	✓					
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii						
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii						
Polyneura hilliae						
Polysiphonia elongata						
Polysiphonia sp.		✓				
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
? Ptilothamnion pluma		✓				
Gracilaria vermicosa	✓					
Polysiphonia nigrescens	✓					
Polysiphonia ? nigra		✓				
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NO.: 84

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

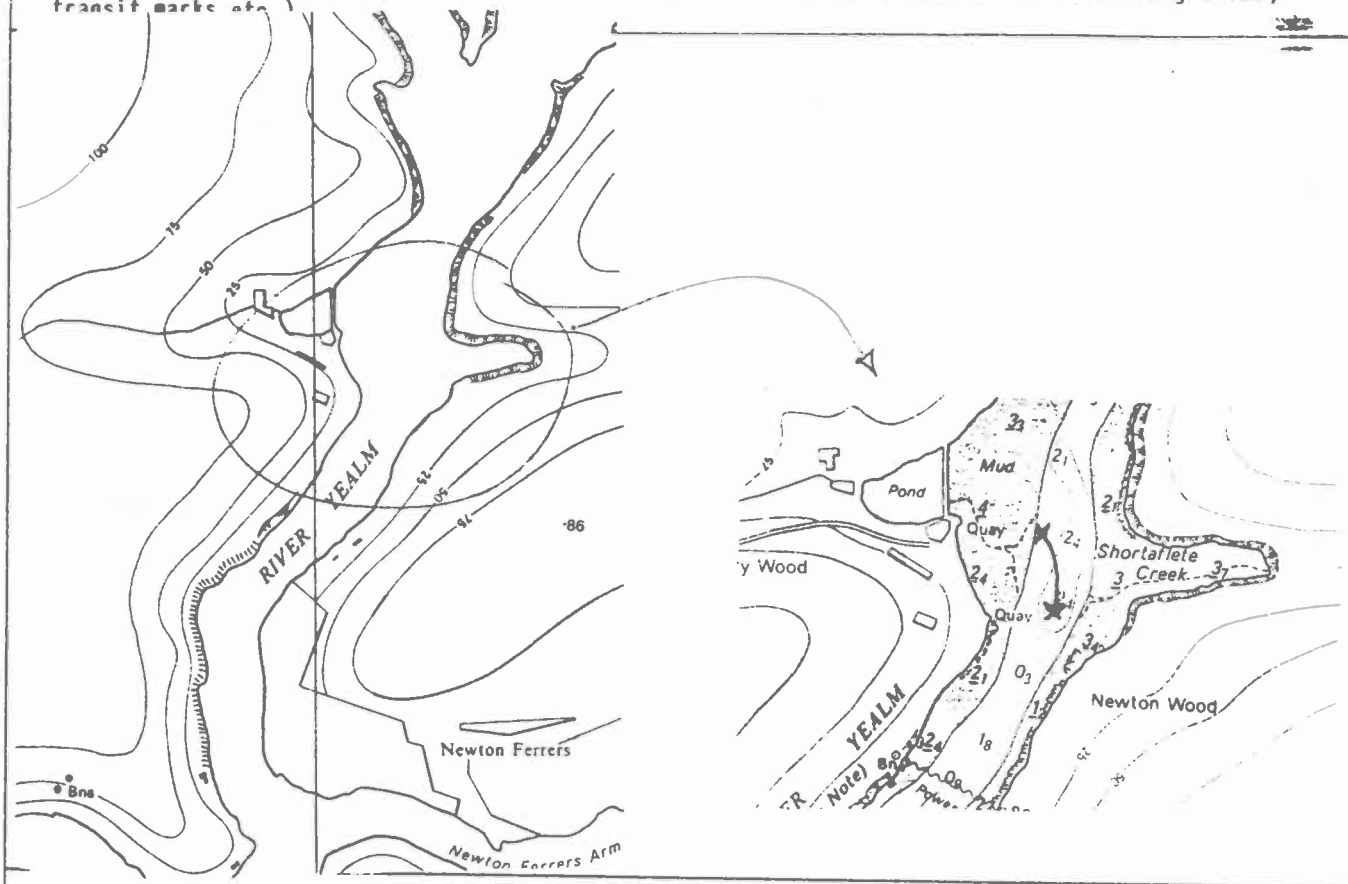
Firm sandy mud plain. Occasional small mats of Antithamnion plumula together with Bowerbankia, attached to shell frag's & sticks also Sertularia cupressina & enc. bryos. Anemones in Sedi ~ Sagartiageton, 1x Cereus, Sagartia frag. Also small & lge Metridium on sticks & shells. 1x Ostrea, 1x Sabella, 1x several Morchellium colonies.

Pomatoschistus (? pictus) F., juv. flatties F, Mysia's F & Pagurids F, many with Hydractinia & some with Suberites.

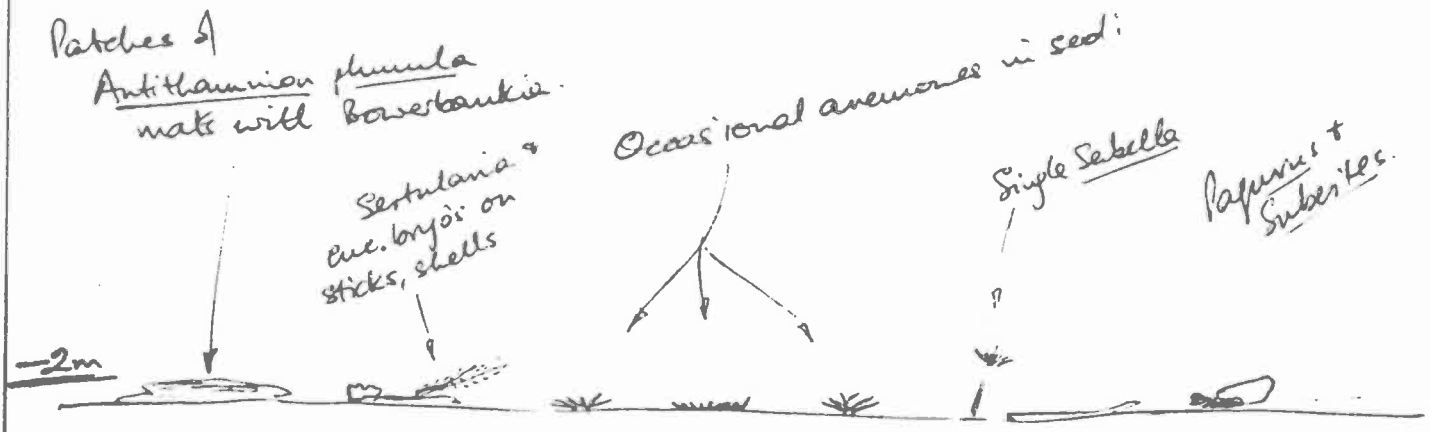
Small Hymeniacedon perlene sponges occ. unattached & attached to small debris fragments

SITE NO.: 84

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



UNDERWATER DATA

SITE NO. 84

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102	✓					
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						

DEPTH BAND (m) BELOW CD (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
<0	106						
0-5	107	✓					
5-10	108						
10-20	109						
20-30	110						
>30	111						

SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		STN./HABITAT 1	2	3	4	5	6
BEDROCK	112						
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127	2					
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131	3					
MUD	132	2					
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135	2					
TREE BRANCHES	136	2					
OTHER (score & note type below)	137						

ARTIFICIAL SUBSTRATUM (SCORE 1-3)		STN./HABITAT 1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152	2					
OTHER (tick & note/score below)	153						

ROCK COVER (SCORE 1-3)	STN./HABITAT 1	2	3	4	5	6
KELP CANOPY						
ALGAL MEADOW						
ALGAL TURF						
ALGAL CRUST						
FAUNAL TURF						
FAUNAL BED						

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174						
HORIZONTAL	175						

ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						

SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220	3					
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227	2					
OTHER (tick & note/score below)	228						

SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243	2					
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: SHORTAFLETE CREEK (R. YEALM) SITE NO.: 84

SURVEY AREA: PLYMOUTH SEA AREA: PLYMOUTH.

OS GRID REF.:

	E - W	N - S	TO	E - W	N - S
SX	543	492			

LAT. LONG.

	W/E	TO	W/E
° '	° '	° '	° '

RECORDER: Blaire Bellmore

DATE: 17 D 07 M 86 Y

TIME IN 1454

TIME OUT 1521 BST/

DURATION 27 ~~GMT~~

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 4.4 m

DEPTH RANGE SURVEYED 1-2 M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 2 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	✓

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	✓
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	✓
HALOCLINE	47	✓
NOT STRATIFIED	48	
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	✓
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	✓
C-U	82	
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

SITE NAME: Clitters Wood 83

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
✓ Botryllus schlosseri	✓		P			
Ciona intestinalis						
Clavelina lepadiformis	O		x|			
✓ Dendrodoa grossularia	F	F/C	C			
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Moqula manhattensis						
✓ Morchellium argus	O	F	C			
Phallusia mammillata						
✓ Polycarpa rustica		R				
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
✓ Ctenolabrus rupestris	R	R				
✓ Gobius niger		F				
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						

SITE NAME: 83

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum		O				
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega		O				
Myxicola infundibulum						
Polydora sp.			C			
Pomatoceros sp. (p)		O				
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus	F	A	F			
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.		O				
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum		R	O			
Crepidula fornicata		R				
Gibbula cineraria	F	E				
Nassarius incrassatus		O				
Nassarius reticulatus		F				
Ocenebra erinacea		O	F			

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
Littorina littorea	R	R				
Calyptraea chinensis		F				
Littorina obtusata/mariae		x1				
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)	O	A				
Bugula flabellata						
Bugula plumosa			O			
Bugula turbinata	O	O	C			
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
Schizomavella linearis	R	O				
Bowerbankia imbricata	F					
Cryptosula pallasiana		A				
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis		R				
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Clitters Wood (83) GRID REFERENCE: SX 538 483

DATE: 17.7.86 NAME OF RECORDER: K Hiscock

KEY TO HABITAT COLUMNS:

1. Slope of large and small boulders at +0.5 to -0.5m.
2. Level scaled of slates and shells on shale gravel at 2m.
3. Side of Mooring block at 2m
4. ~~Algae on a sm~~ On algae (algae under)
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
✓ Leucosolenia botryoides	O					
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
✓ Halichondria panicea		R				
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
✓ Hymeniacidon perleve	O	O	O			
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
✓ Suberites ficus		x1	x1			
Tethya aurantium						
✓ Myxilla sp	x1					

	1	2	3	4	5	6	
COELENTERATA:HYDROZOA							
Abietinaria abietina							
Aglaophenia pluma							
Aglaophenia tubulifera							
Campanularia angulata							
Halecium beanii							
Halecium halecinum							
Hydractinia echinata		O					✓
Hydrallmania falcata							
Nemertesia antennina		R					✓
Nemertesia ramosa							
Obelia dichotoma		O					✓
Obelia geniculata		P					✓
Plumularia setacea		Q	R				✓
Sertularella polyzonias							
Sertularia argentea							
Sertularia cupressina							
Tubularia indivisa							
Tubularia larynx							
Obelia gelatinosa		O					✓ 130
~~Plumularia sp (ult)~~		P					
COELENTERATA:ANTHOZOA							
Actinothoe sphyrodeta							
Adamsia carciniopados							
Alcyonium digitatum							
Anemonia viridis		F					✓
Caryophyllia smithii							
Cereus pedunculatus							
Cerianthus lloydii							
Corynactis viridis							
Edwardsia claparedii							
Epizoanthus couchii							
Isozoanthus sulcatus							
Metridium senile		R					✓
Sagartia elegans							
Sagartia troglodytes							
Sagartiogetan undatus							
Urticina felina							

SITE NAME: S 5

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata						
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma		F				
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
Laminaria saccharina		F				
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum		C				
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa		P				
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)	C	F	C	P		
[illegible]		P		P		
ANGIOSPERMAE						
Zostera marina						
[illegible]		P				
Rhodophyta						
Gracilaria verrucosa		C				
[illegible]		P				

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Clifters Wood (83) GRID REFERENCE: SY 538 483

DATE: 17/07/84 NAME OF RECORDER: K Hiscock / A E Little

KEY TO HABITAT COLUMNS:

1. Slope of large and small boulders at +0.5 to -0.5m
2. Level scaled of slates and shells on shale gravel at 2m
3. Side of vertical block at 2m
4. On algae (algae only)
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula		F				
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides		O				
Calliblepharis ciliata						
Callithamnion sp.				P		
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum				P		
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa				P		
Delesseria sanguinea						
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera		O				
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus		?P				
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii		F		P		
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum		R				
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii						
Polyneura hilliae						
Polysiphonia elongata		?P				
Polysiphonia sp.		P				
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.)		R				
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta		O				
Antithamnion cruciatum		P				
Audouinella sp.		P		P		
Phycodrys rubens		F				
Cystoclonium purpureum		P				
Polysiphonia ? nigra				P		
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NO.: 83

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

General A Slope of large boulders fringing the shore and dominated by Laminaria saccharina, Ulva sp, Sargassum muticum and Cystoclonium purpureum extends to a very gradual slope of slate pebbles and shells on slate gravel dominated by barnacles and encrusting bryozoans with sparse algae. Some areas of this level seabed are devastated by heavy mooring chains below the visitors mooring bouys. The seabed was quite rich in species.

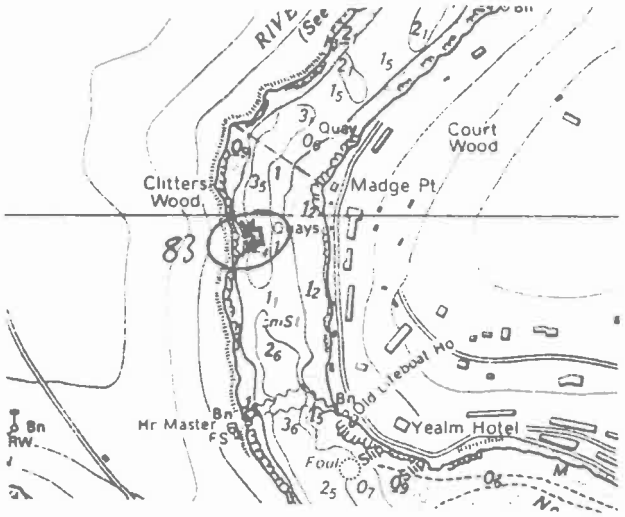
Habitat 1 Gradual slope of large boulders at +0.5 to 0.5 m covered overall by Laminaria saccharina with Ulva sp and Cystoclonium purpureum and with conspicuous large plants of Sargassum muticum. Rocks below colonised by a 'fuzz' of brown algae

Habitat 2 Level seabed of slates, shells and shale gravel at 2 m with stable substrate colonised by Balanus crenatus or encrusting Bryozoa with Dendrodoa grossularia and scattered fibrous algae. Large numbers of Pomatoschistus and Gobius niger

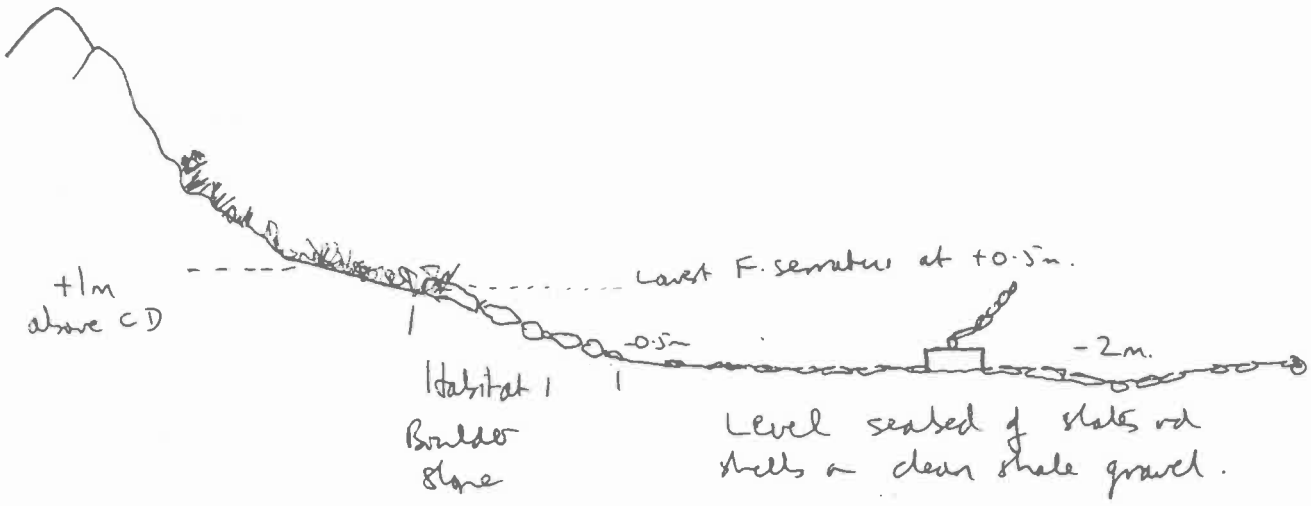
Habitat 3 Sides of Concrete mooring block at 2 m with common Marchellium argus, Bugula turbinata and Dendrodoa grossularia

SITE NO.: 83

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



UNDERWATER DATA

SITE NO. 83

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101	✓					
LOWER INFRALITTORAL	102		✓				
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106	✓					
0-5	107	✓	✓				
5-10	108						
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112						
LG. BOULDERS (500 mm+)	113	3					
SM. BOULDERS (256-500 mm)	114	2	1				
LG. COBBLES (128-256 mm)	115	2					
LG. SLATES (128-256 mm)	116		2				
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119		2				
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123	2	2				
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135		2				
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW			1				
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED							

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174	✓					
HORIZONTAL	175		✓				
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227		3				
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: Clitters Wood, Yealm SITE NO.: 83

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.:

	E - W	N - S	TO	E - W	N - S
SX	538	483			

LAT. LONG.

	°	'	°	'	W/E	TO	°	'	°	'	W/E

RECORDER: K. Hiscock DATE: 17 D 07 M 83 Y

TIME IN 1315

TIME OUT 1401 BST/

DURATION 46 GMT

DEPTH CORRECTION APPLIED? ~~NO~~ YES +/- 4.5 ■

DEPTH RANGE SURVEYED ..... M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY ..8..... ■

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	✓
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	✓

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	✓
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	✓
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	✓
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	✓

Heavy moving chains

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

SITE NAME: 82

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa		O				
Botrylloides leachii		O				
Botryllus schlosseri						
Ciona intestinalis		R				
Clavelina lepadiformis						
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Mogula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava		F				
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomatoschistus minutus						

	1	2	3	4	5	6
Syngnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
Pomatoschistus sp.	P					

Algae

Record Hypoglossum woodwardii + Rhodophyta indet. (filam.) as P at Stat. 1.

SITE NAME: D2

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)		O				
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus	C	O				
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas	F	O				
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.		R				
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.		R				
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum		P				
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus	O	R				
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa		P				
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis		P				
Ophiura texturata						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: FERRY SLIP, ST. BODEAUX (82) GRID REFERENCE: SX 438 587

DATE: 160786 NAME OF RECORDER: B. BULLIMORE

KEY TO HABITAT COLUMNS:

1. LOWER INFRA. ANGULAR SLATE + MUD SLOPE
2. LOWER CIRCA. MUD PLAIN, OCC BLDR + DEBRIS
3.
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea	C	O				
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum		P				✓
Hydractinia echinata						
Hydrallmania falcata		R				✓
Nemertesia antennina						
Nemertesia ramosa						
Obelia dichotoma		P				✓
Obelia geniculata						
Plumularia setacea		P				✓
Sertularella polyzonias						
Sertularia argentea		P				
Sertularia cupressina						
Tubularia indivisa		R				✓
Tubularia larynx						
Hartlaubella gelatinosa		O				✓
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile		O				✓
Sagartia elegans						
Sagartia troglodytes		P				✓
Sagartiogetan undatus		P				✓
Urticina felina						

SITE NO.: 82

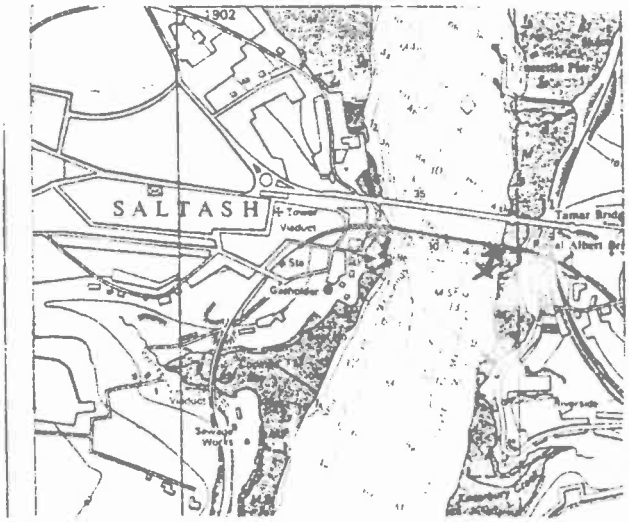
REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

(1) The seabed was a gradual slope of angular cobbles and slates in mud. Algae was restricted to above Chart Datum and then only filamentous reds and Hypoglossum woodwardii Larger boulders were covered with massive Halichondria panicea, smaller stones were covered in Balanus crenatus, Carcinus maenas were frequent.

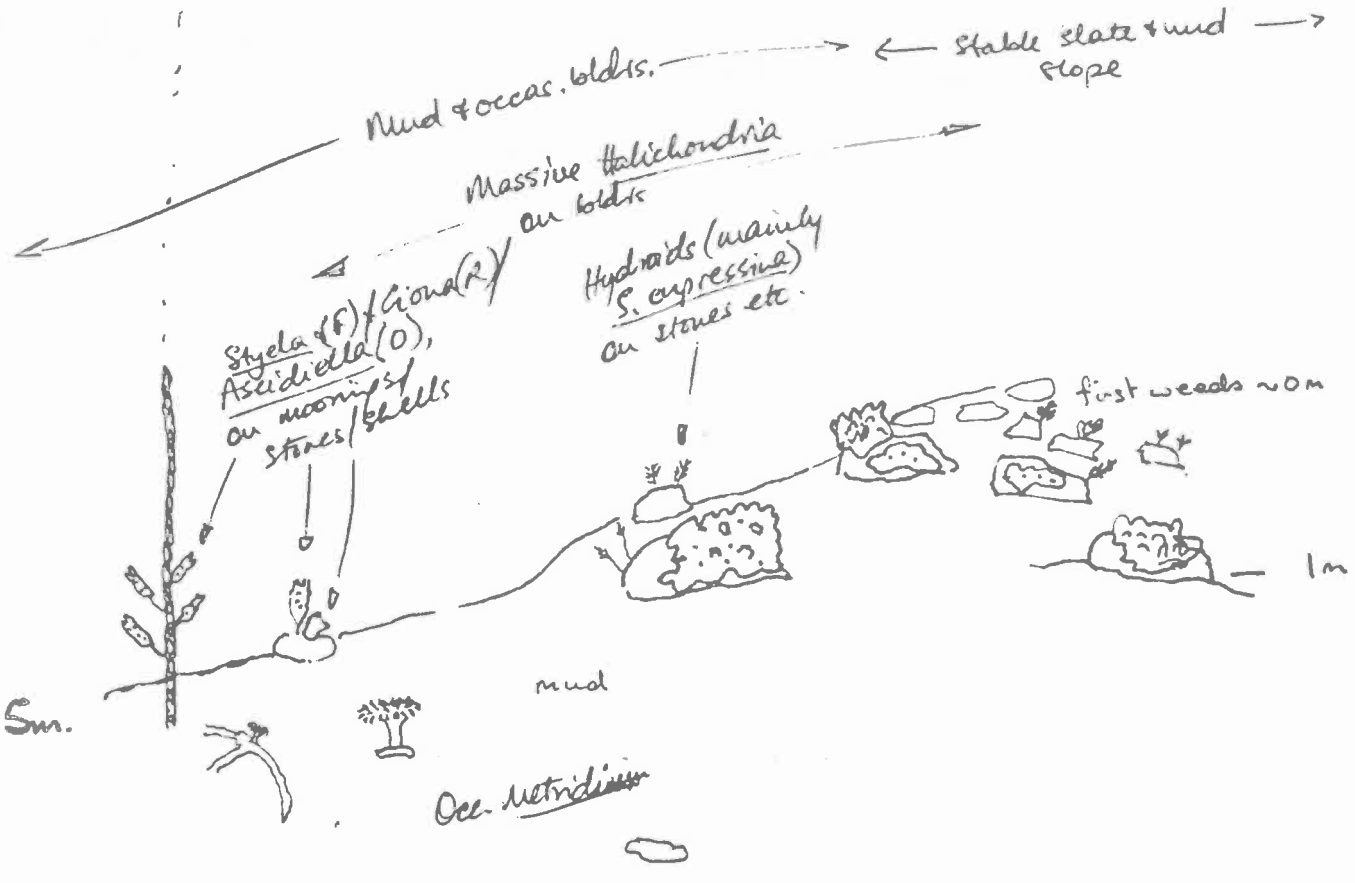
(2) Further from shore below 1m the slope was almost entirely of soft mud with occasional small boulders and pieces of debris wire Styela clava ?Asaidiella aspersa, Pomatoschistus sp., Sertularia cupressina, Halichondria panicea, with occasional Archidoris pseudoargus Metridium senile and Carcinus maenas with rare Hydrallmania falcata and Ciona intestinalis.

SITE NU.: 82

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



UNDERWATER DATA

SITE NO. 82

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102	✓					
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104		✓				
NOT KNOWN	105						

DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106	✓					
0-5	107		✓				
5-10	108						
10-20	109						
20-30	110						
>30	111						

SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112						
LG. BOULDERS (500 mm+)	113						
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MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132	2	3				
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135		1				
TREE BRANCHES	136		1				
OTHER (score & note type below)	137						

ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150	1					
CONCRETE	151						
WOOD	152	1	1				
OTHER (tick & note/score below)	153						

ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED	1	2					

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174	✓	✓				
HORIZONTAL	175						

ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200	✓					
stable slate & silt slope							

SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221	3	3				
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						

SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: Ferry Slip, St. Budeaux — SITE NO.: 82

SURVEY AREA: PLYMOUTH — SEA AREA: ~~~~ ✓

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	438	587	TO		

LAT. LONG.

	°	'	°	'	W/E		°	'	°	'	W/E
		:		:		TO		:		:	

RECORDER: B. BULLIMORE, A. LITTLE. — DATE: 16 D 07 M 86 Y

TIME IN: 1559 — TIME OUT: 1637 — BST/~~GMT~~ — DURATION: 38

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 3 ■

DEPTH RANGE SURVEYED 0 - 5 M BELOW ~~SEA LEVEL~~/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 0 - 07 ■

SITUATION (TICK ONE ONLY)

OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)

HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	✓
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)

VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	✓
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	✓
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)

NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	✓

WATER STRATIFICATION (TICK)

THERMOCLINE	46	✓
HALOCLINE	47	✓
NOT STRATIFIED	48	
NOT KNOWN	49	

ROCK TYPE (TICK)

IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	✓
OTHER (tick and note below)	57	

SITE INFORMATION (TICK)

MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	✓

Moorings

OTHER DATA RECORDED

PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

SITE NAME: 81

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Molgula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						

SITE NAME: 81

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)				O		
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega				F		
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)		R		O		
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus		F	O	F		
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas	R	-	-	O		
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus			F			
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis				R		
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
Conopeum reticulum		A		C		
Bowerbankia imbricata			F	C		
Alcyonidium mytili		F				
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

Electra crustulata C

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Weir Point (81) GRID REFERENCE: SX 440 620

DATE: 16.7.86 NAME OF RECORDER: Kitchen

KEY TO HABITAT COLUMNS:

1. Gradual slope of clayey mud with widely scattered shells at 1 to 3 m
2. Tree branch at 3m
3. Large tree root including small 'caves' at 3m.
4. Shells on muddy clay at 3m.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea						
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina						
Nemertesia ramosa						
Obelia dichotoma				F		✓
Obelia geniculata						
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
Obelia flabellata		C	C			✓
Hartlaubella gelatinosa	0	C	C	F		✓
Clava multicornis		F				✓
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						
Actinia equina				×1		✓

SITE NO.: 81

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

General. A gradual ~~mu~~ slope of clayey mud from the western shore broken by small cliffs to form terraces. The small cliffs reveal layers of leaves. Occasional terrestrial debris on the mud slope colonised by dense Hartlaubella gelatinosa with some Bowerbankia imbricata and patches of Electra. Occasional shells also present and, in one extensive area, the bottom was covered by shells (mainly Mytilus with some oyster shell and Crepidula shells) colonised by scattered hydroids and with some Lanice and live Mytilus present.

Habitat 1. Gradual slope of clayey mud with widely scattered shells at 1 to 3m. Shells colonised by sparse hydroids.

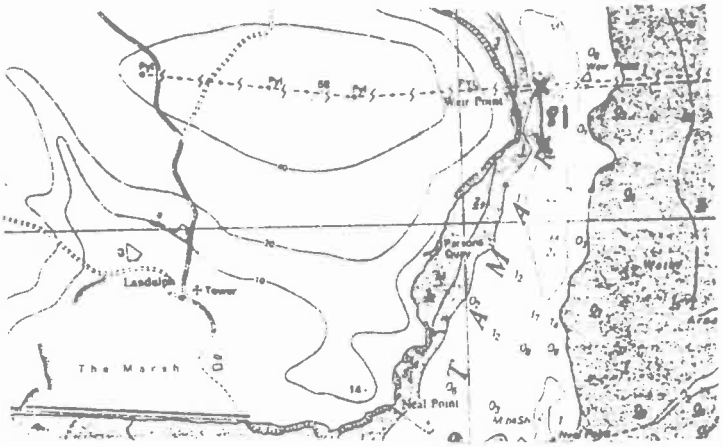
Habitat 2. Tree branch at 3m. Colonised by Electra crustulenta, Balanus crenatus and Hartlaubella gelatinosa.

Habitat 3. Large tree root at 3m. Dominated by barnacles and Hartlaubella gelatinosa with ~~a~~ frequent Bowerbankia imbricata and Palaemon serratus in small 'caves'.

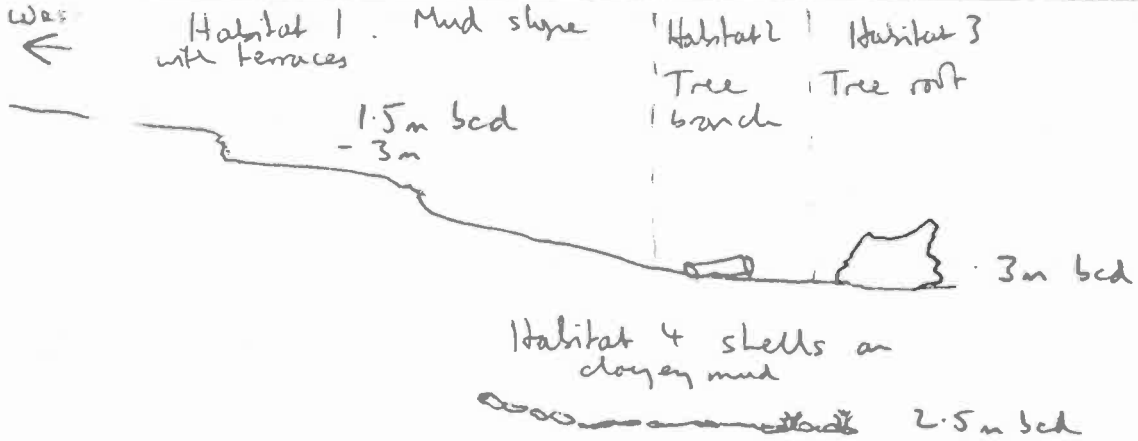
Habitat 4. Shells on muddy clay at 2.5m. Colonised by a sparse cover of Hartlaubella gelatinosa, Obelia sp and with frequent Lanice conchilega.

SITE NO.: 81

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



UNDERWATER DATA

SITE NO. 81

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104	✓	✓	✓	✓		
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓	✓	✓	✓		
5-10	108						
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112						
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132	3			2		
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135				3		
TREE BRANCHES	136		3	3			
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152		3	2			
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF			2	3			
FAUNAL BED							

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174	✓	✓	✓	✓		
HORIZONTAL	175						
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220	3					
SOFT	221	2					
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227				2		
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: Weir Point SITE NO.: 81

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	440	620	TO	410	619

LAT. LONG.

	°	'	°	'	W/E		°	'	°	'	W/E
		:		:		TO		:		:	

RECORDER: K. Miscock DATE: 16 D 07 M 86 Y

TIME IN 1440

TIME OUT 1530 BST/

DURATION 50 GMT

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 4:0 m

DEPTH RANGE SURVEYED 1 - 3 M BELOW ~~SEA LEVEL~~/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 0.7 m

SITUATION (TICK ONE ONLY)			WAVE EXPOSURE (SURFACE) (TICK)			ROCK TYPE (TICK)		
OPEN SEA (> 1 km offshore	1		VERY EXPOSED (prevailing wind and swell)	30		IGNEOUS	50	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2		EXPOSED (prevailing wind)	31		LIMESTONES	51	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3		SEMI-EXPOSED (strong wind frequent)	32		HARD SAND./MUDSTONES	52	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4		SHELTERED (strong wind rare)	33		SOFT SAND./MUDSTONES	53	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	✓	VERY SHELTERED (fetch <20 km)	34		HARD SLATE/SHALES	54	✓
			EXTREMELY SHELTERED (fetch <3 km)	35	✓	FRIABLE SLATE/SHALES	55	
COASTAL TYPE (TICK)			MAX. TIDAL STREAM STRENGTH (TICK)			NOT KNOWN	56	
HEADLAND	6		VERY STRONG (6 k+)	36		OTHER (tick and note below)	57	
'LINEAR COAST'	7		STRONG (3-6 k)	37				
BAY	8		MOD. STRONG (1-3 k)	38	✓			
SPIT/BAR	9		WEAK (<1 k)	39				
OFFSHORE SM. ISLAND	10		VERY WEAK (negligible)	40		SITE INFORMATION (TICK)		
AMONGST ROCKS/ISLETS	11		SALINITY (TICK)			MNR, NNR, LNR, SSSI NEARBY	65	
SOUND/NARROWS	12		NORMAL (around 34°/oo)	41		SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
SHALLOW RAPIDS	13		VARIABLE (30°/oo+)	42		OTHER SOURCES OF DISTURANCE (tick & note below)	67	
SEA LOCH	14		LOW (<30°/oo)	43	✓			
ESTUARY/MARINE INLET	15	✓	SALINITY MEASURED (TICK)	44				
COASTAL LAGOON	16		NOT KNOWN	45		OTHER DATA RECORDED		
HARBOUR	17		WATER STRATIFICATION (TICK)			PHOTOGRAPHS: SURF	80	
SEA CAVE	18		THERMOCLINE	46		W-A	81	
WRECK	19		HALOCLINE	47		C-U	82	✓
OTHER (tick and note below)	20		NOT STRATIFIED	48		WATER ANALYSIS	83	
			NOT KNOWN	49		SEDIMENT ANALYSIS	84	
						SPECIMENS COLLECTED	85	
						ALGAL CHECKLIST	86	
						ANIMAL CHECKLIST	87	✓
						OTHER (tick and note below)	88	

SITE NAME: CARGREEN (80)

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Mogula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
Pleuronectes platessa 1						

SITE NAME: 80

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)						
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
✓ Carcinus maenas	O					
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis	O					✓
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
Electra crustula	P					✓
Bowerbankia umbriata	P					✓
Conopeum reticulatum	P					✓
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

→ possibly saurati

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: CARLEEN (80) GRID REFERENCE: SX 437 627

DATE: 160786 NAME OF RECORDER: B. BULLIMORE

KEY TO HABITAT COLUMNS:

1. CIRCALITT. SHALLOW MUD SLOPE, RARE BEDROCK OUTCROPS
2.
3.
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea						
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina						
Nemertesia ramosa						
Obelia dichotoma	P					✓
Obelia geniculata						
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
~~Hartlaubella gelatinosa~~	e					✓
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						

STN NO.: 80

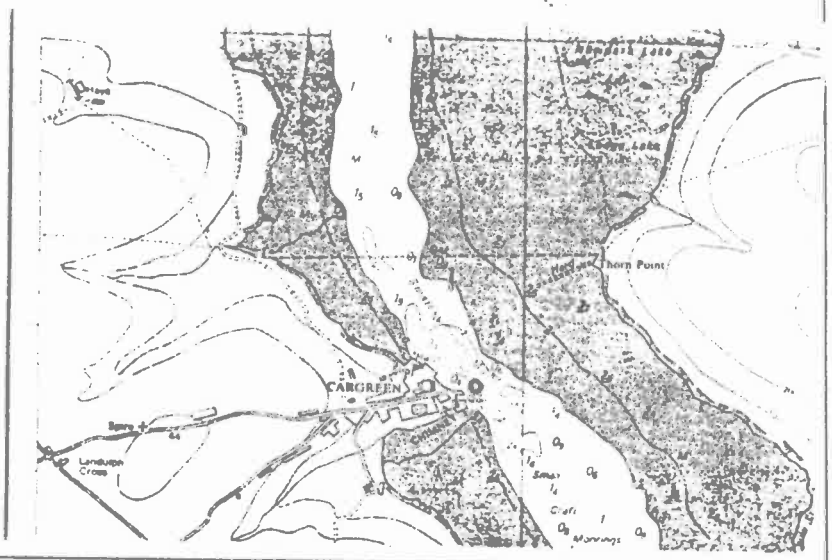
REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

Shallow slope, mud with small slates & one or two small bedrock outcrops. Campanularia gelatinose on most hard substrate. Several 'clumps' of small stones bound together by Mytilus. Several Carcinus.

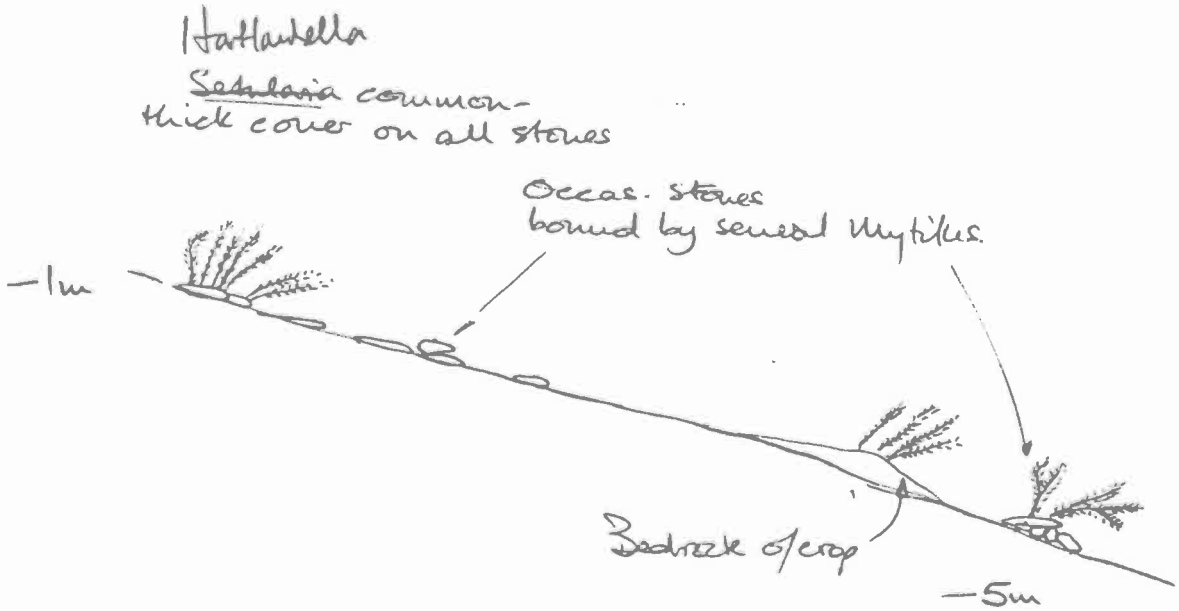
~~Edible~~

SITE NO.: 80

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



UNDERWATER DATA

SITE NO. 80

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104	✓					
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓					
5-10	108						
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	1					
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119	2					
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127	1					
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131	1					
MUD	132	3					
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135	2					
TREE BRANCHES	136	2					
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED							

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174	✓					
HORIZONTAL	175						
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176	1					
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199	3					
OTHER (tick & note/score below)	200	✓					
STABLE SMALL SLATE/MOD SLOPE		2					
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221	✓					
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244	2					
LIVE MAERL BED	245						
FAUNAL BED	246						

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: CARGREEN

SITE NO.: 80

SURVEY AREA: PLYMOUTH

SEA AREA: PLYMOUTH.

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	437	627	TO		

LAT. LONG.

		W/E			W/E
			TO		

RECORDER: B. BULLIMORE

DATE: 16 D 07 M 86 Y

TIME IN 1359

TIME OUT 1420 BST/

DURATION 21 GMT

DEPTH CORRECTION APPLIED? ~~NO~~/YES ~~-1~~ -4.2 m

DEPTH RANGE SURVEYED 2-5m M BELOW ~~SEA LEVEL~~/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 0.5 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	✓
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	✓
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	✓

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	✓
HALOCLINE	47	✓
NOT STRATIFIED	48	
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	✓
OTHER (tick and note below)	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

SITE NAME: 79

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)						
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
✓ Carcinus maenas	O					
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
✓ Mysid indet.	x1					
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: WIERNAY. (79) GRID REFERENCE: SX 432 639

DATE: 16/07/86. NAME OF RECORDER: B BULLIMORE.

KEY TO HABITAT COLUMNS:

1. CIRCALIT. SANDY MUD.
2.
3.
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea						
Halichondria bowerbanki						
Cliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina						
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata						
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
Hartlaubella gelatinosa	O					✓
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						

SITE NO.: 79

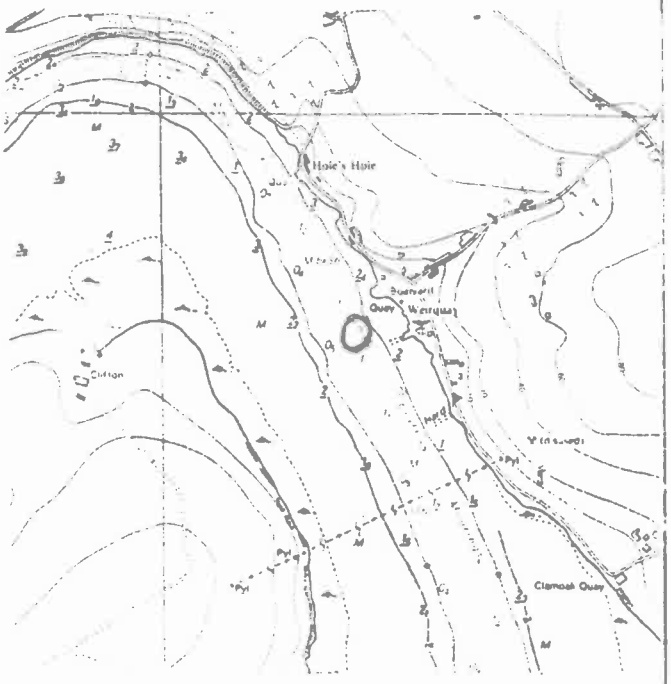
REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

Flat bed of firm sandy mud. Very occas. pebbles with several Carcinus. Rare "outcrops" of very soft clay – or possibly lumps of mud.

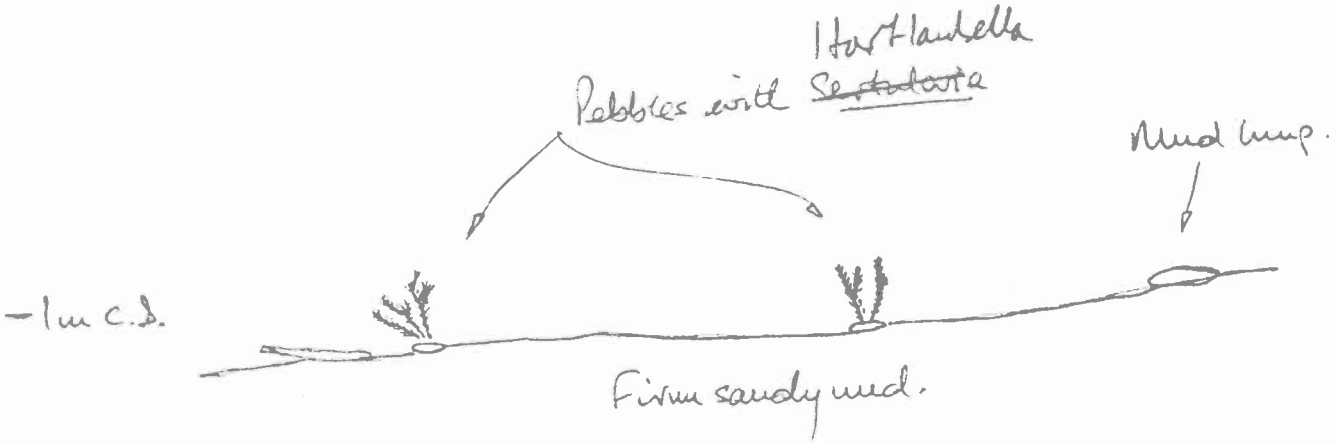
Sediment black deeper than 5 mm.

SITE NO.: 79

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



UNDERWATER DATA

SITE NO. 79

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104	✓					
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓					
5-10	108						
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112						
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121	1					
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131	3					
MUD	132	2					
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135	2					
TREE BRANCHES	136	1					
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED							

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174						
HORIZONTAL	175	✓					
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220	3					
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227	2					
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: WIER QUAY SITE NO.: 79

SURVEY AREA: PLYMOUTH SEA AREA: PLYMOUTH

OS GRID REF.:

	E - W	N - S	TO	E - W	N - S
SX	432	634			

LAT. LONG.

	° '	° ' W/E	TO	° '	° ' W/E

RECORDER: B. BULLINGER DATE: 16 D 07 M 86 Y

TIME IN 1326

TIME OUT 1341 BST/

DURATION 15 GMT

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 4.4 m

DEPTH RANGE SURVEYED 0-1. M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 30 cm

SITUATION (TICK ONE ONLY)

OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)

HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)

VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	✓
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	✓
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)

NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)

THERMOCLINE	46	✓
HALOCLINE	47	✓
NOT STRATIFIED	48	
NOT KNOWN	49	

ROCK TYPE (TICK)

IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	✓
OTHER (tick and note below)	57	

SITE INFORMATION (TICK)

MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURBANCE (tick & note below)	67	

OTHER DATA RECORDED

PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	
ALGAL CHECKLIST	86	
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

SITE NAME: Below Tunnel (78)

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Molgula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						

SITE NAME: 10

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)						
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia						
✓ Balanus sp		R				
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
Electra crustulenta		F				
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

✓

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Below Tinnel (78) GRID REFERENCE: SX 420 642

DATE: 16.7.86 NAME OF RECORDER: K. Hiscock

KEY TO HABITAT COLUMNS:

1. Steeply sloping bolder shale bedrock at +1 to 3m.
2. Gradually sloping or horizontal bedrock and small boulders at 3 to 4m.
3.
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea						
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina						
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata						
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
Cordylophora lacustris	D	O				✓
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						

#2 of 2

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: PENLEE PT. (OUTER) (89/2) GRID REFERENCE: SX 447 487

DATE: 20.07.86. NAME OF RECORDER: COLLECTED B BULLIMORE I.D. S. HISCOCK

KEY TO HABITAT COLUMNS:

1. UPWARD FACING BEDROCK 11.5-13m, RED FOLIOSE ALGAE, SPARSE KELP PARK.
2. BEDROCK, BROKEN, STEEPLY SLOPING TO OVERHANGING, 11.5-13m.
3.
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula						
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides						
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata	P					
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)	D	D				
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa	P	P				
Delesseria sanguinea	A					
Dilsea carnosa	P					
Drachiella spectabilis	P					
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa	P					
Hypoglossum woodwardii	P					
Kallymenia reniformis	P					
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa	P					
Phyllophora pseudoceranoides	:					
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum	P					
Polyides rotundus						
Polyneura gmelinii						
Polyneura hilliae						
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata	P					
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata	P					
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
Schottera nicaeensis	P					
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME: 89 (2)

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata						
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.				–		
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata	F					
Laminaria hyperborea	F					
Laminaria ochroleuca						
Laminaria saccharina						
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides	0					
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera marina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN #2 of 2

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: PENLEE PT. (OUTER)(89) GRID REFERENCE: SX 447 487

DATE: 200786. NAME OF RECORDER: B. BULLIMORE

KEY TO HABITAT COLUMNS:

1. UPWARD FACING BEDROCK, 11.5-13m, RED FOLIOSE ALGAE, SPARSE KELP PARK.
2. BEDROCK, BROKEN, STEEPLY SLOPING TO OVERHANGING, 11.5-13m.
3. SMALL CAVES AND CREVICES. BROKEN BEDROCK 12-13m.
4. COARSE SEDIMENT BETWEEN BROKEN BEDROCK 13m.
5. ALGAE AS SUBSTRATE
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
✓ Leucosolenia botryoides		R				
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
✓ Amphilectus fucorum		R				
Ciocalypta penicillus						
Cliona celata						
✓ Cliona sp. (boring)		R				
Dercitus bucklandi						
Dysidea fragilis						
✓ Halichondria panicea	R	O				
Halichondria bowerbanki						
Haliclona oculata						
✓ Hemimycale columella	O	F				
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
✓ Raspailia ramosa		R				
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						
✓ Encrusting sponge indet		R				

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina		R				✓
Nemertesia ramosa		R				✓
Obelia dichotoma						
Obelia geniculata					O	✓
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta	O	O				✓
Adamsia carciniopados						
Alcyonium digitatum	F	F				✓
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes		O				✓
Sagartiogetan undatus		R				✓
Urticina felina		R				✓

SITE NAME: 89(2)

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega				R		
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)		F				
Sabella pavonina			R			
Terebellidae indet.			O			
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus		F	F			
Elminius modestus						
Verruca stroemia						
Spat? B. crenatus (spat)		O	O			
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus			R			
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa			O			
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber			R			
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
Mysids. indet.		R				
Nymphon gracile	P					
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus		R				
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Acanthodoris pilosa		P				
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum		F				
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)		F	F			
Bugula flabellata		F	O			
Bugula plumosa		O				
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea		R				
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa					C	
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea					O	
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.		O				
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida			R			
ECHINODERMATA:STELLEROIDEA						
Asterias rubens	O	F		R		
Henricia oculatata	R	R				
Marthasterias glacialis		O				
Ophiocomina nigra						
Ophiothrix fragilis		R		R		
Ophiura texturata						

SITE NAME: 89(2)

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.			O			
Holothuria forskali		R				
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii		O	R			
Botryllus schlosseri		O				
Ciona intestinalis						
Clavelina lepadiformis		O				
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum		O				
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus	O	C				
Lissoclinum perforatum						
Molgula manhattensis						
Morchellium argus	O	F	O			
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis		O				
Styela clava						
Trididemnum		R				
Tyncdavella		F				
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra				P		
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris		P				
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleurorectys platessa						
Pollachius pollachius						
Pomataschistus [illegible] sp.				P		

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
Cyprer cyprer			P			

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: Inner Broady Cove — SITE NO.: 90 (1)

SURVEY AREA: Plymouth — SEA AREA:

OS GRID REF.:

	E - W	N - S	TO	E - W	N - S
SX	443	492			

LAT. LONG.

	° '	° '	W/E	TO	° '	° '	W/E

RECORDER: J. Moore / S. Hiscock — DATE: 20 D 01 M 86 Y

TIME IN: 1220 — TIME OUT: 1313 BST/~~GMT~~ — DURATION: 53

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 1.5 m

DEPTH RANGE SURVEYED 0-7 M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 6 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	✓
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	✓
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	✓
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	✓
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	✓
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	✓
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	✓
NOT KNOWN	56	
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	✓
C-U	82	
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

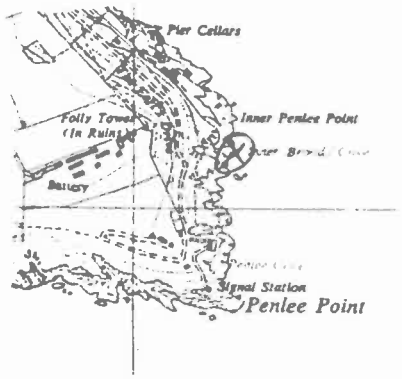
SITE NO. 90 (1)

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100	✓	✓				
UPPER INFRALITTORAL	101			✓	✓	✓	✓
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓	✓	✓	✓	✓	✓
5-10	108			✓		✓	✓
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	3			3	3	3
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128				1		
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY		2				3	2
ALGAL MEADOW		2			3	1	
ALGAL TURF		1				1	
ALGAL CRUST		1			2	1	
FAUNAL TURF						1	2
FAUNAL BED		1				1	2

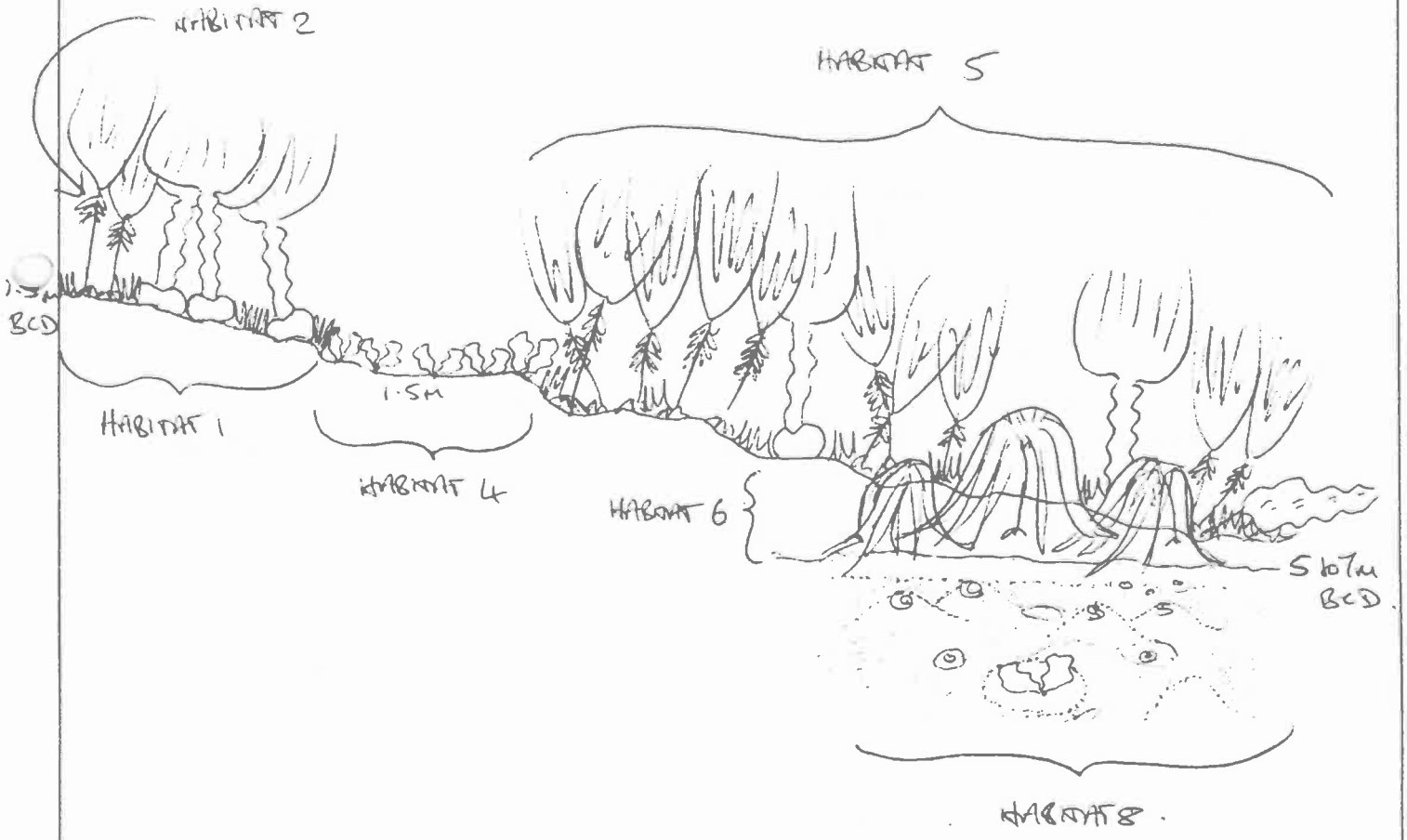
OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						✓
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174	✓				✓	
HORIZONTAL	175				✓		
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177				3		
(BROKEN ROCK	178	3				3	3
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						1
(SMALL FISSURES/CREV. (FINGER)	185						1
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196				1		
SAND ON ROCKS	197				2		
THIN SILT ON ROCKS	198	3			1	3	2
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221				1		
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE NO.: 90 (1)

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 90

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

General. Low Ridges of bedrock running eastwards from the cove, with a few small areas of pebbles, ~~and~~ in shallow water (0.5-2m), and sandy areas in deeper water (2-7m BCD). Rock generally covered with dense kelp with Saccorhiza abundant in shallow water. Some areas of sand-covered rock, & all surfaces heavily silted. Sandy areas covered with diatoms, & v. large Arenicola mounds.

HABITAT 1 Upward facing bedrock at ca. 0.5m BCD, Sublittoral fringe. Dense kelp, with Saccorhiza abundant & L. hyperborea common. Clearings with dense foliose algae, with Coramium rubrum & Corallina abundant. Some sponge, ascidians and barnacles.

HABITAT 2 Kelp stipe flora at ca. 0.5m BCD. Dominated by Palmaria

HABITAT 3 Kelp fronds at 0.5 to 7m BCD. Filamentous brown algae common in shallow water. Obelia geniculata, Membranipora and Electra common at deeper end of range. Gibbula cineraria common in sublittoral fringe.

HABITAT 4 Upward-facing sand-covered bedrock at 1.5m BCD. Rock surfaces with a thin covering of mobile sand. Encrusting algae & typical sand-resistant species here, with Ulva 100% cover over the top.

HABITAT 5 Upward facing bedrock at 2.5-7m BCD. Dense forest of L. hyperborea with occasional Saccorhiza and L. saccharina. Algal underground not particularly dense or varied; Polycarpa gracilis common. Some sponges and ascidians.

HABITAT 6 Vertical bedrock at 0.5-7m BCD. Short vertical section of bedrock ca. 0.5m high adjacent to sand. Mostly dominated by silt covered barnacles or Polycarpa rustica. Morchellium frequent. Some sponges and ascidians. Occasional patches of Phoronis.

HABITAT 7 Kelp stipes at 2.5-7m BCD. Dominated by Phycodrys.

HABITAT 8. Fairly extensive patches of mixed fine & coarse sand between bedrock ridges at 5-7m BCD. Covering of filamentous diatoms on surface except near edge of bedrock where swept by kelp fronds, and where isolated algae in sediment swept a clean circle. Very large Arenicola mounds and many Echinocardium holes. Some Arenicola holes with algal drift apparently pulled down. A few sand gobies & some shoals of small fish fry.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: INNER BRITISH COAST 90 GRID REFERENCE: SX 443 692

DATE: 20.7.86. NAME OF RECORDER: S. HISCOCK

KEY TO HABITAT COLUMNS:

1. Upward facing bedrock at ca. 0.5M BCD (Subtidal fringe)
2. Kelp stipe flora at ca. 0.5M. BCD
3. Kelp forest at 0.5M BCD to 7M BCD.
4. Upward facing sand-covered bedrock at 1.5M BCD.
5. Upward facing bedrock at 2.5-7M BCD.
6. Vertical bedrock at 2.5-7M BCD.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum					F	
Ahnfeltia plicata				F		
Antithamnion plumula						
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides						
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata	F				F	
Ceramium rubrum	A					
Ceramium sp.						
Chondrus crispus	F			O		
Chylocladia verticillata						
Corallina officinalis	A					
Corallinaceae indet. (pink encr.)				A	O	
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa	C				C	
Delesseria sanguinea					F	
Dilsea carnosa	F				O	
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum	O					
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina				O		
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii					F	
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata		F				
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata		A				
Peyssonelia sp.					O	
Phyllophora crispa						
Phyllophora pseudoceranoides						
Phyllophora sicula					F	
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus				O		
Polyneura gmelinii					C	
Polyneura hilliae					F	
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides				F		
Rhodophyllis divaricata						
Rhodophyllis sp.					O	
Rhodophyta indet. (encr.)					F	
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata					O	
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
Calliblepharis jubata	O					
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME: 90 (1)

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus				F		
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata	O					
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.			C	F		
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea	C				A	
Laminaria ochroleuca						
Laminaria saccharina	F				O	
Phaeophyta indet. (encr.)	O					
Pseudolithoderma sp.						
Saccorhiza polyschides	A				O	
Sargassum muticum						
Himanthalia elo.	F					
Fucus serratus	R					
3009 Punctaria sp				R		
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.				O		
Ulva sp. (p)	F			A		
Acrochaetium sp					R	
ANGIOSPERMAE						
Zostera marina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Inner Broady Cove (90) (1) GRID REFERENCE: SX 443 492

DATE: 20 7 96 NAME OF RECORDER: J. Moore

KEY TO HABITAT COLUMNS:

1. Upward facing bedrock at ca. 0.5m BCD (Infralittoral fringe)
2. Kelp Stipes Flora at ca. 0.5m BCD
3. Kelp fronds at 0.5m & 7m BCD
4. Upward facing sand-covered bedrock at 1.5m BCD (algae only)
5. Upward facing bedrock at 2.5-7m BCD
6. Vertical bedrock at 2.5-7m BCD

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata					R	R
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						R
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis					O	O
Halichondria panicea	O				O	R
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella					R	
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						
Haliclona sp						P

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina	:					
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata			F			
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						R
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans					O	
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						
Bunodactis verrucosa	R					

SITE NAME: 90(1)

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)					O	O
Sabella pavonina						
Terebellidae indet.						
~~Golfingia Sabellid sp. b(?)~~						R
~~Nereis~~ Myxicola infundibulum						R
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia						
Cirripedia indet	F					A
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						O
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria			F			
Nassarius incrassatus	O					
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida			O			
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
Mytilus edulis						
Phoronis sp.						O
BRYOZOA						
Alcyonidium diaphanum						R
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						R
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						R
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa			F			
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea			F			
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis	F					
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens					R	R
Henricia oculatata						
Marthasterias glacialis						R
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: 90 (1)

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
✓ Botryllus schlosseri					O	O
Ciona intestinalis						
✓ Clavelina lepadiformis						R
Dendrodoa grossularia						
✓ Didemnidae indet.	O					
Dicemnum gelatinosum						
✓ Didemnum maculosum						??
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
✓ Lissoclinum perforatum	O					O
Molgula manhattensis						
✓ Morchellium argus	O				O	F
Phallusia mammillata						
✓ Polycarpa rustica	-					C
Polycarpa sp.						
Polyclinidae indet.						
31 01 ✓ Polyclinum aurantium						P
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
3101 ✓ Polycarpa fonaris						P
101 ✓ Molgula complanata						P
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Syngnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: Inner Bracky Cove — SITE NO.: 90 (2)

SURVEY AREA: Plymouth — SEA AREA:

OS GRID REF.:

	E - W	N - S	TO	E - W	N - S
SX	443	492			

LAT. LONG.

	°	'	°	'	W/E	TO	°	'	°	'	W/E

RECORDER: J. Moore — DATE: 10 D 07 M 86 Y

TIME IN: 1220 — TIME OUT: 1313 BST/ — DURATION: 53 GMT

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 1.5. ■

DEPTH RANGE SURVEYED 0-7 M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 6 ■

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	✓
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	✓
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	✓
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	✓
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	✓
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	✓
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	✓
C-U	82	
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

SITE NO. 90 (2)

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101	✓	✓				
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓					
5-10	108	✓	✓				
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112						
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128		3				
FINE CLEAN SAND	129		1				
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137		1				
Salt on sand surface.							
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED							

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174						
HORIZONTAL	175		✓				
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221		2				
SMOOTH	222						
WORKED	223		3				
RIPPLED	224						
MOUNDS	225		3				
BURROWS	226		3				
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241		1				
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						
DIATOMS			3				

SITE NO.: 90 (2)

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)

see sheet 1.

SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)

see sheet 1.

SITE NO.: 90 (2)

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

See sheet 1.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: INNER BRONDY CAVE (90) GRID REFERENCE: SX 463 492

DATE: 20.7.88. NAME OF RECORDER: S. HISCOCK

KEY TO HABITAT COLUMNS:

7x. Kelp chips at 2.5 - 7m BCD
8x. Fine sand between bedrock outcrops at 5 - 7m BCD.
3.
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula						
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides						
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)	F					
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa						
Delesseria sanguinea						
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii						
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata	O					
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides	:					
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii						
Polyneura hilliae						
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
Phycodrys rubens	A					
Laminaria ochroleuca	R					
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)		A				

SITE NAME: 90 (2)

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata						
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
Laminaria saccharina						
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera marina						

Sheet # 2 of 2

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Inner Broody Cove (90)(2) GRID REFERENCE: SX 443 492

DATE: 20 7 86 NAME OF RECORDER: J. Moore

KEY TO HABITAT COLUMNS:

7 4% Kelp Stipe at 2.5 - 7m BCD ~~(illegible)~~

8. 2% Fine sand between bedrock outcrops at 5-7m BCD

3.

4.

5.

6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea						
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina	:					
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata						
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						

SITE NAME: 90 (2)

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)		A				
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega		R				
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)						
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus		F				
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: 90 (2)

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum		A				
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum	??					
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Molgula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra		O				
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
Gob.. ind.t.						

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: Looking Glass Point — SITE NO.: 91

SURVEY AREA: Plymouth — SEA AREA:

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	436	566	TO		

LAT. LONG.

	° '	° ' W/E		° '	° ' W/E
			TO		

RECORDER: T. Bennett / J. Moore / I. Dixon — DATE: 20 D 07 M 86 Y

TIME IN: 1724

TIME OUT: 1744 BST/

DURATION: 20 ~~BST~~

DEPTH CORRECTION APPLIED? ~~YES~~/YES +/- 5.l. ■

DEPTH RANGE SURVEYED ..... M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY ..... ■

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	✓

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	-
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	✓

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	✓
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	✓
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	✓
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	✓
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

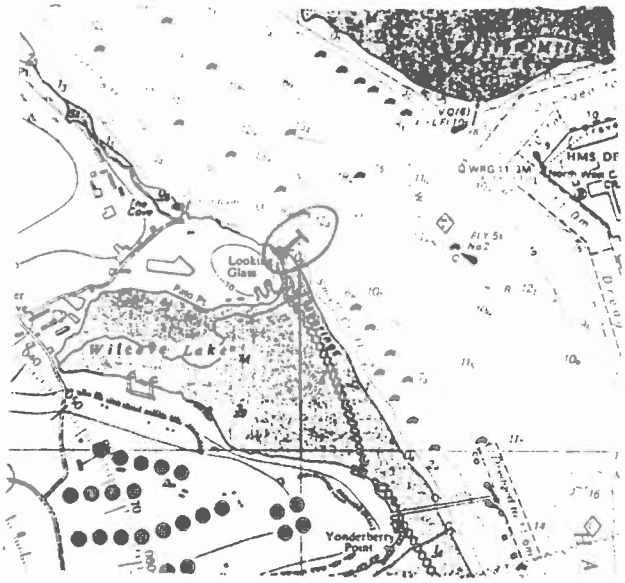
SITE NO. 91

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102	✓					
UPPER CIRCALITTORAL	103		✓				
LOWER CIRCALITTORAL	104			✓	✓	✓	
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓	✓				
5-10	108			✓	✓	✓	
10-20	109				✓		
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	1	3	1			
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114	2					
LG. COBBLES (128-256 mm)	115	2		2			
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117	2		2	3		
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124	2	1	2			
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132				3		
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135				1		
TREE BRANCHES	136				1		
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153					✓	
Rubber tyre						3	
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF						1	
FAUNAL BED						2	

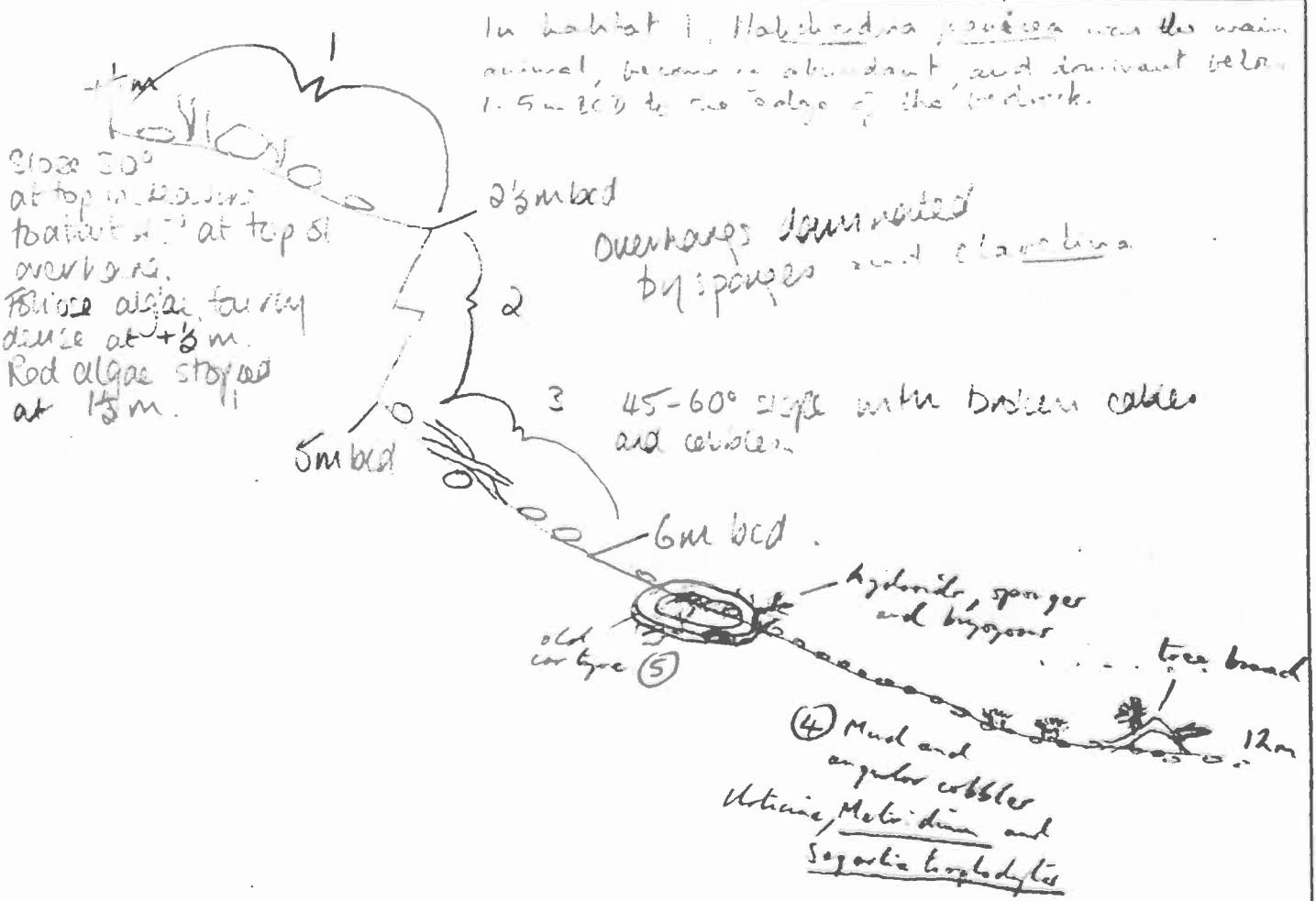
OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170		✓				
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172			✓	✓	✓	
STEEP (20-40°)	173	✓					
SHALLOW (<20°)	174						
HORIZONTAL	175						
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199	2	1	3	3	3	
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221				2		
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227				1		
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246				1		

SITE NO.: 9 1

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 91

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

Habitat 1 was on a bedrock slope which started at a 30° angle and increased to 45°. Small boulders and cobbles were scattered over the slope and covered with muddy gravel. Red foliose algae such as Polyneura gmelinii & P. hilliae were dense at +½ m. Lower down they became more scattered and stopped at 1½m b.c.d. Other algae included Callithamnion sp & Antithamnion plumula & Apoglossum ruscifolium. Clavellina were common on this slope, and Halichondria panacea was dominant.

Habitat 2 The overhang bedrock sides were covered with sponge. A layer of silt had gathered on the ~~legd~~ ledges.

Habitat 3. A 45°-60° slope with a thick covering of silt. Cobbles were scattered over the slope and formed hiding places for crabs. Broken cables were also present and provided a habitat for all sorts of species.

(4) Mud and angular cobbles at 6-12m. Steep slope down to 11m then ~~flattening~~ levelling off. Occasional whole shells and tree branches with encrusting species and Metridium senile. Sagartia troglodytes and Urticina felina occasional. A few Pagurus bernhardus and Corcinus maenas. Very silty

(5) Old cartyre at on slope 8m covered in silt and epifaunal species, including Metridium, Sycypha ciliata, Halichondria panicea, Hydrallmania and Bugula ~~flat~~ flabbelata.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Looking Glass Point (9) GRID REFERENCE: SX 436 566

DATE: 20/7/86 NAME OF RECORDER: Teresa Bennett

KEY TO HABITAT COLUMNS:

1. 30-45° bedrock slope with small boulders & cobbles covered in silty gravel +½m to 2½m bcd
2. Overhanging bedrock 2½ - 5m bcd
3. 45-60° sloping bedrock with cobbles & broken cobbles covered in thick silty gravel 5-6m bcd
4. 45-60° sloping mud and angular cobbles 6-12m BCD
5. Old car tyre at 8m BCD
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula	F					
Antithamnion spirographidis						
Apoglossum ruscifolium	O					
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides						
Calliblepharis ciliata						
Callithamnion sp.	F					
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa						
Delesseria sanguinea						
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii						
Kallymenia reniformis						
Lomentaria clavellosa	O					

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii	F					
Polyneura hilliae	F					
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME: 91

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata						
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
✓ Laminaria saccharina		R				
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
✓ Ulva sp. (p)		R				
ANGIOSPERMAE						
Zostera marina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Looking Glass Point (91) GRID REFERENCE: 436 766

DATE: 20 07 86 NAME OF RECORDER: J. DIXON / J MOORE

KEY TO HABITAT COLUMNS:

1. 30-45° bedrock slope with small boulders and cobbles covered in silty gravel +½-+2½ BCD
2. Overhanging bedrock 2½ - 5m BCD
3. 45 - 60° sloping bedrock with cobbles and broken cables covered in thick silty gravel 5-6m BCD
4. 45 - 60° sloping mud and angular cobbles. 6 - 12 m BCD
5. Old Car Type at 8m BCD
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
✓ Scypha ciliata					O	
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
✓ Halichondria panicea	C/A	R	F			
✓ Halichondria bowerbanki					F	
Haliclona oculata						
Hemimycale columella						
✓ Hymeniacidon perleve	F					
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
✓ Suberites ficus			O			
Tethya aurantium						

	1	2	3	4	5	6	
COELENTERATA:HYDROZOA							
Abietinaria abietina							
Aglaophenia pluma							
Aglaophenia tubulifera							
Campanularia angulata							
Halecium beanii							
Halecium halecinum			O				✓
Hydractinia echinata							
Hydrallmania falcata			R		C		✓
Nemertesia antennina							
Nemertesia ramosa							
Obelia dichotoma	P						✓
Obelia geniculata							
Plumularia setacea							
Sertularella polyzonias							
Sertularia argentea							
Sertularia cupressina							
Tubularia indivisa							
Tubularia larynx							
Kurchenpauria pinnata		O			F		✓
COELENTERATA:ANTHOZOA							
Actinothoe sphyrodeta							
Adamsia carciniopados							
Alcyonium digitatum							
Anemonia viridis							
Caryophyllia smithii							
Cereus pedunculatus							
Cerianthus lloydii							
Corynactis viridis							
Edwardsia claparedii							
Epizoanthus couchii							
Isozoanthus sulcatus							
Metridium senile				O	O		✓
Sagartia elegans							
Sagartia troglodytes				O			✓
Sagartiogetan undatus	R						✓
Urticina felina				O			✓

SITE NAME: Loch Long Cruise Report 91

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)	C		O			
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus	R		O			
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas	O	R	O	O		
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp. phalangium	R					
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus	O		O	O		
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus	R					
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis		R				
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa				R	F	
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa	O	O			F	
Bugula turbinata		O				
Cellaria fistulosa						
Cellaria sinuosa	:					
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens			R			
Henricia oculatata						
Marthasterias glacialis	R					
Ophiocomina nigra						
Ophiothrix fragilis	O		F	R		
Ophiura texturata						

SITE NAME: Looking Glass Point '11

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii	O					
Botryllus schlosseri	O					
Ciona intestinalis						
Clavelina lepadiformis	F	F				
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Mogula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava		R				
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus	R					
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomatoschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: Royal Albert Bridge SITE NO.: 92

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	435	588	TO		

LAT. LONG.

	°	'	°	'	W/E		°	'	°	'	W/E
		:		:		TO		:		:	

RECORDER: R. HISCOCK, B. BULLIMORE, S. HISCOCK

DATE: 20 D 07 M 86 Y

TIME IN 1811

TIME OUT 1848 BST/

DURATION 37 GMT

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 5.0 m

DEPTH RANGE SURVEYED +1 -13. M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 0.7 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	✓
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	✓
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	✓
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	?
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	✓
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

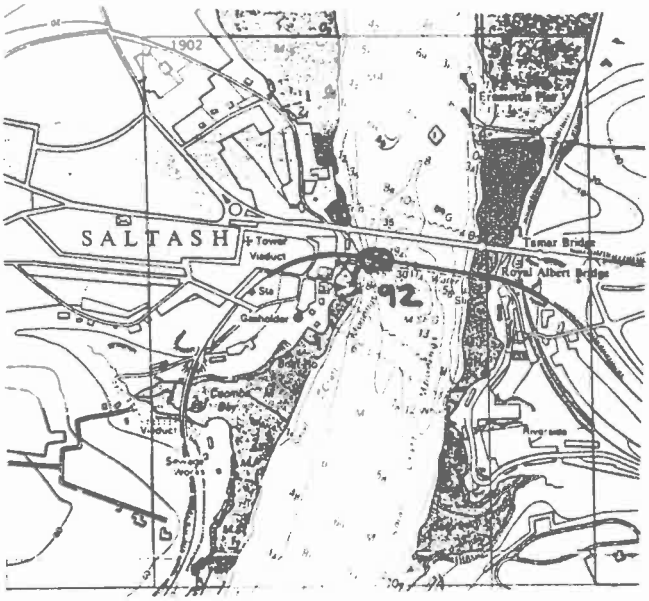
SITE NO. 92

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103			✓			
LOWER CIRCALITTORAL	104				✓	✓	✓
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106	✓					
0-5	107		✓	✓	✓		
5-10	108					✓	
10-20	109						✓
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	2	2	2	2		
LG. BOULDERS (500 mm+)	113	1	1	1	2		
SM. BOULDERS (256-500 mm)	114	2	2	3	3	3	1
LG. COBBLES (128-256 mm)	115			2	2	2	2
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117					2	2
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						3
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127		2	1			
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137				✓	✓	
Fauna, scaffold nibs etc					2	2	
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150				2	2	
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED - Halichondria			1	2	2	1	
+ Mytilus (hab 3)				3			

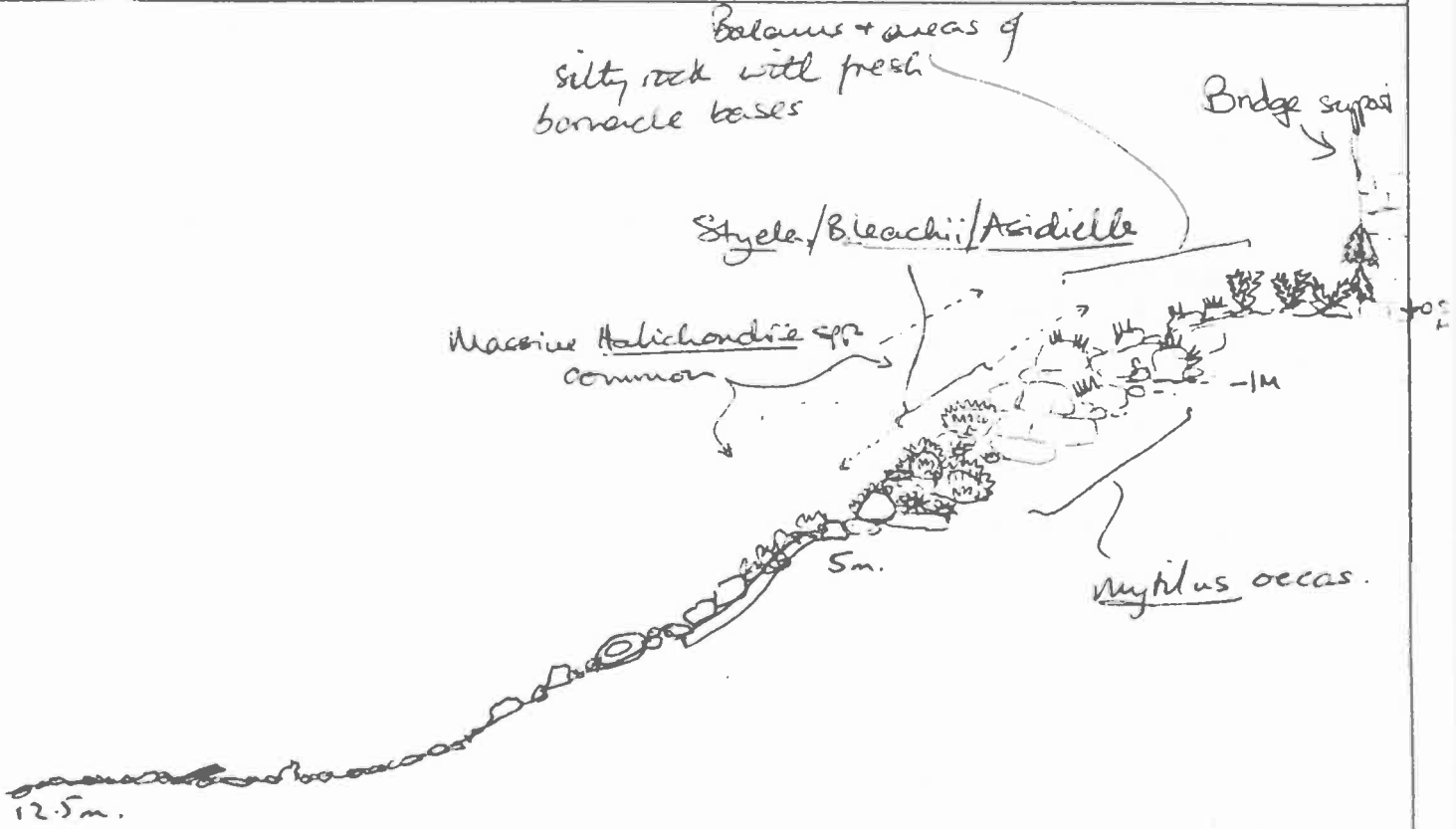
OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172			.			
STEEP (20-40°)	173			✓	✓		
SHALLOW (<20°)	174	✓	✓			✓	
HORIZONTAL	175						✓
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176				2		
(UNBROKEN ROCK	177						
(BROKEN ROCK	178	2	2	2	2	3	
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198	2	2	2	1	2	3
THICK/FLOC. SILT ON ROCKS	199	2	2	2	3		
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE NO.: 92

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 92

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

General Slope of bedrock and boulders from the intertidal to about 10m dominated by Halichondria panicea to about 5m bcd with silted cobbles and pebbles deeper colonised in part by Balanus crenatus with much Bowerbankia pustulosa on the slope and parts of the level seabed. Carcinus maenas common in shallow depths. Crangon crangon common on level seabed.

1. Gradual slope of boulders and broken bedrock at +0.5m. Subtrace lower littoral / sublittoral fringe. Fucus serrate + Sutcorrupta sp Common on large boulders, and Porphyra sp frequent, up to the base of the bridge support.

2. Moderate slope of boulders and broken bedrock at -0.5m (animal records +0.5 to -1m) Frequent Hypoglossum and Polyneura gradilis, with a few filaratos red algae. Very little variety. Halichondria occassional, also Mytilus + B. crenatus. Patches of barnacle shell bases frequent.
3. Steep slope of boulders and broken bedrock with cobbles at -1m. Lower limit of foliose algae, with only Polyneura gradilis + Hypoglossum both occasional.

4. Steep. ~~Low~~ Slope of large boulders and broken bedrock at 2 to 6m. No algae seen below -1m BCD. Very silty, Halichondria dominated. Styela occas. Ascidiella rare, Carcinus common
5. Moderate slope of boulders, cobbles and debris at 5 to 10m. ~~At~~ Generally a very silty substratum with some barnacles showing and characterised mainly by Bowerbankia pustulosa scattered Sagartia elegans mineata, Metridium senile and Urticina felina with widely scattered Halichondria
6. Level seabed of pebbles and cobbles on muddy sediment at 10 to 12.5m. Silty pebbles colonised by Balanus crenatus with frequent Paguridae and Urticina felina and patches where Bowerbankia pustulosa was common. Crangon crangon common here.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Royal Albert Bridge 92 GRID REFERENCE: SX L35 588

DATE: 23 4 86 NAME OF RECORDER: S Hiscock

KEY TO HABITAT COLUMNS:

1. Graded slope of boulders and bedrock at +0.5m.
2. Moderate slope of boulders and broken bedrock at -0.5m (animal recorded to 0.5 to -1m)
3. Steep slope of boulders and broken bedrock with cobbles at -1m.
4. Steep slope of large boulders and broken bedrock at 2-6m.
5. Moderate slope of boulders, cobbles + debris at 5-10m.
6. Level seabed of boulders + cobbles + muddy sediment at 10m to 12.5m.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula		O				
Antithamnion spirographidis						
Apoglossum ruscifolium		O				
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides						
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa						
Delesseria sanguinea						
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii		F	O			
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii		F	O			
Polyneura hilliae		R				
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
Porphyra sp.	F					
Filamentous red algae		O				
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

Station: 92

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata						
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
Laminaria saccharina						
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
✓ Fucus serratus	C					
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
✓ Enteromorpha sp.	C					
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera marina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Royal Albert Bridge (92) GRID REFERENCE: SX 435 588

DATE: 20.7.86 NAME OF RECORDER: B. Bullimore (1-4) K. Hiscock (5-6)

KEY TO HABITAT COLUMNS:

1. } Gradual -> moderate slope of boulders + broken bedrock at 0.5 -> 1m.
2. }
3. }
4. Steep slope of boulders + broken bedrock at 2-4m.
5. Moderate slope of boulders, cobbles and debris at 5 to 10m
6. Level seabed of pebbles and cobbles on muddy sediment at 10 to 12.5 m.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)				x1	x1	
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea		O		C	F	
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve				O		
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						
Suberites sp. (on Pagurus)					x1	
?Gelidae indet.				O	O	

	1	2	3	4	5	6	
COELENTERATA:HYDROZOA							
Abietinaria abietina							
Aglaophenia pluma							
Aglaophenia tubulifera							
Campanularia angulata							
Halecium beanii							
Halecium halecinum							
Hydractinia echinata							
Hydrallmania falcata						R	✓
Nemertesia antennina							
Nemertesia ramosa							
Obelia dichotoma							
Obelia geniculata		R					✓
Plumularia setacea				R	x1		✓
Sertularella polyzonias							
Sertularia argentea				F			1301 ✓
Sertularia cupressina						x1	
Tubularia indivisa							
Tubularia larynx							
Halecium gelatinosa						O	✓
Lafoea cyclina					P		✓
COELENTERATA:ANTHOZOA							
Actinothoe sphyrodeta							
Adamsia carciniopados							
Alcyonium digitatum							
Anemonia viridis							
Caryophyllia smithii							
Cereus pedunculatus							
Cerianthus lloydii							
Corynactis viridis							
Edwardsia claparedii							
Epizoanthus couchii							
Isozoanthus sulcatus							
Metridium senile				O	F	O	✓
Sagartia elegans							
Sagartia troglodytes							
Sagartiogetan undatus				O	C	O/F	✓
1303 Urticina felina / equina				O	F	F	✓
Sagartia elegans rosea					x1		✓
Urticina equina				P			✓

SITE NAME: 92

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)						
Sabella pavonina						
Terebellidae indet.		R				
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus		C		O	F/C	F
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas		F		C	F	R
Crangon crangon						C
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber				R		
Macropodia rostrata						×1
Maja squinado						
Paguridae indet.						
Pagurus berhardus					O	F
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata				P	R	R
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus				O		
Testudinalia cantena					×1	×1
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis		O		R	R	
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa				C	F	F
Bicellariella ciliata						
Bryozoa indet. (encr.)						R
Bugula flabellata						
Bugula plumosa				R	R	
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
Conopeum sp.				?		
Scruparia chelata				?		
Conopeum reticulum						O
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

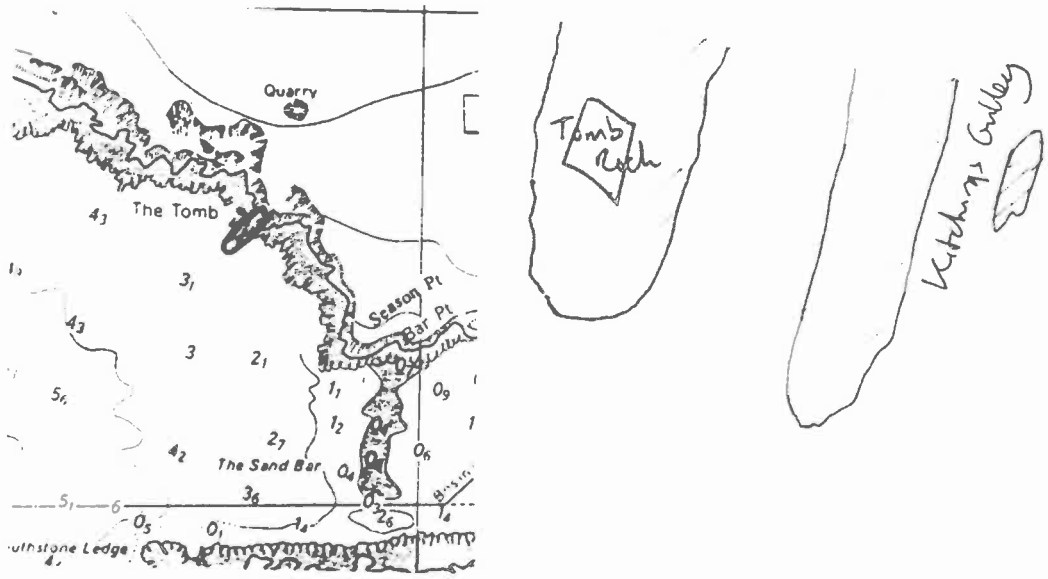
SITE NAME: 92

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa				R		
Botrylloides leachii				R	x1	
Botryllus schlosseri						
Ciona intestinalis				x1		
Clavelina lepadiformis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Molgula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava				O	F	R
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						x1
Pleuronectys platessa						x1
Pollachius pollachius						
Pomataschistus minutus						

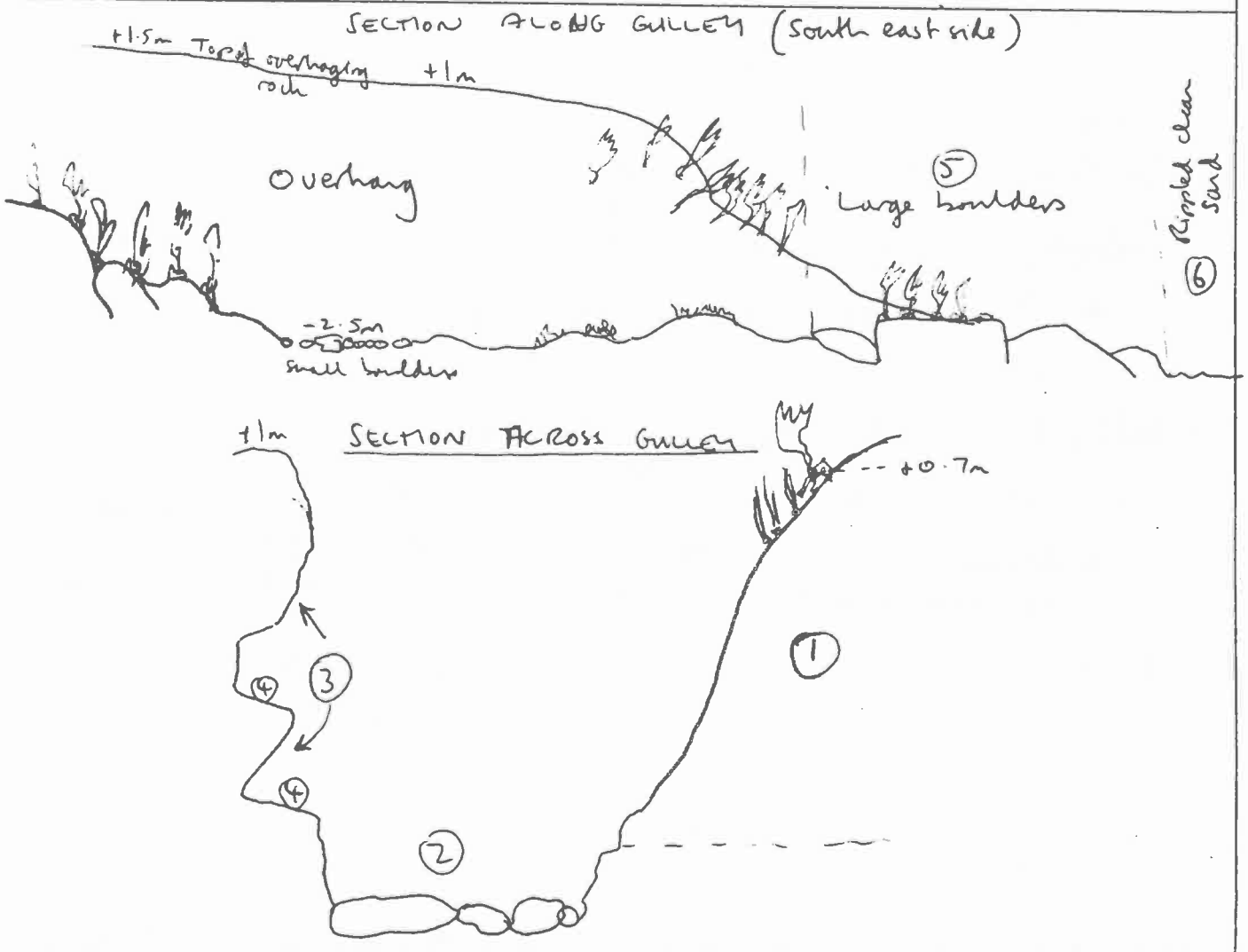
	1	2	3	4	5	6
Syngnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						

SITE NO.: 93

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

General description. The gulley was almost exactly as described by Kitching et al from work undertaken in 1931 and 1932. The kelp forest described on the north-west wall appeared to have given way to dense Corallina with only a narrow fringe of kelps at low water level and the bottom of the gulley was of small and large boulders without sand and with no Sabellaria present. There was a steeply sloping north-west wall dominated by Corallina extending to areas of boulders which were colonised by a wide variety of foliose algae and by kelps with dense Cystoseira ~~at the~~ on boulders at the entrance. The south-east wall was ~~vertical~~ mainly vertical or overhanging with some shelves and dominated by Distomus with some Halichondria and calcareous sponges.

Habitat 1. ~~Upward facing~~ Steeply sloping unbroken bedrock on the north west side from +0.7 to 2.5m. Sharp transition from barnacle-limpet dominated rock at +0.7m to Corallina turf with a fringe of Saccorhiza polyschides and Laminaria saccharina with Himanthalia elongata extending about ~~to~~ 0.5m down the slope and Crouania attenuata abundant in a belt below this with solely Corallina present in large amounts to the floor of the gulley.

Habitat 2 Large boulders forming part of the gulley floor at 2m. Dominated by foliose ~~algae~~ and encrusting algae

Habitat 3 Overhanging and vertical rock on the south-east side from 0 to 2.5m (algae from vertical rock) ~~that~~ Dominated by a patchy cover of Distomus variolosus with a rich variety of other species including patches of Scrupocellaria present and large ~~[illegible]~~ amounts of Rhodymenia pseudopalmata and Cryptopleura ramosa

Habitat 4. Upfacing rock on shelves under the overhangs at 1 to 2m. Dominated by foliose algae(C) and amphipod tubes(A) with some calcareous algae.

Habitat 5 Large boulders at the entrance at 2.0m ~~[illegible]~~ dominated by encr. algae with Laminaria hyperborea, Saccorhiza polyschides and L. saccharina with foliose algae and Cystoseira foeniculacea.

Habitat 6. Rippled clean sand at entrance to gulley at 3m with dense Arenicola marina and Frequent Nassarius reticulatus

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: Kitchings Gully, Tomb Rock SITE NO.: 93

SURVEY AREA: Plymouth / Yealm SEA AREA:

OS GRID REF.:

	E - W	N - S	TO	E - W	N - S
SX	526	480			

LAT. LONG.

	°	'	°	'	W/E	TO	°	'	°	'	W/E
		:		:				:		:	

RECORDER: K. Hiscock DATE: 21 D 07 M 96 Y

TIME IN 1446

TIME OUT 1556 BST/

DURATION 70 ~~GMT~~

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 2.5-3.8 m

DEPTH RANGE SURVEYED +1-3 M BELOW ~~SEA LEVEL~~/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 4 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	✓
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	✓
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	✓
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	✓

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	✓
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	✓
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	✓
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

SITE NO. 93

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101	✓	✓	✓	✓	✓	✓
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓	✓	✓	✓	✓	✓
5-10	108						
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	3		3	3		
LG. BOULDERS (500 mm+)	113		3			3	
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129					3	
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY			1			2	
ALGAL MEADOW			3		2	3	
ALGAL TURF		3					
ALGAL CRUST							
FAUNAL TURF				1			
FAUNAL BED				3			

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170			✓			
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172	✓					
STEEP (20-40°)	173						
SHALLOW (<20°)	174						
HORIZONTAL	175		✓		✓	✓	✓
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179				3		
(LEDGES	180						
ROCK WALLS	181			2			
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197					1	
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						3
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED Brenda	246						3

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: KITCHENG'S GULLY, TOMB ROCK (93) GRID REFERENCE: SX 526 480

DATE: 21/7/86 NAME OF RECORDER: TERESA BENNETT

KEY TO HABITAT COLUMNS:

1. Upward facing rock on North side
2. Rock in centre of gully
3. Overhanging rock
4. Upfacing rock under overhang
5. Rocks at entrance
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum	O		O		O	✓
Ahnfeltia plicata					O	✓
Antithamnion plumula						
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides	O					✓
Calliblepharis ciliata				O		✓
Callithamnion sp.						
Callithamnion tetragonum			O			✓
Callophyllis laciniata	O		O		O	✓
Ceramium rubrum	F	O			O	✓
Ceramium sp.						
Chondrus crispus	F	F		F	F	✓
Chylocladia verticillata						
Corallina officinalis	A	O		O	C	✓
Corallinaceae indet. (pink encr.)	O	A		F	F	✓
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa	F	O	C	F	O	✓
Delesseria sanguinea	O		F			✓
Dilsea carnosa	O	F	O	F	F	✓
Drachiella spectabilis				O		✓
Furcellaria lumbricalis					O	✓
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina		F				✓
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus	O				O	✓
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii	O	O		O	O	✓
Kallymenia reniformis			O			✓
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides			F			✓
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum	O	R	F		O	✓
Polyides rotundus						
Polyneura gmelinii			O	O		✓
Polyneura hilliae	O					✓
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica	O					✓
Radicilingua thysanorhizans						
Rhodomela confervoides					O	✓
Rhodophyllis divaricata	O					✓
Rhodophyllis sp.						
Rhodophyta indet. (encr.)	O	C		F	O	✓
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata			A			✓
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum		O		O		✓
Stenogramme interrupta						
Falkenbergia	C				O	✓
Mesophyllum lichenoides	O					✓
Ceramium cubitatum	O					✓
Ceramium diaphanum	O					✓
Porphyra sp	O				O	✓
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

Continued on other side.

SITE NAME: 93

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus	O	O			F	
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata	F			O	O	
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma	O	-			O	
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea	O			O	C	
Laminaria ochroleuca						
Laminaria saccharina		O			O	
Phaeophyta indet. (encr.)					O	
Pseudolithoderma sp.						
Saccorhiza polyschides					F	
Sargassum muticum						
Himanthalia elongata	O					
Cystoseira foeniculacea					C	
Laminaria sp. (rips)				O		
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa	O					
Chaetomorpha melagonium	O				O	
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)	O	O		F	O	
Cladophora sp	O	F	O	O	O	
Chaetomorpha sp	C					
ANGIOSPERMAE						
Zostera marina						
Rhodophyta Corl.						
Lawrencia pinnatifida	R					
? Crouania attenuata	R					
Gigartina acicularis					F	
Antithamnion sp	O					
Polysiphonia fibrillosa		O				
Scholtera nicaeensis			F	O		

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Kitchings Gulley, Tomb Rock (93) GRID REFERENCE: SX 526 480

DATE: 21.7.86 NAME OF RECORDER: M. Hiscock

KEY TO HABITAT COLUMNS:

1. Steeply sloping unbroken bedrock on the NW side to 0·7 to 2·5m.
2. Large boulders forming part of gulley floor at 2m.
3. Overhanging and vertical rock on the SE side 0 to 2·5m (algae on vertical)
4. Upfacing rock on shelves under overhangs at 1 to 2m.
5. Large boulders at the entrance at 2·0 m.
6. Rippled clean sand at the entrance

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi			F			
PORIFERA:CALCAREA						
Clathrina coriacea			O			
Grantia compressa			F			
Leuconia barbata			O			
Leucosolenia botryoides						
Scypha ciliata			O			
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum			R			
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis			O			
Halichondria panicea *			F		O	
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma			O			
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina						
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata			F			
Plumularia setacea			O			
Sertularella polyzonias			O			
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
Obelia sp. (on Corallina)	O					
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta	O		O	F		
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis		x1			x1	
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis			F			
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina	F			O	R	
Sagartia elegans (orange var.)			x1			

* includes anastomosing crusts.

SITE NAME: 93

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						C
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus			x1			
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)			O		F	
Sabella pavonina						
Terebellidae indet.			x1			
Potamilla reniformis			D			
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus	O		R		F	
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)			F	R		
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus		x2				
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
Mysidacea ind.			O			
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria		F	x1		F	
Nassarius incrassatus						
Nassarius reticulatus						F
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Jorunna tomentosa			x2			
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)	R					
Bugula flabellata						
Bugula plumosa						
Bugula turbinata			O			
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa			C			
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans			F			
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis					F	
Vesicularia spinosa						
Schizomavella linearis			O			
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens			x1			
Henricia oculatata						
Marthasterias glacialis				x1		
Ophiocomina nigra						
Ophiothrix fragilis (juv)			o/f			
Ophiura texturata						

SITE NAME: 43

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus			x1			
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.			O			
Holothuria forskali				x1		
CHORDATA:ASCIDIACEA						
Aplidium punctum			O			
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri			x1			
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum			F		F	
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus			C			
Lissoclinum perforatum			R			
Mogula manhattensis						
Morchellium argus			R	O		
Phallusia mammillata						
Polycarpa rustica			O			
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
Didemnidae (yellow)			R			
Diplosoma indet (as Denb Pt)			R			
Aplidium densum/punctum			P			
CHORDATA:PISCES						
Ammodytes sp.						F
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps					x1	
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta		x1				
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
Gadoidea indet		x1				

Sheet #1 of 2

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: Off Cellar Bay

SITE NO.: 94 (1)

SURVEY AREA: Plymouth / Yealm

SEA AREA:

OS GRID REF.:

	E - W	N - S			E - W	N - S
SX	530	479	TO	SX	530	477

to SX 521 478

LAT. LONG.

° '	° ' W/E		° '	° ' W/E
		TO		

RECORDER: J. Moore / S. Miscock

DATE: 21 D 07 M 86 Y

TIME IN	1227	DEPTH CORRECTION APPLIED?	~~NO~~/YES +/- 1-1.8 m
TIME OUT	1410 BST/	DEPTH RANGE SURVEYED	0-3.5 M BELOW SEA LEVEL/CHART DATUM
DURATION	103 ~~GMT~~	HORIZONTAL UNDERWATER VISIBILITY	3 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	✓

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	✓
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	✓
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	✓
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	✓
NOT KNOWN	56	
OTHER (tick and note below)	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	✓
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

SITE NO. 94 (1)

		STN./HABITAT					
DEPTH ZONE (OPEN ROCK) (TICK ONE)		1	2	3	4	5	6
SUBLITTORAL FRINGE	100	✓					
UPPER INFRALITTORAL	101		✓	✓	✓	✓	✓
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106	✓					
0-5	107	✓	✓	✓	✓	✓	✓
5-10	108						
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112						
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117				2		
SM. ROUND COBBLES (64-128 mm)	118	1			2		
SM. SLATES	119	2					
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120				3		
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121	3			3		
MED. & SM. PEBBLES (4-16 mm)	122	3				1	1
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129	3			1	3	3
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134		3				
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
Sargassum plants				3			
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED							

		STN./HABITAT					
OVERALL INCLINATION (TICK ONE)		1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174						
HORIZONTAL	175	✓	✓	✓	✓	✓	✓
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
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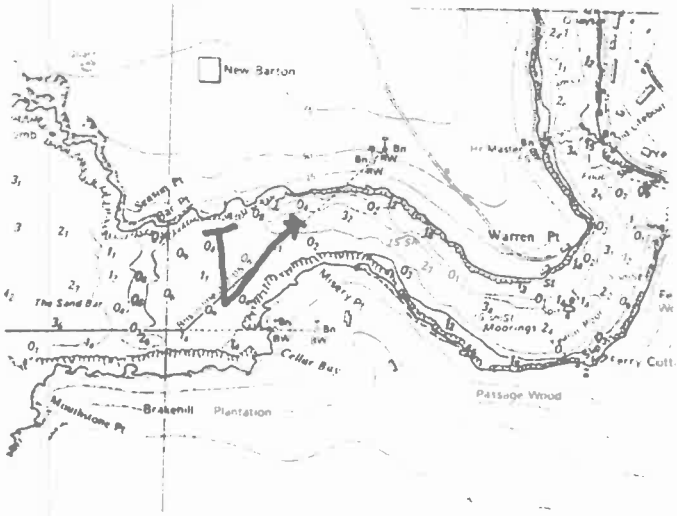
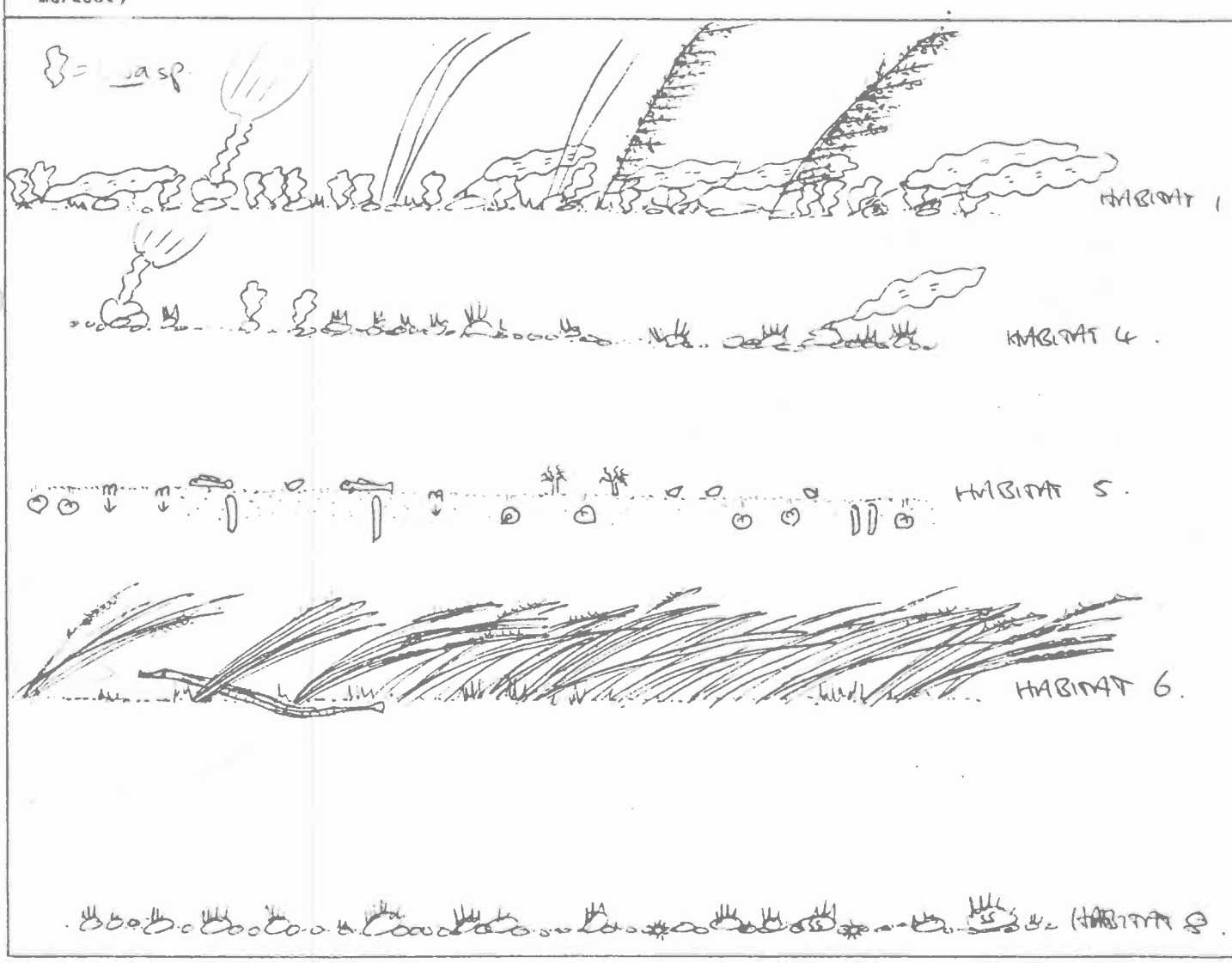
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220	2			3	2	
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225					1	
BURROWS	226				1	2	
SHELLS (INTACT)	227				2		
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						3
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE NO.: 94 (1)

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 94 (1)

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

General Algal dominated shallow sand, gravel + pebbles on north side, with algae becoming less towards the middle. Pebbles + gravel giving way to sand near Calla Bay, and with increasing amounts of Zostera noltii. Quite dense beds at end of southern cove - upshore in slightly deeper cove a cobbles + pebbles a rich + interesting flora. Diatoms abundant colonies.

Habitat 1 Subtidal fringe at Ch to -0.5m, pebbles scattered in sand. 100% cover of algae with L saccharina, + Ulva, + Enteromorpha co-dominant. Saccorhiza, Cladophora and Sargassum muticum all frequent. Sargassum floating upwards having a distinct fringe from the surface. Cruciata membranacea + Ceramium rubrum also frequent, with a small variety of other algae beneath the canopies.

Habitat 2 Epiphytes on kelp Ch to -2m BCD.

Habitat 3 Epiphytes on Sargassum muticum Ch to -1m BCD. Ceramium rubrum + diatoms predominant algal epiphytes. Abundant Obelia geniculata, heavily coated with diatoms.

Habitat 4 Pebbles and gravel at 1.3m BCD. Sparse algae, with Ascophyllum, Ulva and Cruciata membranacea frequent, and a variety of others in lesser abundance. Cruciata foliacea occasional

Habitat 5 Medium sand at 1.3m below CD.

Habitat 6 Dense Zostera noltii at 1.7m below CD. Few algae except Ceramium rubrum, Cruciata membranacea + occasional L saccharina, Sargassum muticum and young Saccorhiza polyschides. Some adult algae around Zostera beds. Some Zostera plants with seeds. One large Syngnathus acus seen.

Habitats 7 + 8 - see sheet 2.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS
(Not including species sampled from sediments)

SITE NAME: OFF CELLAR BAY (94) 41 GRID REFERENCE: 530 479 to 530 477 to 531 478.

DATE: 21 7 86 NAME OF RECORDER:

KEY TO HABITAT COLUMNS:

1. Subtidal Fringe at 0m to -0.5m on stones in sand.
2. ~~Kelp~~ Epiphytes on Kelp 0m to -2m BCD
3. Epiphytes on Sargassum mutica 0m to -1m BCD.
4. Pebbles and gravel at 1.3m below CD.
5. Medium sand at 1.3m below CD
6. Dense Zostera marina at 1.7m below CD.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula	O			O		
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides				O		
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum	F		F			F
Ceramium sp.						
Chondrus crispus	O					
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)	F					
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa						
Delesseria sanguinea						
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera				O		
Grateloupia filicina				O		
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum				R		
Heterosiphonia plumosa						
Hypoglossum woodwardii						
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata			O			
Peyssonelia sp.				O		
Phyllophora crispa						
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii						
Polyneura hilliae						
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides				O		
Rhodophyllis divaricata						O
Rhodophyllis sp.						
Rhodophyta indet. (encr.)	F					
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata check id.				?O		
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
Gracilaria verrucosa	F			F		O
Phymatolithon lenormandii	F					
Falkenbergia	O					
Phycodrys rubens	R					
Laurencia ?pinnatifida	R					
CHRYSOPHYTA						
Chrysophyta indet. (diatoms) epiphytic	A		A	A		
Colonial diatoms	O					

SITE NAME: 94 (1) SEASON 1 9 2

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum	F					
Cladostephus spongiosus	D					
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata						
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma				R		
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
Laminaria saccharina	A			O		O
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides	F			O		O
Sargassum muticum	F					O
Cystoseira sp	R					
Punctaria sp	F					
~~Gloiosa sp~~						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa				R		
Chaetomorpha melagonium						
Cladoohora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.	E					
Ulva sp. (p)	A		O	F		
Cladophora sp	F					O
ANGIOSPERMAE						
Zostera marina					O	A
Asparagus sp	F			F		O
Chondria dasyphylla				O		
Grateloupia filicina				R		

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Off Cellars ~~Cliffe~~ Bay (44/11) GRID REFERENCE: SX 530479 & 530477 & 521478

DATE: 21-7-86 NAME OF RECORDER: J. Moore

KEY TO HABITAT COLUMNS:

1. Sub. Fringe at 0-0.5m on pebbles and sand
2. Kelp on substrate
3. Sargassum on substrate
4. Pebble plain at 2-3m
5. Sand at 1-3m
6. Dense Zostera bed (algae only)

Full descriptions on plant sheet.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea						
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina	:					
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata		F	A			
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis				R	O	
Caryophyllia smithii						
Cereus pedunculatus	R					
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						
Lucernariopsis campanulata	R					

SITE NAME: 94 (1)

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega	O			O	F	
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)	R					
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas	O					
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus				O		
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet. (tubes)						
Tonicella rubra				P		
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria		F				
Nassarius incrassatus						
Nassarius reticulatus	O				F	
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
Littorina littorea				R		
Calyptraea chinensis				F		
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata	O					
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
Burrowing bivalve siphons					O	
Ensis ensis				R	C	
Dosinia exoleta				R		
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea		O				
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: 94 (1)

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum					A	
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Mogula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra				O		
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)					R	
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						R
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
Pomataschistus					F	
? Entelurus aequoreus						R

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: Off Cellar Bay

SITE NO.: 94 (2)

SURVEY AREA: Plymouth / Yealm

SEA AREA:

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	530	479	TO SX	530	477

to SX 521 478

LAT. LONG.

	°	'	°	'	W/E		°	'	°	'	W/E
		:		:		TO		:		:	

RECORDER: J. Moore / S. Hiscock

DATE: 21 D 07 M 86 Y

TIME IN: 1227

TIME OUT: 1410 BST/

DURATION: 103

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 1.1.8 m

DEPTH RANGE SURVEYED 0-35 M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 3 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	✓

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	✓
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	✓
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	✓
NOT KNOWN	56	
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	✓
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

SITE NO. 94 (2)

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101	✓	✓				
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓	✓				
5-10	108						
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112						
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117		2				
SM. ROUND COBBLES (64-128 mm)	118		2				
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120		3				
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121		3				
MED. & SM. PEBBLES (4-16 mm)	122		2				
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
Zostera leaves		3					
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED							

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174						
HORIZONTAL	175	✓	✓				
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220		3				
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE NO.: 94 (2)

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)

See Sheet # 1

SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)

See Sheet #1

SITE NO.: 94 (2)

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

Habitat 7. Epiphytes on Zostera leaves at -1.7m BCD. Dominant algal epiphytes were colonial diatoms + filamentous brown algae, with Ceramium sp. frequent and encrusting coralline algae on oldest leaves.

Habitat 8. Pebbles and gravel in sediment at 2.2 to 3.2m BCD. A very interesting pebble flora with a wide variety of species, including frequent Gracilaria fuhrifera and Gastroclonium reflexum (the latter in large clumps), and rare ? Gracilaria bursa-pastoris. Current-swept.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: OFF CLEVE BAY (96)(4) GRID REFERENCE: S30479 to S30 477 to S31 478

DATE: 21.7.86 NAME OF RECORDER: S HISCOCK

KEY TO HABITAT COLUMNS:

1. Epiphytes on Zostera marina leaves at -1.1m BCD.
2. Pebbles and gravel in sediment at 2.2 to 3.2m BCD.
3.
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula	R					
Antithamnion spirographidis	R					
Apoglossum ruscifolium	O					
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides	O					
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata	R					
Ceramium rubrum						
Ceramium sp.	O	F				
Chondrus crispus	O					
Chylocladia verticillata	R					
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa						
Delesseria sanguinea						
Dilsea carnosa	R					
Drachiella spectabilis	R					
Furcellaria lumbricalis						
Gastroclonium ovatum	R					
Gigartina acicularis						
Gracilaria foliifera	F					
Grateloupia filicina	O					
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus	O					
Halarachnion ligulatum	O					
Heterosiphonia plumosa						
Hypoglossum woodwardii	O					
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.	O					
Phyllophora crispa						
Phyllophora pseudoceranoides	R					
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii	O					
Polyneura hilliae						
Polysiphonia elongata						
Polysiphonia sp. ?urceolata	O					
Pterosiphonia parasitica						
Radicilingua thysanorhizans	F					
Rhodomela confervoides	O					
Rhodophyllis divaricata	O					
Rhodophyllis sp.						
Rhodophyta indet. (encr.)	F					
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata ?	O					
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
Gastroclon reflexum	F					
Gracilaria verrucosa	F					
Chordaria flagelliformis	O					
Cystoclonium purpurascens	R					
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)		A				

SITE NAME: 94 (2)

Sub 29 2 of 2

	8 ~~1~~	7 ~~2~~	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata	R					
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.	F	A				
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
Laminaria saccharina	A					
Phaeophyta indet. (encr.)	F					
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
Asperococcus sp	F					
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa	R					
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)						
Cladophora sp	R					
ANGIOSPERMAE						
Zostera marina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS
(Not including species sampled from sediments)

SITE NAME: Off Cellar Bay (94)(2) GRID REFERENCE: SX 530479 & 530477 & 521478

DATE: 21-7-86 NAME OF RECORDER: J Moore

KEY TO HABITAT COLUMNS:

7 1. Zostera or substrate
6 2. Pebble plain at ~~5m~~ 2-2 5 3 2 m
3.
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea						
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina	:					
Nemertesia ramosa						
Obelia dichotoma		C				✓
Obelia geniculata	P					✓
Plumularia setacea		F				✓
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina		A				✓
Tubularia indivisa						
Tubularia larynx						
~~Obelia geniculata (colt)~~		✓				
Kirchenpauria pinnata		P				✓
Plumularia similis	P					✓
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis	O	O				✓
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina		F				✓

SITE NAME: 94 (2)

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)		F				
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
Corophium [illegible]	P					
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.		F				
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus		O				
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata		R				
Archidoris pseudoargus						
Dendronotus frondosus		O				
Facelina bostoniensis		R				
Polycera quadrilineata	R					
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: FERN COTTAGE, R. YEALM — SITE NO.: 95

SURVEY AREA: PLYMOUTH — SEA AREA: PLYMOUTH.

OS GRID REF.: E-W N-S

SX 538 475 TO E-W N-S

LAT. LONG. ° ' ° ' W/E TO ° ' ° ' W/E

RECORDER: B. BULLIMORE / C. HOWSON. DATE: 21 D 07 M 86 Y

TIME IN 1223

TIME OUT 1329 BST/GMT

DURATION 61

DEPTH CORRECTION APPLIED? NO/YES -1.0 m

DEPTH RANGE SURVEYED 0-2 m BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 1.5 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	✓

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	✓
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	✓
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	✓

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	✓
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

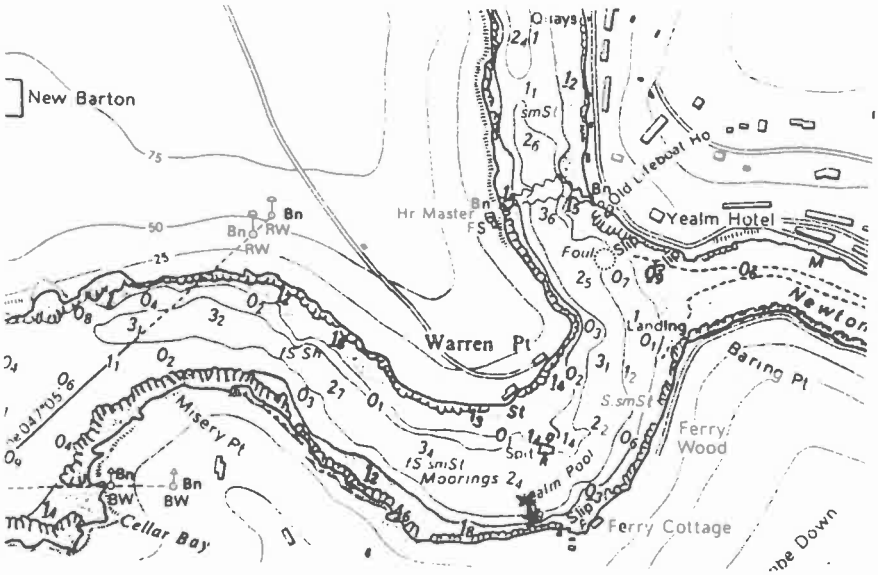
UNDERWATER DATA

SITE NO. 95

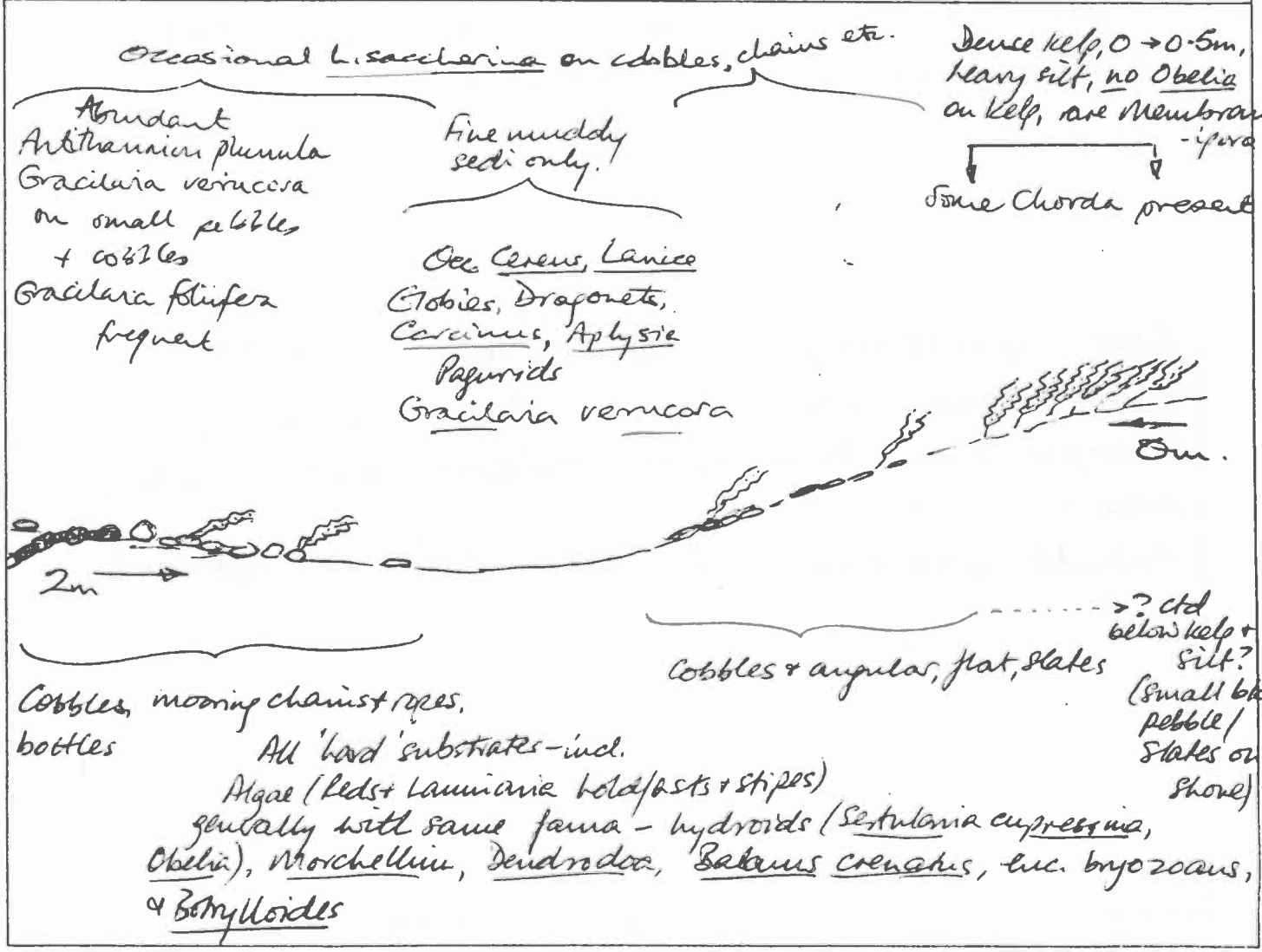
DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101				✓		
LOWER INFRALITTORAL	102	✓	✓	✓			
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓	✓	✓	✓		
5-10	108						
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	1					
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118	3			2		
SM. SLATES	119	-					
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120	2					
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122	3			2		
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124		2				
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130		3		3		
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133	3					
KELP PLANTS	134				2		
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137			✓			
Algal fonds				3			
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL (MOORING CHAINS)	150	2					
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153	✓					
MOORING ROPES/GLASS BOTTLES		2					
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY					3		
ALGAL MEADOW		3					
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED		2					

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174	✓	✓	✓	✓		
HORIZONTAL	175						
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176	1					
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198	3					
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200	✓					
STABLE COBBLES		3					
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220		3				
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225		1				
BURROWS	226		2				
SHELLS (INTACT)	227		1				
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246		2				

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 95

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

Gradual slope from shore amongst yacht moorings. Bottom muddy sand with a layer of cobbles, pebbles and some shell debris. Hard substrata (0.5 - 2m) supported red & green foliose algae - Gracilaria verrucosa + G. foliifera Antithamnion plumula, Cryptopleura ramosa and Rhodophyllis divaricata most frequent. Some L. saccharina plants attached to small stones.

Area of fine muddy sand at 2.0m with little hard substrata - few algae attached to small stones & shells. Occasional Lanice, Cerebratulus and single Sabella in sediment. Carcinus, Paguridae, Gobius niger, Lomatoschistes ?pictus + Carcinus on sediment (+ Callionymus).

Upper infralittoral / sublittoral fringe - 0.5m Dense L. saccharina. Some Chorda filum Community similar to deeper ones Desmarestia aculeata and ligulata present.

Membranipora occasional only on kelp - no hydroids - silt too heavy.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

(95)

SITE NAME: Ferry Cottage, R. Yealm GRID REFERENCE: SX 538475

DATE: 21/7/86 NAME OF RECORDER: C. Howson

KEY TO HABITAT COLUMNS:

1. Hard substrata including algae Sher Mar fronds 0.5 - 2m Lower infralitt
2. Soft muddy sediments 0.5 - 2m Lower infralitt
3. Algal fronds as substratum 0.5 - 2m
4. Upper infralittoral, Lam. saccharina
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula	C			C		✓
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides						
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum	F			F		✓
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata	R			R		✓
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa	F			F		✓
Delesseria sanguinea						
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera	F			F		✓
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides	O			O		✓
Griffithsia flosculosa						
Gymnogrongrus crenulatus	O			R		
Halarachnion ligulatum	R					
Heterosiphonia plumosa						
Hypoglossum woodwardii	O			F		✓
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum	O					
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum	R			R		✓
Polyides rotundus						
Polyneura gmelinii	C					✓
Polyneura hilliae						
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata	F			O		✓
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata	R			R		✓
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
Gracilaria vermicosa	A			A		✓
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME: 95

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa	F					
Chorda filum				F		
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata				R		
Desmarestia liqulata	R			R		
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma	F			O		
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
Laminaria saccharina	C			A		
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum	O			O		
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa	O			O		
Chaetomorpha melagonium						
Cladophora pellucida	O			F		
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)	C			C		
ANGIOSPERMAE						
Zostera marina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: FERRY COTTAGE, R. YEALM (95) GRID REFERENCE: SX 538475

DATE: 210786. NAME OF RECORDER: S. BULLIMORE

KEY TO HABITAT COLUMNS:

1. HARD SUBSTRATES, INCLUDING ALGAE OTHER THAN ALGAL FRONDS, 0-5 – 2m. LWR. INFRA
2. SOFT MUDDY SEDIMENTS 0.5 – 2m. LOWER INFRA.
3. ALGAL FRONDS AS SUBSTRATE 0.5 – 2m.
4. UPPER INFRALITTORAL, LAMINARIA SACCHARINA.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea	O					✓
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve	R					✓
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						
Suberites domuncula*		O				✓
(mainly on Paguroids)						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma	O					
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata		R				✓
Hydrallmania falcata						
Nemertesia antennina						
Nemertesia ramosa	:					
Obelia dichotoma	F					✓
Obelia geniculata		C				✓
Plumularia setacea		r				✓
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina	F					✓
Tubularia indivisa						
Tubularia larynx						
Kuckenpamia quinata	R					✓
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis		x2				✓
Caryophyllia smithii						
Cereus pedunculatus		O				✓
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile	R					✓
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						
Prostheceraeus Cereus vittatus	x2					✓

SITE NAME: 95

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega		O				
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)	F					
Sabella pavonina		x1				
Terebellidae indet.						
Spirorbidae indet.	O					
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus	C					
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus		x1				
Carcinus maenas		F				
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.		F				
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus		O				
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
? Monodonta		x1				
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata		O				
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
Anomia sp	P					
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)	F					
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa	:					
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea			O	O		
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
Cryptosula pallasiana	P					
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: 1 5

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii	F					
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis	R					
Dendrodoa grossularia	F					
Didemnidae indet.						
Didemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Molgula manhattensis						
Morchellium argus	F					
Phallusia mammillata						
Polycarpa rustica	R					
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra		P				
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger		x3				
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: NORTHERN YEALM — SITE NO.: 96

SURVEY AREA: PLYMOUTH — SEA AREA:

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	540	486	TO	543	491

LAT. LONG.

° '	° ' W/E		° '	° ' W/E	
		TO			

RECORDER: Chas Hawson, Iain Dixon

DATE: 21 D 07 M 86 Y

TIME IN 1458

TIME OUT 1535 BST/~~GMT~~

DURATION 37

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 1.6 m

DEPTH RANGE SURVEYED 2.4-3.4 m ~~BELOW SEA LEVEL~~/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 3 m

SITUATION (TICK ONE ONLY)

OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)

HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)

VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	✓
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	✓
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)

NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	✓
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)

THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	✓

ROCK TYPE (TICK)

IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	✓
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)

MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED

PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

SITE NO. 96

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102	✓					
UPPER CIRCALITTORAL	103		✓				
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						

DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓	✓				
5-10	108						
10-20	109						
20-30	110						
>30	111						

SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112						
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118	2	2				
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122	2	3				
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130	3	2				
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135	2					
TREE BRANCHES	136	1					
OTHER (score & note type below)	137						
MOORING BLOCKS		1					

ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE (MOORING BLOCKS)	151	1					
WOOD	152						
OTHER (tick & note/score below)	153						

ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED							

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174	✓	✓				
HORIZONTAL	175						

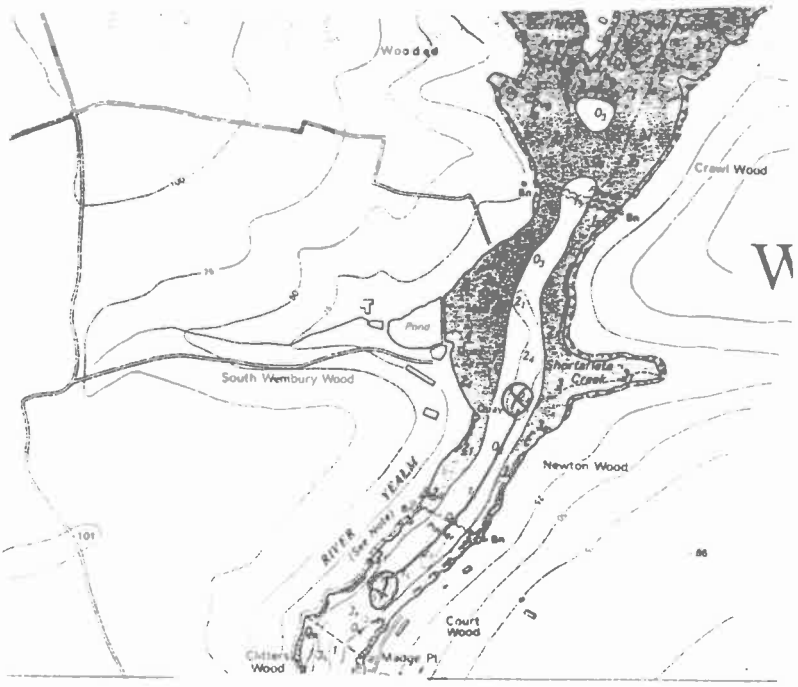
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						

SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221	2	2				
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227	2					
OTHER (tick & note/score below)	228						

SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241	2	1				
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE NO.: 96

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)

HABITAT 2

Cobbles and pebbles over muddy sand. Comparatively bare, but fauna dominated by sponges (Halichondria, Sclerita, Hymeniacidon), Modiolus modiolus and Hydroids (mainly Sertularidae indet, inc S. distans). Scattered algae, particularly Antithamnion plumula. Some Gracilaria vermicosa. Occasional trailing lengths of Sargassum muticum in both habitats.

HABITAT 1

Muddy sand formed into long, low dunes (4-5 m long by 30cm high; scarp & dip). Debris of twigs and matted drift algae in depressions. Sediment with scattered Ostrea valves, otherwise fairly bare. Dense carpets of Gracilaria vermicosa in some areas.



Big plants of Polyneura hilliae frequent.

SITE NO.: 96

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

Habitat 1

Muddy sand with oyster shells at 2.4 - 3.4 m BCD.

Formed into series of scarp and dip slopes aligned at right angles to the main tidal streams. Matted drift algae and twigs (silty) accumulated at foot of scarps.

Generally bare of biota, apart from occasional (patchy) meadows of Gracilaria verrucosa and ~~Sa~~ single Sargassum muticum. Apart from Occasional loose Suberites sp, sponges were attached to shells and branches. Dead shells mainly Ostrea, Ensis, and some Crepidula. Some Chorda present in shallower areas.

Habitat 2

Cobbles and pebbles over muddy sand at 2.4 - 3.4 m BCD. Richer in biota than habitat 1, but nevertheless fairly bare overall.

Fauna dominated by sponges, hydroids, and Morchellium argus; all tending to be slightly silted up, especially the hydroids and Hymeniacodon perlevis.

Fairly fast drift over this area so not recorded fully. Antithamnion plumula common on small stones. Gracilaria verrucosa + foliifera frequent. Griffithsia Corallinoides frequent.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Northern Yealm (96) GRID REFERENCE: SX 540 486 - 543491

DATE: 21/7/86 NAME OF RECORDER: Christine Howson

KEY TO HABITAT COLUMNS:

1. Muddy sand with oystershells
2. Cobbles & pebbles over muddy sand
3.
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula	C	C				
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides						
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa	F					
Delesseria sanguinea						
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides	C	F				
Griffithsia flosculosa						
Gymnogrongrus crenulatus	O	O				
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii	P	O				
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum		O				
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii						
Polyneura hilliae	F					
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta		R				
Gracilaria verrucosa	A	C				
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME: 96

	1	2	3	4	5	6	
PHAEOPHYTA							
Arthrocladia villosa	F						✓
Chorda filum	F						✓
Cladostephus spongiosus							
Cystoseira baccata							
Desmarestia aculeata							
Desmarestia ligulata							
Desmarestia viridis							
Dictyopteris membranacea							
Dictyota dichotoma	F	O					✓
Ectocarpoidea indet.							
Halidrys siliquosa							
Halopteris filicina							
Laminaria digitata							
Laminaria hyperborea							
Laminaria ochroleuca							
Laminaria saccharina							
Phaeophyta indet. (encr.)							
Pseudolithoderma sp.							
Saccorhiza polyschides							
Sargassum muticum	O						✓
CHLOROPHYTA							
Bryopsis hypnoides							
Bryopsis plumosa	O	R					✓
Chaetomorpha melagonium							
Cladophora pellucida	F	F					✓
Cladophora pygmaea							
Cladophora rupestris							
Enteromorpha sp.	F						✓
Ulva sp. (p)							
ANGIOSPERMAE							
Zostera marina							

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: NORTHERN YEALM (96) GRID REFERENCE: SX 540 486 - 543 491

DATE: 21.07.86 NAME OF RECORDER: DIXON

KEY TO HABITAT COLUMNS:

1. Muddy sand with Oyster shells at 2.4 - 3.4 m BCD.
2. Cobbles and Pebbles over muddy sand at 2.4 - 3.4 m BCD
3.
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea	O	F				
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve	O	F				
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus	F	F				
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata	O	O				
Hydrallmania falcata	R	O				
Nemertesia antennina						
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata						
Plumularia ~~setacea sp~~						
Sertularella polyzonias						
Sertularia argentea		P				
Sertularia cupressina	R	F				
Tubularia indivisa						
Tubularia larynx						
~~Sertularia cupressina~~	R	F				
Kirchenpauria pinnata		R				
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis	F	O				
Caryophyllia smithii						
Cereus pedunculatus		R				
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile	O	R				
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						

SITE NAME: 96

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega	R					
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)	O	O				
Sabella pavonina						
Terebellidae indet.						
Spirorbidae		O				
Protula tubularia		P				
Neoamphitrite figulus		P				
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus	O	C				
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
Corophium sp	P	P				
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas		O				
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus	O	O				
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum	R	R				
Crepidula fornicata	R					
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus		O				
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
Calyptrea chinensis		O				
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Doto ?coronata		R				
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata		O				
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
Cryptosula pallasiana	O	A				
~~Sertularidae indet~~	R	F				
~~Sertularia distans~~		P				
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: 76

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia		R				
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Molgula manhattensis						
Morchellium argus		F				
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
Pedicellina sp	P	P				

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: Offshore Pickecombe Point — SITE NO.: 97

SURVEY AREA: — SEA AREA:

OS GRID REF.:

	E-W	N-S		E-W	N-S
SX	465	514	TO SX	461	512

LAT. LONG.

	W/E		W/E
° '	° '	TO ° '	° '

RECORDER: S HEWLOCK / I MYDIXON — DATE: 22 D 07 M 86 Y

TIME IN 1026 — TIME OUT 1115 BST/ ~~GMT~~ — DURATION 49

DEPTH CORRECTION APPLIED? NO/YES +/- -2.3 m (-3.0 to)

DEPTH RANGE SURVEYED 4.7 - 11.5 ..... M BELOW ~~SEA LEVEL~~/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY ..3-4... m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	✓
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	✓
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	✓
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	✓
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	✓
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	✓
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	✓
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	✓

Dredging probable vicinity (shipping channel)

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	✓
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

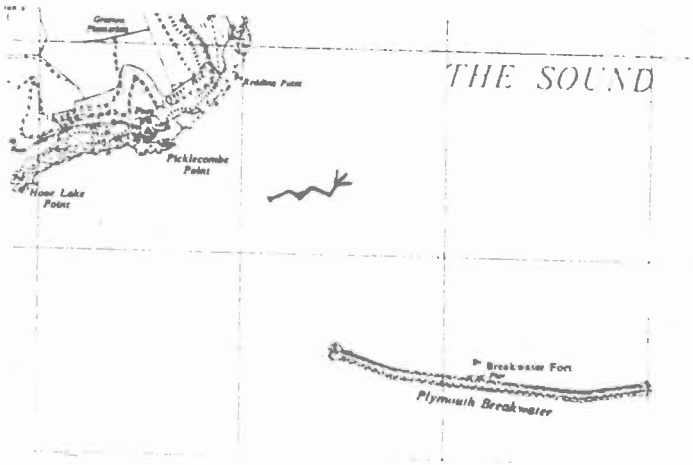
SITE NO. 97

DEPTH ZONE (OPEN ROCK) (TICK ONE)		SIN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102	✓	✓	✓	✓		
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107						
5-10	108			✓	✓		
10-20	109	✓	✓				
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112						
LG. BOULDERS (500 mm+)	113				1		
SM. BOULDERS (256-500 mm)	114		3		2		
LG. COBBLES (128-256 mm)	115			1			
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118	1		2			
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121			2			
MED. & SM. PEBBLES (4-16 mm)	122	3		2			
CLEAN GRAVEL (2-4 mm)	123	2		2			
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126	2		2			
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128	2		2			
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133	✓		✓			
KELP PLANTS	134						
WHOLE SHELLS	135	2		2			
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY					1		
ALGAL MEADOW		1	1		3		
ALGAL TURF					1		
ALGAL CRUST				1			
FAUNAL TURF			2		2		
FAUNAL BED							

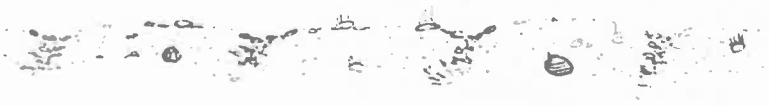
OVERALL INCLINATION (TICK ONE)		SIN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174						
HORIZONTAL	175	✓	✓	✓	✓		
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190				1		
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198		1		1		
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220	✓					
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228	✓					
USPAS ca. 0-15 mm ø		3					
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE NO.: 97

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



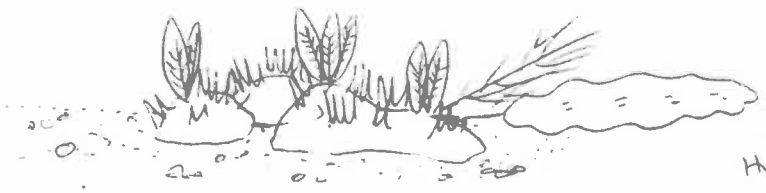
HABITAT 1 10.5 - 11.5 m BCD.



HABITAT 2 10.2 - 10.6 m BCD.



HABITAT 3 9-10m BCD.



HABITAT 4. 9.5 m BCD.

SITE NO.: 97

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

General. Horizontal or slightly sloping bottom of gravel, pebbles + cobbles with occasional boulders. Gravel in flat waves in place with ridges approx. 3/4 m apart. Much shell debris + many whole shells.

HABITAT 1 Horizontal seabed of coarse gravel, pebbles and sand in flat waves ca. 0.75 m apart at 10.5 - 11.5 m BCD. Waves parallell to current (NE - SW). Many whole shells of Dosinia, Lutraria, Pecten, Algae mainly on shells, and sparse except for frequent colonial diatoms. Fauna sparse.

HABITAT 2 - Occasional large boulders in pebbles + gravel at 10.2 - 10.8 m BCD. Animal dominated but a variety of algae sparsely distributed. Dominated (faunally) by Alcyonium digitatum

HABITAT 3 Pebbles and cobbles in gravel at 9 - 10 m BCD. Good cover of foliose algae on cobbles + large pebbles + shells. Interesting pebble flora including Dudresnaya, Schmitzia neapolitana, Scinaia sp. Sporochnus, Naccaria and Gracilaria foliifera (Rare).

HABITAT 4 Occasional large boulders embedded in gravel + sand at 9.5 m BCD. Dense foliose algae with different species to surrounding gravel + pebble areas. Mainly typical bedrock infralittoral species but with Radicilingua near rock/gravel interface. Occasional large Laminaria saccharina

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Ilfracombe Portcothan Point (97) GRID REFERENCE: SX 465 514 & 461 512

DATE: 22 7 86 NAME OF RECORDER: S Hiscock

KEY TO HABITAT COLUMNS:

1. Horizontal loose gravel, pebbles and sand in flat areas at 10.5-11.5m BCD
2. Occasional large boulders in pebbles and gravel at 10.2 - 10.8m BCD.
3. Pebbles and cobbles in gravel at 9.9/10m BCD.
4. Occasional large boulders embedded in gravel + sand at 9.5m BCD.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula	O		O			✓
Antithamnion spirographidis			O			✓
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides			F			✓
Bonnemaisonia hamifera						
Brongniartella byssoides	O	O		F		✓
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)	O					✓
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa	O			C		✓
Delesseria sanguinea				C		✓
Dilsea carnosa		R		R		✓
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera			R			✓
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum	O		O			✓
Heterosiphonia plumosa				O		✓
Hypoglossum woodwardii						
Kallymenia reniformis						
Lomentaria clavellosa			R			✓

	1	2	3	4	5	6
Lomentaria orcadensis			R			✓
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa			R			✓
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum				O		✓
Polyides rotundus						
Polyneura gmelinii	O	O		F		✓
Polyneura hilliae		O		F		✓
Polysiphonia elongata						
Polysiphonia sp.			O			✓
Pterosiphonia parasitica						
Radicilingua thysanorhizans				O		✓
Rhodomela confervoides		O				✓
Rhodophyllis divaricata		O				✓
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii			R	O		✓
Rhodymenia pseudopalmata (pink)		O				✓
Scinaia ~~furcellata~~ sp	O		O			✓
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta	R		O			✓
Schmitzia neapolitana	O		F			✓
Schottera nicaeensis		R				✓
Dudresnaya verticillata			O			✓
Naccaria wiggii			F			✓
? Aeodactylus hypnoides			R			✓
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						
Coloured diatoms	F		C			✓

SITE NAME: 97

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa			O			
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata			R	R		
Desmarestia ligulata						
Desmarestia viridis			O			
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
Laminaria saccharina				O		
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
Sparchice pedunculatae	F		F			
Sphacelaria sp.			P			
Cutleria multifida			R			
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa			R			
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.			O			
Ulva sp. (p)						
Cladophora sp.			O			
?Cladophora sp.			R			
ANGIOSPERMAE						
Zostera marina						
Blue/green algae (red)		R				
Unidentified brown alga (preserved)			O			

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Offshore Pickle combe Point (97) GRID REFERENCE: SX 465 514 & 461 512 S.t. 97

DATE: 22 07 86 NAME OF RECORDER: DIXON

KEY TO HABITAT COLUMNS:

1. Horizontal bare gravel, pebbles and sand in flat wave at 10.5 - 11.5m BCD
2. Occasional large boulders in pebbles and gravel at 10.2 - 10.8m BCD
3. Pebbles and cobbles in gravel at 9 - 10 m BCD
4. Occasional large boulders embedded in gravel and sand at 9.5m BCD
5.
6.

	1	2	3	4	5	6	
PROTOZOA							
Haliphysema tumanowiczi							
PORIFERA:CALCAREA							
Clathrina coriacea							
Grantia compressa							
Leuconia barbata							
Leucosolenia botryoides							
Scypha ciliata							
PORIFERA:DEMOSPONGIAE							
Amphilectus fucorum							
Ciocalypta penicillus							
Cliona celata							
Cliona sp. (boring)	R		R				✓
Dercitus bucklandi							
Dysidea fragilis							
Halichondria panicea							
Halichondria bowerbanki							
Haliclona oculata							
Hemimycale columella							
Hymeniacidon perleve		O					✓
Myxilla incrustans							
Pachymatisma johnstonia							
Phorbas fictitius							
Polymastia mamillaris							
Polymastia boletiforme							
Raspailia hispida							
Raspailia ramosa							
Stellata grubii							
Stelligera stuposa							
Suberites ficus		R					✓
Tethya aurantium							

	1	2	3	4	5	6	
COELENTERATA:HYDROZOA							
Abietinaria abietina							
Aglaophenia pluma							
Aglaophenia tubulifera							
Campanularia angulata							
Halecium beanii							
Halecium halecinum		O					✓
Hydractinia echinata							
Hydrallmania falcata							
Nemertesia antennina							
Nemertesia ramosa		O	F	O			✓
Obelia dichotoma							
Obelia geniculata							
Plumularia setacea	P						✓
Sertularella polyzonias							
Sertularia argentea							
Sertularia cupressina							
Tubularia indivisa							
Tubularia larynx							
Gonothyraea gracilis	P						✓
Clytia hemisphaerica			P				✓
COELENTERATA:ANTHOZOA							
Actinothoe sphyrodeta		O					✓
Adamsia carciniopados							
Alcyonium digitatum	R	A		O			✓
Anemonia viridis							
Caryophyllia smithii							
Cereus pedunculatus			R				✓
Cerianthus lloydii							
Corynactis viridis							
Edwardsia claparedii							
Epizoanthus couchii							
Isozoanthus sulcatus							
Metridium senile							
Sagartia elegans							
Sagartia troglodytes			R				✓
Sagartiogetan undatus							
Urticina felina				O			✓

SITE NAME: 97

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega	O					✓
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)	O		F			✓
Sabella pavonina						
Terebellidae indet. (large tubes)	O					✓
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia			P			✓
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
Caprella acanthifera		F				✓
CRUSTACEA:DECAPODA						
Cancer pagurus	F					✓
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus	R		R			✓
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
Porcellana platycheles			P			✓
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria			R			✓
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Eubranchus farrani (juv)	P					
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus	R					✓
? Mya siphons	O					✓
Anomia sp			P			✓
BRYOZOA						
Alcyonidium diaphanum	O					✓
Bowerbankia pustulosa	O	P				✓
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata	R	R				
Bugula plumosa		O	O	O		✓
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa	O		O			✓
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa		F		C		
Escharoides coccinea			O			✓
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa		P				✓
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens	O		O			✓
Henricia oculatata						
Marthasterias glacialis	R		R			✓
Ophiocomina nigra						
Ophiothrix fragilis			F			✓
Ophiura texturata						

SITE NAME: 9/

	1	2	3	4	5	6	
ECHINODERMATA:ECHINOIDEA							
Echinocardium cordatum							
Echinus esculentus							
Psammechinus miliaris							
ECHINODERMATA:HOLOTHUROIDEA							
Cucumaria sp.							
Holothuria forskali							
CHORDATA:ASCIDIACEA							
Aplidium punctum							
Ascidia mentula							
Ascidiella aspersa							
Botrylloides leachii							
Botryllus schlosseri							
Ciona intestinalis							
Clavelina lepadiformis	R		R	R			✓
Dendrodoa grossularia							
Didemnidae indet.							
Didemnum gelatinosum							
Didemnum maculosum							
Diplosoma listerianum		R					✓
Diplosoma spongiforme							
Distaplia rosea	O	F		O			✓
Distomus variolosus							
Lissoclinum perforatum							
Molgula manhattensis							
Morchellium argus		C					✓
Phallusia mammillata							
Polycarpa rustica							
Polycarpa sp.							
Polyclinidae indet.							
Polyclinum aurantium							
Sidnyum elegans							
Sidnyum turbinatum							
Stolonica socialis		F					✓
Styela clava							
CHORDATA:PISCES							
Ammodytes sp.							
Callionymus lyra							
Centrolabrus exoletus							
Crenilabrus melaps							
Ctenolabrus rupestris							
Gobius niger							
Gobiusculus flavescens							
Labrus bergylta		R					✓
Labrus mixtus							
Pholis gunnellus							
Pleuronectidae indet. (juv.)							
Pleuronectys platessa	R						✓
Pollachius pollachius							
Pomatoschistus minutus	O						✓

	1	2	3	4	5	6
Syngnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: NORTH OF 'THE BRIDGE' — SITE NO.: 98

SURVEY AREA: Plymouth — SEA AREA:

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	462	527	TO SX	464	525

LAT. LONG.

	°	'	°	'	W/E		°	'	°	'	W/E
						TO					

RECORDER: B. BULLIMORE — DATE: 22 D 07 M 86 Y

TIME IN: 1132 — TIME OUT: 1215 BST/~~GMT~~ — DURATION: 43

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 1.6 m

DEPTH RANGE SURVEYED 2.5-24 M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 3 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	✓
SOUND/NARROWS	12	✓
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	✓
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	✓
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	✓
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	✓

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	✓
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	✓
C-U	82	
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

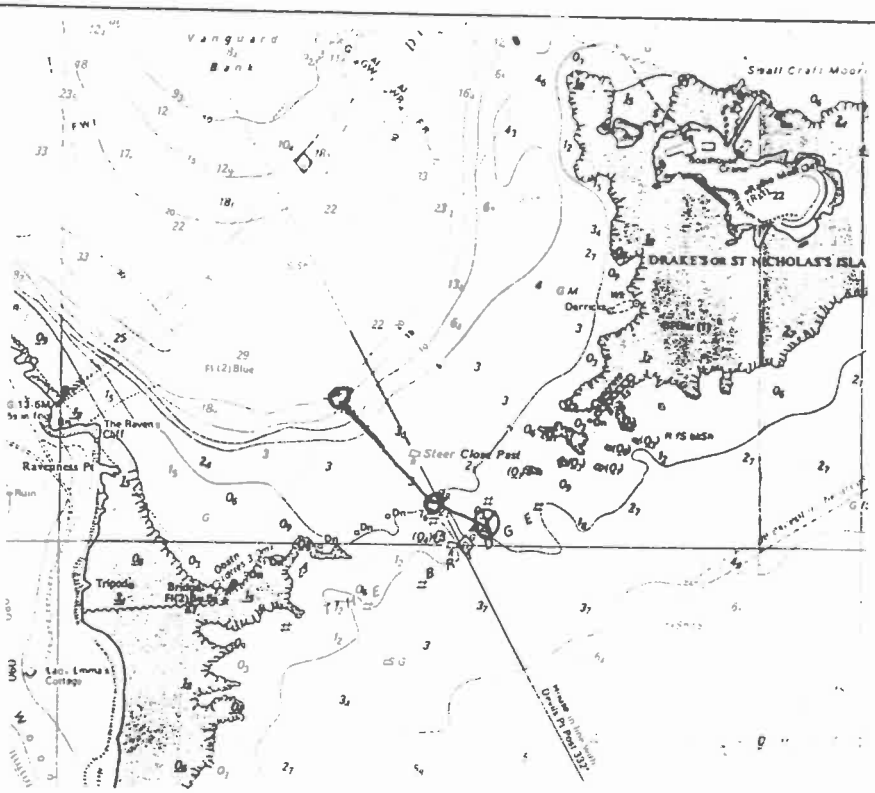
SITE NO. 98

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101			✓	✓		
LOWER INFRALITTORAL	102		✓				
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104	✓					
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107		✓	✓	✓		
5-10	108	✓					
10-20	109	✓					
20-30	110	✓					
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	1	1	1			
LG. BOULDERS (500 mm+)	113			2			
SM. BOULDERS (256-500 mm)	114	2	3	2			
LG. COBBLES (128-256 mm)	115	2	3	2			
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117	3	2				
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121	2	2				
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127	3	2				
COARSE SAND (0.5-2 mm)	128		2				
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134				3		
WHOLE SHELLS	135		2				
TREE BRANCHES	136						
OTHER (score & note type below)	137				✓		
Delesseria					3		
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY				3			
ALGAL MEADOW			3	3			
ALGAL TURF							
ALGAL CRUST			1				
FAUNAL TURF							
FAUNAL BED		2	2	1			

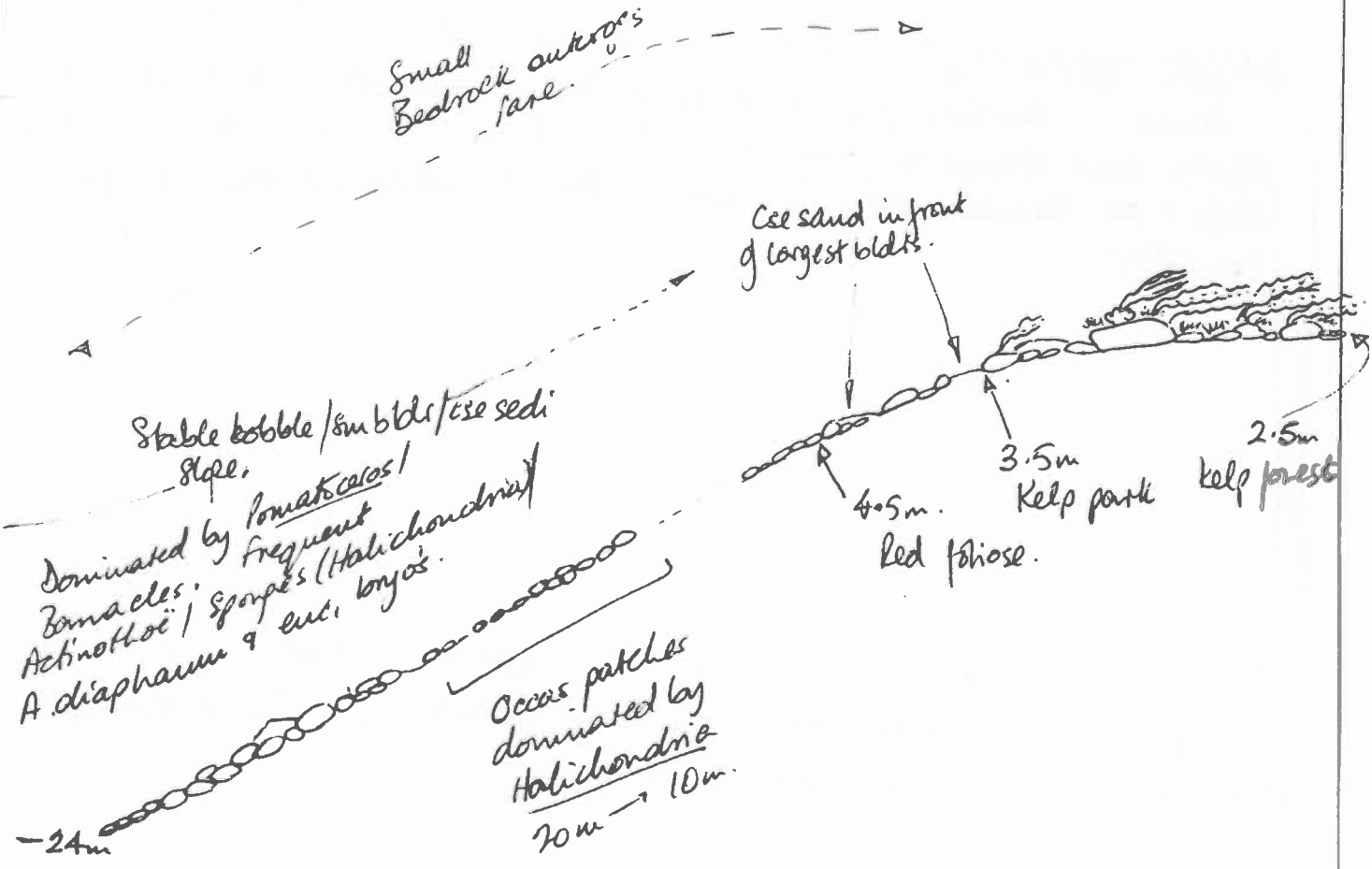
OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173	✓	✓				
SHALLOW (<20°)	174			✓			
HORIZONTAL	175			✓			
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176	1					
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191	3	3				
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193			2			
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200	✓					
STABLE COBBLE SLOPE		3	3	2			
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE NO.: 98

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 98

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

General. Stable steep mixed cobble/pebble/cce shell gravel slope from deeper than 24m to 2·5m. Slope flattened to more or less horizontal by c. 4m. Rare bedrock at 20m (1 small outcrop) and larger boulders frequent shallower. Patches of coarse sand beside some of larger boulders.

① Circalittoral cobble slope.
Stones dominated by Pomatoceros & B. crenatus with common Verruca spat. "Large Lanice" occasional between stones. Frequent Mordellum, A. diaphanum, hydroids (Plumularia setacea, Kirchenpania, O. dichotoma), Actinothoë & sponges on larger cobbles. Indet Diplosoma sp. & D. listerianum occasional. Patches dominated by Halichondria & indet grey enc. sponge.

② Lower infralittoral
Generally as above but, larger boulders (→0.5m) present) & patches of coarse sand. Hymeniacedon occasional, Cereus freq. Red foliose algae cover → approx 60%.

③ Upper infralittoral, shallow slope/horizontal, kelp forest.
Dense L. saccharina/Saccorhiza forest attached to boulders. Obelia and Membranipora on kelp. Delesseria very dense below kelp & on smaller stones. Some Halichondria (occas) on lger boulders.

Single small bedrock outcrop with frequent N. antennina, C. setacea, Bicellariella, Halecium halecinum, Mordellum & occasional Halichondria & Urticina.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: NORTH OF THE BRIDGE 98 GRID REFERENCE: SX 462527 - SX 464525

DATE: 220786 NAME OF RECORDER: COLLECTED BB ID'D. C.H + S.H.

KEY TO HABITAT COLUMNS:

1.
2.
3. LOWER INFRALITTORAL - STABLE COBBLE SLOPE
4. UPPER INFRALITTORAL - COBBLE & BOULDER SHALLOW SLOPE/PLAIN.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula						
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides		P				✓
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa		P				✓
Delesseria sanguinea			A			
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum		P				✓
Heterosiphonia plumosa						
Hypoglossum woodwardii						
Kallymenia reniformis		P				✓
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata		P				✓
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum		P				✓
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum			.			
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii		P				✓
Polyneura hilliae						
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans		P				✓
Rhodomela confervoides						
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta		P				✓
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME: 98

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata		P				
Desmarestia ligulata		P				
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
Laminaria saccharina			A			
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides			O			
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera marina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: N. of "THE BRIDGE" (98) GRID REFERENCE: SX 462527 - SX 464525

DATE: 220786. NAME OF RECORDER: B. BULLIMORE.

KEY TO HABITAT COLUMNS:

1. CIRCALITTORAL STABLE COBBLE / PEBBLE / COARSE SEDIMENT STEEP SLOPE.
2. LOWER INFRALITTORAL STABLE COBBLE STEEP SLOPE
3. UPPER INFRALITTORAL STABLE COBBLE + BOULDER SHALLOW SLOPE / PLAIN.
4. ALGAL FRONDS AS SUBSTRATE - LOWER INFRALITORAL
5.
6.

	1	2	3	4	5	6	
PROTOZOA							
Haliphysema tumanowiczi							
PORIFERA:CALCAREA							
Clathrina coriacea							
Grantia compressa							
Leuconia barbata							
Leucosolenia botryoides							
Scypha ciliata							
PORIFERA:DEMOSPONGIAE							
Amphilectus fucorum							
Ciocalypta penicillus							
Cliona celata							
Cliona sp. (boring)							
Dercitus bucklandi							
Dysidea fragilis							
Halichondria panicea	O	F	F				✓
Halichondria bowerbanki							
Haliclona oculata							
Hemimycale columella							
Hymeniacidon perleve		O					✓
Myxilla incrustans							
Pachymatisma johnstonia							
Phorbas fictitius							
Polymastia mamillaris							
Polymastia boletiforme							
Raspailia hispida							
Raspailia ramosa							
Stellata grubii							
Stelligera stuposa							
Suberites ficus							
Tethya aurantium							
Encrusting sponge indet. (specimen)	O						✓

	1	2	3	4	5	6	
COELENTERATA:HYDROZOA							
Abietinaria abietina							
Aglaophenia pluma	R						✓
Aglaophenia tubulifera							
Campanularia angulata							
Halecium beanii							
Halecium halecinum	O						✓
Hydractinia echinata							
Hydrallmania falcata							
Nemertesia antennina	O	O					✓
Nemertesia ramosa							
Obelia dichotoma	O	O					✓
Obelia geniculata				C			✓
Plumularia setacea	O	O					✓
Sertularella polyzonias							
Sertularia argentea							
Sertularia cupressina							
Tubularia indivisa							
Tubularia larynx							
Kirchenpauria	O	R					✓
COELENTERATA:ANTHOZOA							
Actinothoe sphyrodeta	F						✓
Adamsia carciniopados							
Alcyonium digitatum							
Anemonia viridis							
Caryophyllia smithii							
Cereus pedunculatus	R	O					✓
Cerianthus lloydii							
Corynactis viridis							
Edwardsia claparedii							
Epizoanthus couchii							
Isozoanthus sulcatus							
Metridium senile							
Sagartia elegans							
Sagartia troglodytes							
Sagartiogetan undatus	R						✓
Urticina felina	R						

SITE NAME: 98

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus	R					
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)	C	F				
Sabella pavonina						
Terebellidae indet.						
"Large lanice"	O	O				
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus	C	F				
Elminius modestus						
Verruca stroemia – SPAT	C					
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum		P				
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Facelina bostoniensis		VI				
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
Anomia	F	F				
BRYOZOA						
Alcyonidium diaphanum	O					
Bowerbankia pustulosa						
Bicellariella ciliata	R					
Bryozoa indet. (encr.)	O					
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa	P					
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa				C		
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea				F		
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata	P					
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens	R	O				
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: 98

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa	R					
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia	R	R				
Didemnidae indet.	F					
Dicemnum gelatinosum						
Didemnum maculosum	R					
Diplosoma listerianum						
* Diplosoma spongiforme ??	P					
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Mogula manhattensis						
Morchellium argus	F					
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
* (Photograph)						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Syngnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: South of Mallard Shoal

SITE NO.: 99

SURVEY AREA: Plymouth

SEA AREA:

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	479	531	TO		

LAT. LONG.

° '	° ' W/E		° '	° ' W/E
		TO		

RECORDER: K. Hiscock

DATE: 22 D 07 M 86 Y

TIME IN	1249	
TIME OUT	1334	BST/
DURATION	45	GMT

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- ~~10 to 12~~ 08-10 ■

DEPTH RANGE SURVEYED 75 to 21 M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 2 ■

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	✓
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	✓
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	✓
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	✓
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below)	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	✓
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	✓
C-U	82	
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	
ALGAL CHECKLIST	86	
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

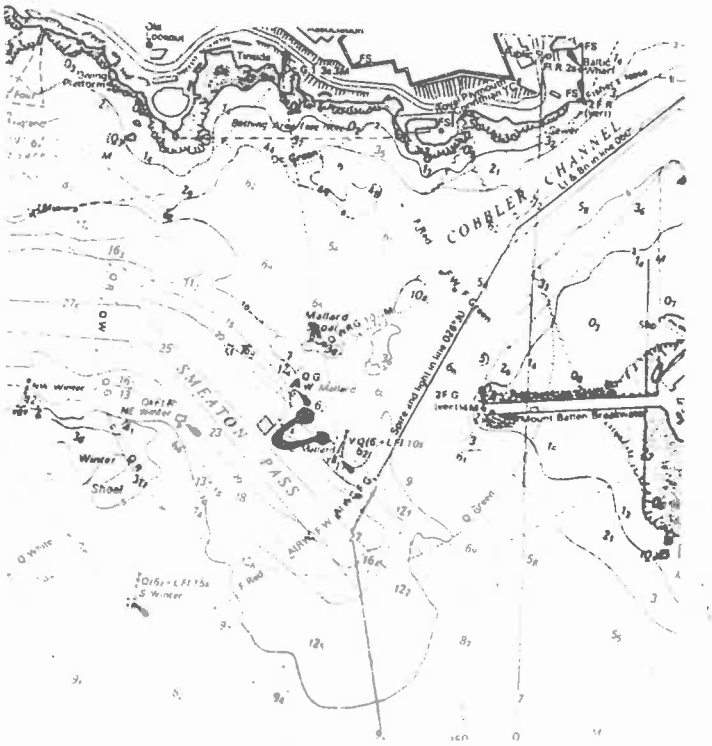
SITE NO. 99

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104	✓	✓	✓	✓	✓	
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107						
5-10	108	✓	·				
10-20	109	✓	✓	✓	✓	✓	
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	3		3	3		
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114		(				
LG. COBBLES (128-256 mm)	115		2			2	
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118		2			2	
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126					2	
MUDDY SHELL GRAVEL	127		3	·			
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED Polydora & Myxicola aesthetica		3					

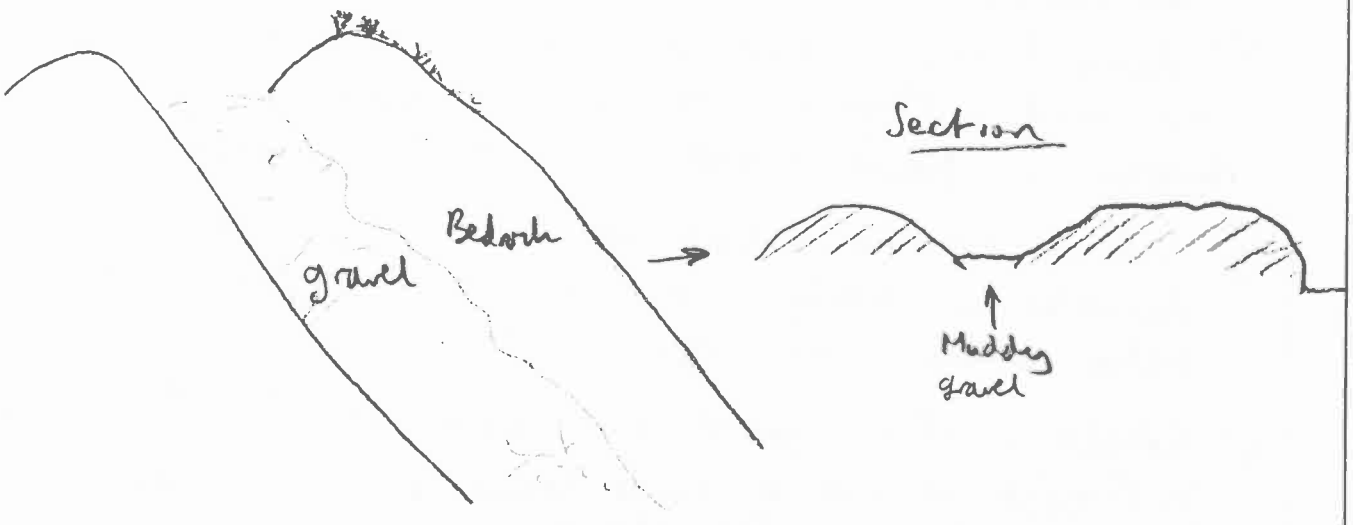
OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170	·					
VERTICAL (80-100°)	171				✓		
V. STEEP (40-80°)	172						
STEEP (20-40°)	173			✓	·		
SHALLOW (<20°)	174	✓	✓			✓	
HORIZONTAL	175						
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177	3		3			
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181				3		
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE NO.: 99

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)





SITE NO.: 99

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

General Predominantly bedrock surveyed from 8 to 21m with some extensive areas of muddy shell gravel with cobbles in shallow depths and steeply sloping flat topped ridges of limestone with muddy or clean shell gravel between extending to 22m and deeper. Rock was dominated by Polydora sp. with a variety of larger species especially varieties of Sagartia elegans, other anemones, Nemerteria spp and Antedon bifida shallow areas had a high abundance of ?Myxicola aesthetica and Metridium senile with beds of Cereus pedunculatus. Vertical or very steeply sloping rock had a high abundance of Hiatella arctica and Abundant Antedon bifida with Metridium senile confined to ridges.

(1) Gradual slope of unbroken limestone bedrock at 8 to 13m including a high abundance of ?Myxicola aesthetica, Metridium senile and Cereus pedunculatus and with Distomus in small patches

(2) Muddy shell gravel with cobbles and small boulders at 13 to 16m. Shell gravel colonised by high density of anemones with Cancer living in pots. Hard substrata with Common Antedon and Marchellium

(3) Sloping limestone bedrock at 15 to 21m. Unbroken slope dominated by a carpet of Polydora with large numbers of anemones, Common Antedon and frequent Nemerteria and Alcyonium digitatum.

(4) Vertical limestone bedrock at 16 to 18m. A small area which was dominated by Antedon and with a high abundance of Hiatella arctica siphons and some Carynactis viridis

(5) Cobbles on clean ~~gravel~~ shell gravel at 18 to 19m. Dominated by Polydora sp with a reduced bedrock fauna and Frequent ?Loimea medusa in the sediment

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: South of Mallard Shoal (99) GRID REFERENCE: SX 479 531

DATE: 22.7.86 NAME OF RECORDER: K. Hiscock

KEY TO HABITAT COLUMNS:

1. Gradual slope of limestone bedrock at 8 to 13m (additional records to below).
2. Muddy shell gravel with cobbles and small boulders at 13 to 16 m
3. Sloping limestone bedrock at 15 to 21m.
4. Vertical limestone bedrock at 16m to 18m
5. Cobbles on clean shell gravel at 18 to 19m.
6. Attached to Obelia dichotoma at 15-21m

	1	2	3	4	5	6
PROTOZOA						
Caliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)			O			
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea			O			
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve				O	R	
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris			R			
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa -dch-dh			x1			
Stellata grubii						
Stelligera stuposa						
Suberites ficus			F	x1		
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum			O			
Hydractinia echinata						
Hydrallmania falcata			x1			
Nemertesia antennina	:		F	R		
Nemertesia ramosa			R			
Obelia dichotoma		F	F		O	
Obelia geniculata						
Plumularia setacea			O		O	
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta					O	
Adamsia carciniopados						
Alcyonium digitatum			F	O		
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus	C	C	O		O	
Cerianthus lloydii					O	
Corynactis viridis			R	O/F		
Edwardsia claparedii						
Epizoanthus couchii				R		
Isozoanthus sulcatus						
Metridium senile	C		O			
Sagartia elegans			A			
Sagartia troglodytes						
Sagartiogetan undatus		A/F	F	x1	O	
Urticina felina			C	F		
Sagartia elegans minerata			F	O		
Sagartia elegans nivea					F	

SITE NAME: S. of Mallard 99

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega		O				
Myxicola infundibulum		x1				
Polydora sp.			A	C	D	
Pomatoceros sp. (p)			P			
Sabella pavonina						
Terebellidae indet.						
? Myxicola aesthetica	C					
? Loimea medusa		R			F	
Salmacina dysteri	R		R	x1		
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus			P			
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)			F			
Caprellidae indet.						
Corophium [illegible]						P
[illegible]	P					P
CRUSTACEA:DECAPODA						
Cancer pagurus		F				
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber			R			
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus	x1					
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus			P			
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Aeolidea papillosa					x2	
Polycera faeroensis				x1		
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
Hiatella arctica			O	A		P
[illegible]						
BRYOZOA						
Alcyonidium diaphanum		O				
Bowerbankia pustulosa			O			
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata		O	R			
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa					O	
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa			R			
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida		C	C	D	O	
ECHINODERMATA:STELLEROIDEA						
Asterias rubens		O				
Henricia oculatata						
Marthasterias glacialis			R		O	
Ophiocomina nigra						
Ophiothrix fragilis			P			
Ophiura texturata						

SITE NAME: 99

	1	2	3	4	5	6	
[illegible]	?						
ECHINODERMATA:ECHINOIDEA							
Echinocardium cordatum							
Echinus esculentus							
Psammechinus miliaris							
ECHINODERMATA:HOLOTHUROIDEA							
Cucumaria sp.							
Holothuria forskali							
CHORDATA:ASCIDIACEA							
Aplidium punctum							
Ascidia mentula							
Ascidiella aspersa							
Botrylloides leachii		~~X~~	x1				✓
Botryllus schlosseri							
Ciona intestinalis					x1		✓
Clavelina lepadiformis		F	F	F			✓
Dendrodoa grossularia							
Didemnidae indet.							
Dicemnum gelatinosum							
Didemnum maculosum							
Diplosoma listerianum							
Diplosoma spongiforme							
Distaplia rosea			R				✓
Distomus variolosus	O			O			✓
Lissoclinum perforatum					R		✓
Mogula manhattensis							
Morchellium argus		C	F	O			✓
Phallusia mammillata							
Polycarpa rustica			O				✓
Polycarpa sp.							
Polyclinidae indet.							
Polyclinum aurantium							
Sidnyum elegans							
Sidnyum turbinatum							
Stolonica socialis							
Styela clava			x1				✓
Diplosoma indet (soft)			x1				
CHORDATA:PISCES							
Ammodytes sp.							
Callionymus lyra					R		✓
Centrolabrus exoletus							
Crenilabrus melaps							
Ctenolabrus rupestris			R				✓
Gobius niger							
Gobiusculus flavescens							
Labrus bergylta				x1			✓
Labrus mixtus							
Pholis gunnellus							
Pleuronectidae indet. (juv.)							
Pleuronectys platessa							
Pollachius pollachius							
Pomataschistus minutus							

	1	2	3	4	5	6	
Sygnathus acus							
Taurulus bubalis							
Thorogobius ephippiatus				x1			✓
Trisopterus luscus							
Gadoidea indet		C	F				✓
Apiomolis [illegible]	?						✓
[illegible]	?						✓
[illegible]	?						✓

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: West of Mallard Shoal

SITE NO.: 100

SURVEY AREA: Plymouth

SEA AREA:

OS GRID REF.:

	E - W	N - S			E - W	N - S
SX	476	532	TO	SX	479	532

LAT. LONG.

° '	° ' W/E		° '	° ' W/E
		TO		

RECORDER: J. Moore

DATE: 22 D 07 M 86 Y

TIME IN	1239	
TIME OUT	1334	BST/
DURATION	55	~~GMT~~

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 1 m

DEPTH RANGE SURVEYED 25-6 M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 2 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	✓
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	✓
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	✓
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	✓
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	✓
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below)	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	✓
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	✓
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

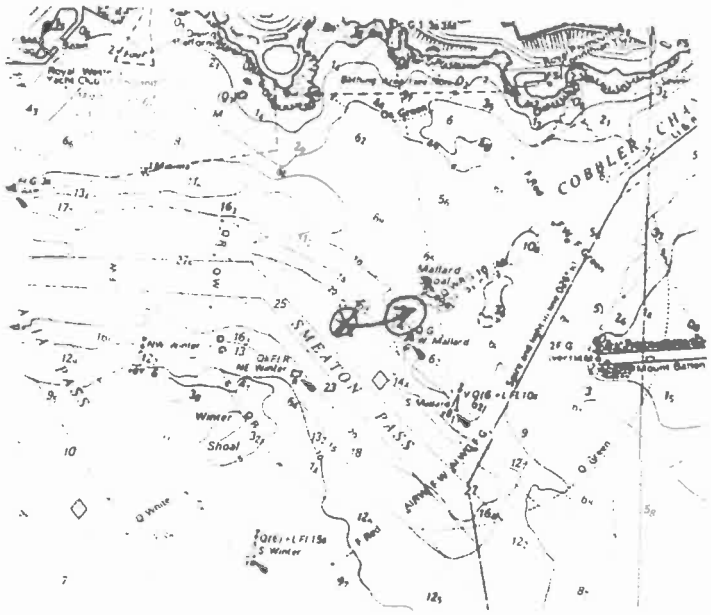
SITE NO. 100

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104	✓	✓	✓	✓	✓	✓
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107						
5-10	108	✓	✓				
10-20	109		✓	✓	✓		✓
20-30	110				✓	✓	✓
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112		3	3	3		
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127	1					
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132	3				3	
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135	1					
TREE BRANCHES	136						
OTHER (score & note type below)	137						
Mud tubes							3
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF			3	3	3		
FAUNAL BED			2	2	2		

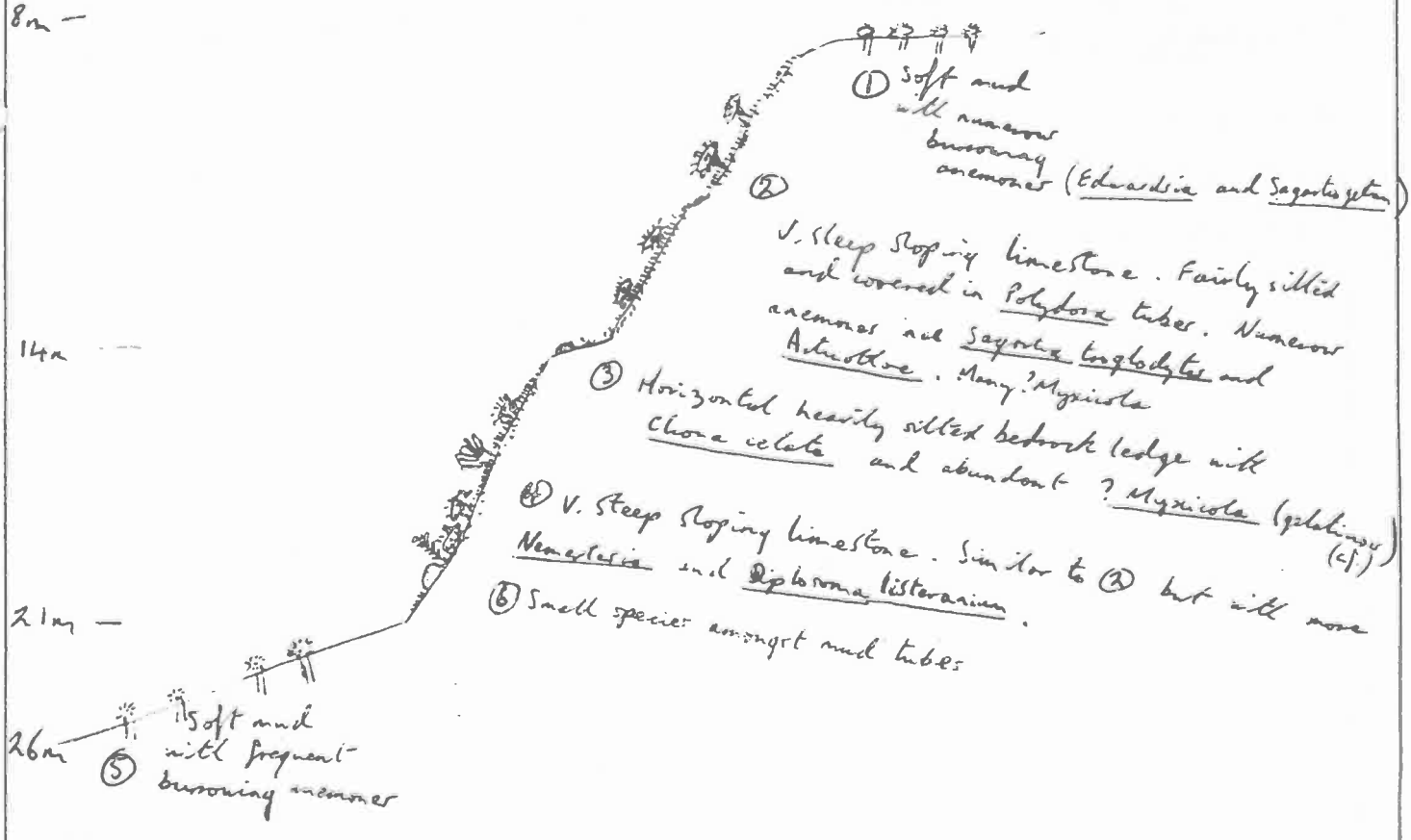
OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172		✓		✓		✓
STEEP (20-40°)	173					✓	
SHALLOW (<20°)	174						
HORIZONTAL	175	✓		✓			
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177		3		3		
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180			3			
ROCK WALLS	181		3		3		
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184		1		1		
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199		2	3	2		
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221	3				3	
SMOOTH	222						
WORKED	223	2				2	
RIPPLED	224						
MOUNDS	225						
BURROWS	226	3				2	
SHELLS (INTACT)	227	1					
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE NO.: 100

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 100

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

① Soft horizontal mud at 6m BCD with numerous burrows, large and small. Edwardsia sp. common and Sagartia troglodytes frequent. One large Pagurus bernhardus with Adamsia carciniopados on shell. Some bivalves including Corbula gibbula and Abra sp. Some polychaete tubes. Sample of mud and anemones taken.

② V. steep limestone bedrock slope. Fairly silty with abundant Polydora tubes, almost 90% cover, and some clumps of amphipod tubes (incl. Corophium spp.). Anemones very common, mostly Sagartia troglodytes, with Cereus and Actinothoe. Sponges frequent including Halichondria sp; Hymeniacidon perlevae and Suberites domuncula. Occasional Claretia and Morchellium argus. 8-14 m BCD.

③ Horizontal heavily silted bedrock ledge at ca. 14m BCD. with Cliona celata, abundant ? Myxicola (gelatinous) and Urticina.

④ V. steep limestone bedrock slope at 14-21m BCD. Polydora tubes dominant, at least 90% cover, and abundant amphipod tubes in clumps attached to hydroid stalks etc. Anemones very common, mostly Sagartia troglodytes. Large colonies of Sidnyum elegans. Nemertesia ramosa and N. antennina frequent/common. Suberites domuncula and Raspailla ramosa frequent/occasional. Gelatinous lumps ~~(?) occasional~~. Diplosoma listerianum occasional.

⑤ Steeply sloping soft mud at 21-26 m BCD with numerous anemones, Sagartia troglodytes mostly.

⑥ Thick clumps of ~~[illegible]~~ mud tubes made by amphipods (mostly Corophium sextonae) and Polydora flava. Many other species of amphipods and polychaetes within and associated with these tubes.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: West of Mallard Shoal (100) GRID REFERENCE: SX 476 532 & SX 479 532

DATE: 22.7.86 NAME OF RECORDER: J. Moore

KEY TO HABITAT COLUMNS:

1. Soft mud at 6m BCD
2. V. steep bedrock slope at 8-14m BCD
3. Horizontal silted bedrock ledges at ca. 14m
4. V. steep bedrock slope at 14-21m BCD
5. Soft steeply sloping mud at 21-26m BCD
6. Amongst mud tubes at 14-21m BCD

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)			C			
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea		C				
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve		F		O		
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa				O		
Stellata grubii						
Stelligera stuposa						
Suberites ficus ~~domuncula~~		F		F		
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina	:					
Nemertesia ramosa				C		
Obelia dichotoma						
Obelia geniculata						
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
Kirchenpauria pinnata				R		
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta		F		F		
Adamsia carciniopados	R					
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus		O		O		
Cerianthus lloydii	R					
Corynactis viridis						
Edwardsia claparedii	C					
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes		C		C		
Sagartiogetan undatus	F				F	
Urticina felina			O			

SITE NAME: 100

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)						
Sabella pavonina						
Terebellidae indet.						
Melinna [illegible]	C					
? Myrrhola sp. [illegible]		F	A			
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)		F		F		
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi	R					
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
Trivia monacha		R				
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Opisthobranch indet. (red)		R				
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
Abra sp.	F					
Corbula gibba	C					
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa		R		R		
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						P
Ophiura texturata						

SITE NAME: 100

	1	2	3	4	5	6
Amphipoda indet.						P
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis		O				
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum				F		
Diplosoma spongiforme				P		
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Molgula manhattensis						
Morchellium argus		O				
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans				O		
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris				F		
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Syngnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
Gnathia sp. (pranza)						P
Apseudes talpa						P
Jassira maculosa						P
Erichthonius sextonae						P
Lysianassa ceratina						P
Tritaeta gibbosa						P
Jassa falcata						P
Typosyllis ? cirropunctata						P
Haromothoe impar						P
Eubranchus sp						P
[illegible]						
Kellia suborbicularis						P

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: Mallard Shoal (Beacon) SITE NO.: 101

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.:

	E - W	N - S			E - W	N - S
SX	480	532	TO			

LAT. LONG.

° '	° ' W/E		° '	° ' W/E
		TO		

RECORDER: K. Miscock / S. Miscock DATE: 22 D 07 M 86 Y

TIME IN	1352		DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 0.9 m
TIME OUT	1414	BST/	DEPTH RANGE SURVEYED 0-5 M BELOW ~~SEA LEVEL~~/CHART DATUM
DURATION	22	GMT	HORIZONTAL UNDERWATER VISIBILITY 2 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	✓
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	✓
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	✓
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	✓
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below)	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	✓
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

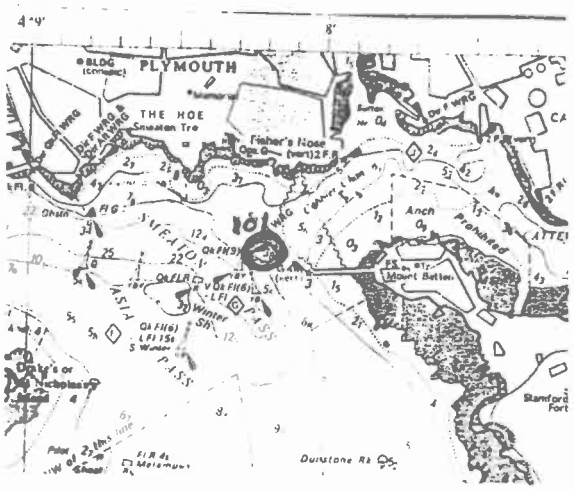
UNDERWATER DATA

SITE NO. 101

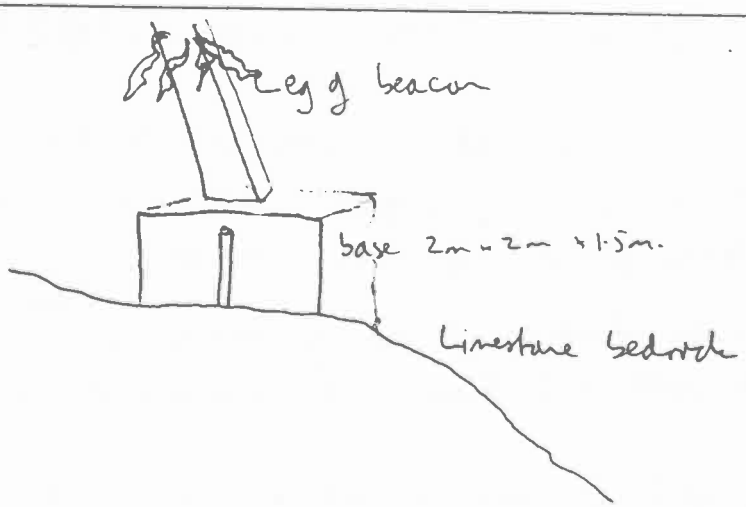
DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101	✓					
LOWER INFRALITTORAL	102		✓	✓	✓		
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓	✓	✓	✓		
5-10	108						
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112				3		
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150	3					
CONCRETE	151		3	3			
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY		1					
ALGAL MEADOW			1		1		
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF Sympathetic				3			
FAUNAL BED Dishonus				2			

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171			✓			
V. STEEP (40-80°)	172	✓					
STEEP (20-40°)	173						
SHALLOW (<20°)	174				✓		
HORIZONTAL	175		✓				
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177				3		
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198		2		2		
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 101

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

General Legged beacon built into concrete bases on Mallard Shoal giving habitats of natural limestone bedrock, concrete and metal legs.

(1) Square-section metal legs of beacon at 0 to 2 m with fringe of Laminaria saccharina near the top and dominated by Plumularia setacea with some Tubularia. Abundant capsellids on the Plumularia. Occasional scratch Sacchariza polyschides

(2) Horizontal surface of concrete blocks at base of beacon legs at 3 m. Mostly a muddy surface with some small muddy tubes and scattered foliose algae and animals.

(3) Vertical sides of concrete blocks at base of beacon at 3-4 m dominated by Scrupocellaria with patches of Distomus and Halichondria panicea (tasselates). No algae

(4) Horizontal or gently slopping limestone bedrock at 4 to 5 m. Dominated by Polydora with scattered foliose algae and common Nemetesia antennina. Very large Polyneva hillosae, and scattered Laminaria saccharina sporelings but no big plants.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Mallard Shoal (Beacon) (101) GRID REFERENCE: SX 480 532

DATE: 22.07.86. NAME OF RECORDER: S. Hiscock

KEY TO HABITAT COLUMNS:

1. Square section metal legs of Beacon at 0 to 3m, BCD.
2. Horizontal surface of concrete blocks at base of Beacon legs at 3m.
3. Vertical sides of concrete blocks at base of beacon at 3-4m (no algae found)
4. Horizontal or gently sloping limestone bedrock at 4-5m.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula				O		
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides						
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata		F				
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata				R		
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa						
Delesseria sanguinea						
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum		R				
Heterosiphonia plumosa						
Hypoglossum woodwardii				F		
Kallymenia reniformis		F		O		
Lomentaria clavellosa		R				

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa		R				
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii				F		
Polyneura hilliae		F		F		
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
Plocamium uncinata	F					
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME: Mallard Skerl (Beacon) 101

	1	2	3	4	5	6	
PHAEOPHYTA							
Arthrocladia villosa							
Chorda filum							
Cladostephus spongiosus							
Cystoseira baccata							
Desmarestia aculeata							
Desmarestia liqulata	[illegible]	O					✓
Desmarestia viridis							
Dictyopteris membranacea							
Dictyota dichotoma							
Ectocarpoidea indet.							
Halidrys siliquosa							
Halopteris filicina							
Laminaria digitata							
Laminaria hyperborea ?	R						✓
Laminaria ochroleuca							✓
Laminaria saccharina	A	O					
Phaeophyta indet. (encr.)							
Pseudolithoderma sp.							
Saccorhiza polyschides	O	O					✓
Sargassum muticum							
L saccharina sporelings				F			✓
CHLOROPHYTA							
Bryopsis hypnoides							
Bryopsis plumosa		R					✓
Chaetomorpha melagonium							
Cladophora pellucida							
Cladophora pygmaea							
Cladophora rupestris							
Enteromorpha sp.							
Ulva sp. (p)	O	O					✓
Cladophora sp.		R					✓
Chaetomorpha sp.		R					✓
ANGIOSPERMAE							
Zostera marina							

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Mallard Shoal (beacon) (101) GRID REFERENCE: SX 480 532

DATE: 22.7.86 NAME OF RECORDER: K. Hiscock

KEY TO HABITAT COLUMNS:

1. Square section metal legs of beacon at 0 to 3m
2. Horizontal surface of concrete blocks at base of beacon legs at 3m
3. Vertical sides of concrete blocks at base of beacon at 3-4m (no algae found)
4. Horizontal or gently sloping limestone bedrock at 4-5m
5.
6.

	1	2	3	4	5	6	
PROTOZOA							
Haliphysema tumanowiczi							
PORIFERA:CALCAREA							
Clathrina coriacea							
Grantia compressa							
Leuconia barbata							
Leucosolenia botryoides							
Scypha ciliata							
PORIFERA:DEMOSPONGIAE							
Amphilectus fucorum							
Ciocalypta penicillus							
Cliona celata							
Cliona sp. (boring)				O			✓
Dercitus bucklandi							
Dysidea fragilis							
Halichondria panicea	O	R	F	R			✓
Halichondria bowerbanki							
Haliclona oculata							
Hemimycale columella							
Hymeniacidon perleve		F	O	O			✓
Myxilla incrustans							
Pachymatisma johnstonia							
Phorbas fictitius							
Polymastia mamillaris							
Polymastia boletiforme							
Raspailia hispida							
Raspailia ramosa							
Stellata grubii							
Stelligera stuposa							
Suberites ficus		C		O			✓
Tethya aurantium							

	1	2	3	4	5	6	
COELENTERATA:HYDROZOA							
Abietinaria abietina							
Aglaophenia pluma							
Aglaophenia tubulifera							
Campanularia angulata							
Halecium beanii							
Halecium halecinum							
Hydractinia echinata							
Hydrallmania falcata							
Nemertesia antennina		F	x1	C			✓
Nemertesia ramosa							
Obelia dichotoma				O			✓
Obelia geniculata							
Plumularia setacea	A	C	C	O			✓
Sertularella polyzonias							
Sertularia argentea							
Sertularia cupressina							
Tubularia indivisa	?O						✓
Tubularia larynx							
Kirchenpauna pinnata				P			✓
COELENTERATA:ANTHOZOA							
Actinothoe sphyrodeta							
Adamsia carciniopados							
Alcyonium digitatum			C	O			✓
Anemonia viridis							
Caryophyllia smithii							
Cereus pedunculatus		x1		O			✓
Cerianthus lloydii							
Corynactis viridis							
Edwardsia claparedii							
Epizoanthus couchii							
Isozoanthus sulcatus							
Metridium senile		F	F	F			✓
Sagartia elegans							
Sagartia troglodytes							
Sagartiogetan undatus							
Urticina felina		C		O			✓
Sagartia elegans orange		O	F				
Sagartia elegans mauve		F	O				
Sagartia elegans rosea		x1					

SITE NAME: Mallaig Beacon 101

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.				D		
Pomatoceros sp. (p)						
Sabella pavonina						
Terebellidae indet.						
Salmacina dysteri			C	x1		
? Myxicola aesthetica			O	R		
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)	A	F				
Caprellidae indet.	A		C			
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Doto sp.				x2		
Physea fastensis				x2		
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
Montacuta substriata				O		
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata			F			
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.			C			
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis				x1		
Ophiocomina nigra						
Ophiothrix fragilis		x1				
Ophiura texturata						

SITE NAME: Mallock Shoal (beam) 101

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali		x1				
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis			x1			
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum				Q		
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus			F	D		
Lissoclinum perforatum						
Mogula manhattensis						
Morchellium argus		F	R	F		
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
Diplosoma sp (juv)				R		
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris				R		
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus				R		

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
Cadoridea indet				x1		
Blennius ocellaris			x1			

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: N. OF BREAKWATER / FORT — SITE NO.: 102

SURVEY AREA: PLYMOUTH — SEA AREA: PLYMOUTH

OS GRID REF.:

	E - W	N - S	TO	E - W	N - S
SX	473	504			

LAT. LONG.

	°	'	°	'	W/E	TO	°	'	°	'	W/E
		:		:				:		:	

RECORDER: B. BULLIMORE / I. DIXON — DATE: 22 D 07 M 86 Y

TIME IN: 1531 — TIME OUT: 1606 BST/ — DURATION: 35 GMT

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 3.1 m

DEPTH RANGE SURVEYED 3-5 m BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 2 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	✓

BREAKWATER

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	✓
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	✓

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	✓
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	✓

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	✓
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	✓
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

SITE NO. 102

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101	✓		✓			
LOWER INFRALITTORAL	102		✓	✓			
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						

DEPTH BAND (m) BELOW CD (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
<0	106						
0-5	107	✓	✓	✓			
5-10	108						
10-20	109						
20-30	110						
>30	111						

SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		STN./HABITAT 1	2	3	4	5	6
BEDROCK	112						
LG. BOULDERS (500 mm+)	113	3	3				
SM. BOULDERS (256-500 mm)	114	2	2				
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134			3			
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						

ARTIFICIAL SUBSTRATUM (SCORE 1-3)		STN./HABITAT 1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						

ROCK COVER (SCORE 1-3)	STN./HABITAT 1	2	3	4	5	6
KELP CANOPY		3				
ALGAL MEADOW	1					
ALGAL TURF						
ALGAL CRUST						
FAUNAL TURF	3	2				
FAUNAL BED						

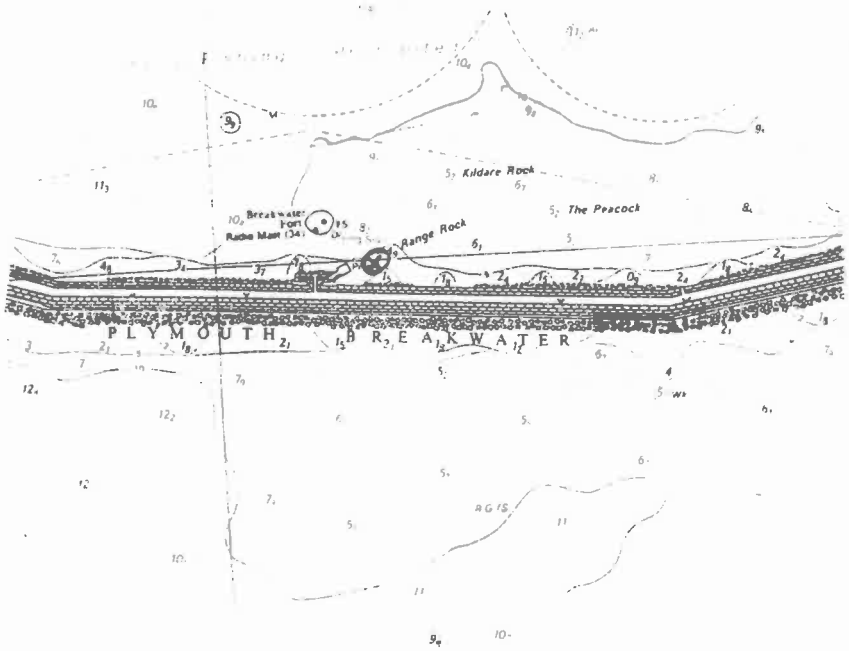
OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173	✓	✓				
SHALLOW (<20°)	174						
HORIZONTAL	175						

ROCK FEATURES (SCORE 1-3)		STN./HABITAT 1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184	2	2				
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187	2	2				
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190	3	3				
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193	3	3				
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199	3	2				
OTHER (tick & note/score below)	200						

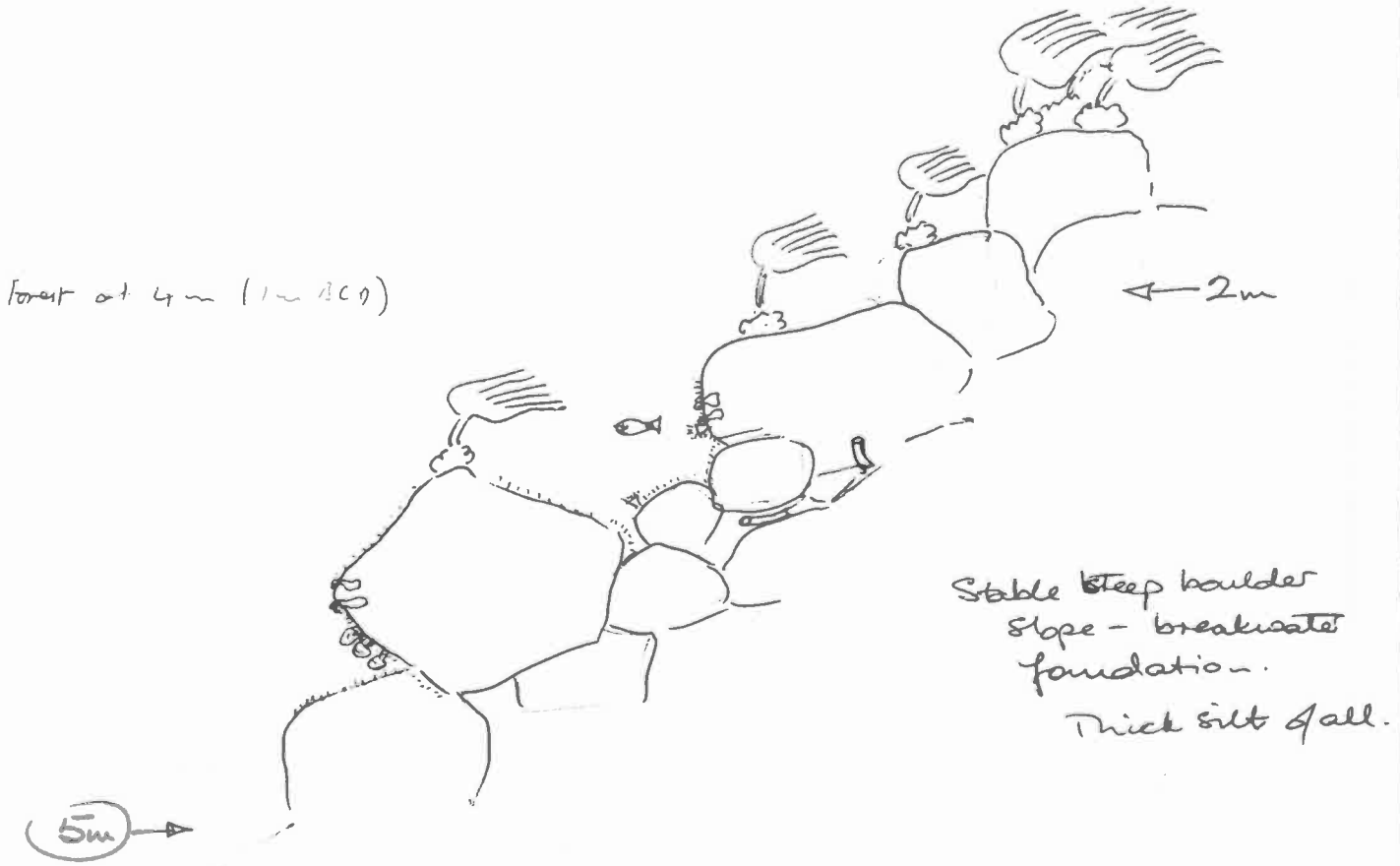
SEDIMENT FEATURES (SCORE 1-3)		STN./HABITAT 1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						

SEDIMENT COVER (SCORE 1-3)		STN./HABITAT 1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 102

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

General.

Steep boulder slope of limestone blocks at base of breakwater. Small - med. "caves", tunnels, crevices common between boulders. Most surfaces, including all vert + o/hanging, covered with *Phoronis* sp. Some up facing surfaces silt too thick. Between *Phoronis* - *Caryophyllia*, occasional sponges, *Diplosoma* & *Morchellium*. Heavily bored by ?*Hiatella*. 1x Sabella, and several *Chaetopterus* tubes amongst bldrs.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: N. Breakwater (Fort) 102 GRID REFERENCE: SX 473 504

DATE: 22.07.86. NAME OF RECORDER: DIXON

KEY TO HABITAT COLUMNS:

1. Steep limestone boulder slope; lower infralittoral dominated by Phoronis sp
2. Steep limestone boulder slope; upper infralittoral
3. Algal fronds as substrata
4. Kelpholdfast as substrata
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula	P		P			✓
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides	C					✓
Calliblepharis ciliata						
Callithamnion sp. (Preserved)	P					✓
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum			F			✓
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)	F					✓
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa						
Delesseria sanguinea						
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii						
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii						
Polyneura hilliae	O					✓
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata				F		✓
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata (sp. key)						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
Shottera nicaeensis	O	F				✓
Gelidium latifolium		P				✓
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME: 102

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata	R	R				
Desmarestia viridis	O					
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
Laminaria saccharina						
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides	R	A				
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida	R		P			
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)	O					
ANGIOSPERMAE						
Zostera marina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: N Breakwater (Fort) 102 GRID REFERENCE: SX 473504

DATE: 220786. NAME OF RECORDER: B. Bullimore

KEY TO HABITAT COLUMNS:

1. STEEP LIMESTONE BOULDER SLOPE. LWR INFRALITTORAL. DOMINATED BY PHORONIS sp
2. STEEP LIMESTONE BOULDER SLOPE. UPPER INFRALITTORAL
3. ALGAE FRONDS AS SUBSTRATE.
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)	R					✓
Dercitus bucklandi						
Dysidea fragilis	X2					✓
Halichondria panicea	F	O				✓
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						
? Tespios fugax (specimen)	P					✓

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina						
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata						
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii	O	O				✓
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						

SITE NAME: 102

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus	R					
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)	O	O				
Sabella pavonina	x1					
Terebellidae indet.						
Polydora flava	F					
Phoronis sp.	A	A				
Nereis pelagica	F					
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa	R					
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus	R					
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus		R				
Crimora papillata			x1			
Elysia viridis	x1					
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
? Hiatella arctica	C	C				
Anomia sp	P					
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea			F			
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: 102

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum	R					
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Mogula manhattensis						
Morchellium argus	F	O				
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
Diplosoma indet.	R					
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris	O					
Gobius niger	x1					
Gobiusculus flavescens						
Labrus bergylta	x1					
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
Pseudopotamilla reniformis	P					
Sabella flabellata	P					
Thalassema thalassemum	P					
~~Chrysaora isosceles~~		R				

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: Jennycliff Bay

SITE NO.: 103

SURVEY AREA: Plymouth

SEA AREA:

OS GRID REF.:

	E – W	N – S		E – W	N – S
SX	489	521	TO	490	521

LAT. LONG.

	°	'	°	'	W/E		°	'	°	'	W/E
		:		:		TO		:		:	

RECORDER: S. Hiscock I. Dunn.

DATE: 23 D 07 M 86 Y

TIME IN 1040

TIME OUT 1142 BST/

DURATION 62 GMT

DEPTH CORRECTION APPLIED? ~~NO~~/YES -3.7 to -2.8m +/-

DEPTH RANGE SURVEYED +0.7 -4.7 M BELOW ~~SEA LEVEL~~/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 4 m

SITUATION (TICK ONE ONLY)			WAVE EXPOSURE (SURFACE) (TICK)			ROCK TYPE (TICK)		
OPEN SEA (> 1 km offshore	1		VERY EXPOSED (prevailing wind and swell)	30		IGNEOUS	50	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2		EXPOSED (prevailing wind)	31		LIMESTONES	51	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3		SEMI-EXPOSED (strong wind frequent)	32		HARD SAND./MUDSTONES	52	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓	SHELTERED (strong wind rare)	33		SOFT SAND./MUDSTONES	53	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5		VERY SHELTERED (fetch <20 km)	34	✓	HARD SLATE/SHALES	54	✓
			EXTREMELY SHELTERED (fetch <3 km)	35		FRIABLE SLATE/SHALES	55	
						NOT KNOWN	56	
						OTHER (tick and note below) :	57	

COASTAL TYPE (TICK)			MAX. TIDAL STREAM STRENGTH (TICK)			SITE INFORMATION (TICK)		
HEADLAND	6		VERY STRONG (6 k+)	36		MNR, NNR, LNR, SSSI NEARBY	65	
'LINEAR COAST'	7		STRONG (3-6 k)	37		SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
BAY	8	✓	MOD. STRONG (1-3 k)	38		OTHER SOURCES OF DISTURANCE (tick & note below)	67	
SPIT/BAR	9		WEAK (<1 k)	39	✓			
OFFSHORE SM. ISLAND	10		VERY WEAK (negligible)	40				
AMONGST ROCKS/ISLETS	11		SALINITY (TICK)					
SOUND/NARROWS	12		NORMAL (around 34°/oo)	41	✓			
SHALLOW RAPIDS	13		VARIABLE (30°/oo+)	42		OTHER DATA RECORDED		
SEA LOCH	14		LOW (<30°/oo)	43		PHOTOGRAPHS: SURF	80	
ESTUARY/MARINE INLET	15		SALINITY MEASURED (TICK)	44		W-A	81	✓
COASTAL LAGOON	16		NOT KNOWN	45		C-U	82	✓
HARBOUR	17		WATER STRATIFICATION (TICK)			WATER ANALYSIS	83	
SEA CAVE	18		THERMOCLINE	46		SEDIMENT ANALYSIS	84	
WRECK	19		HALOCLINE	47		SPECIMENS COLLECTED	85	✓
OTHER (tick and note below)	20		NOT STRATIFIED	48		ALGAL CHECKLIST	86	✓
			NOT KNOWN	49	✓	ANIMAL CHECKLIST	87	✓
						OTHER (tick and note below)	88	

UNDERWATER DATA

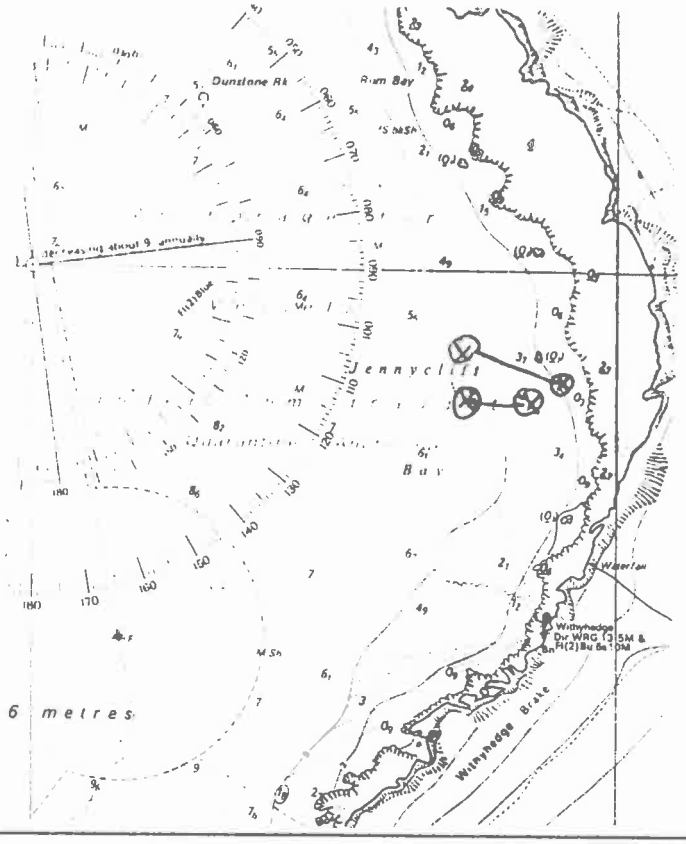
SITE NO. 103

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100	✓	✓				
UPPER INFRALITTORAL	101		✓	✓	✓	✓	
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106	✓	~				
0-5	107	✓	~	✓	✓	✓	
5-10	108						
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	3					
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116				1		
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119			1	2	1	
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126			3			
MUDDY SHELL GRAVEL	127				3		
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132					3	
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134		3				
WHOLE SHELLS	135					1	
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY		3		1	1		
ALGAL MEADOW		1		2	2	1	
ALGAL TURF							
ALGAL CRUST		2		1			
FAUNAL TURF							
FAUNAL BED							

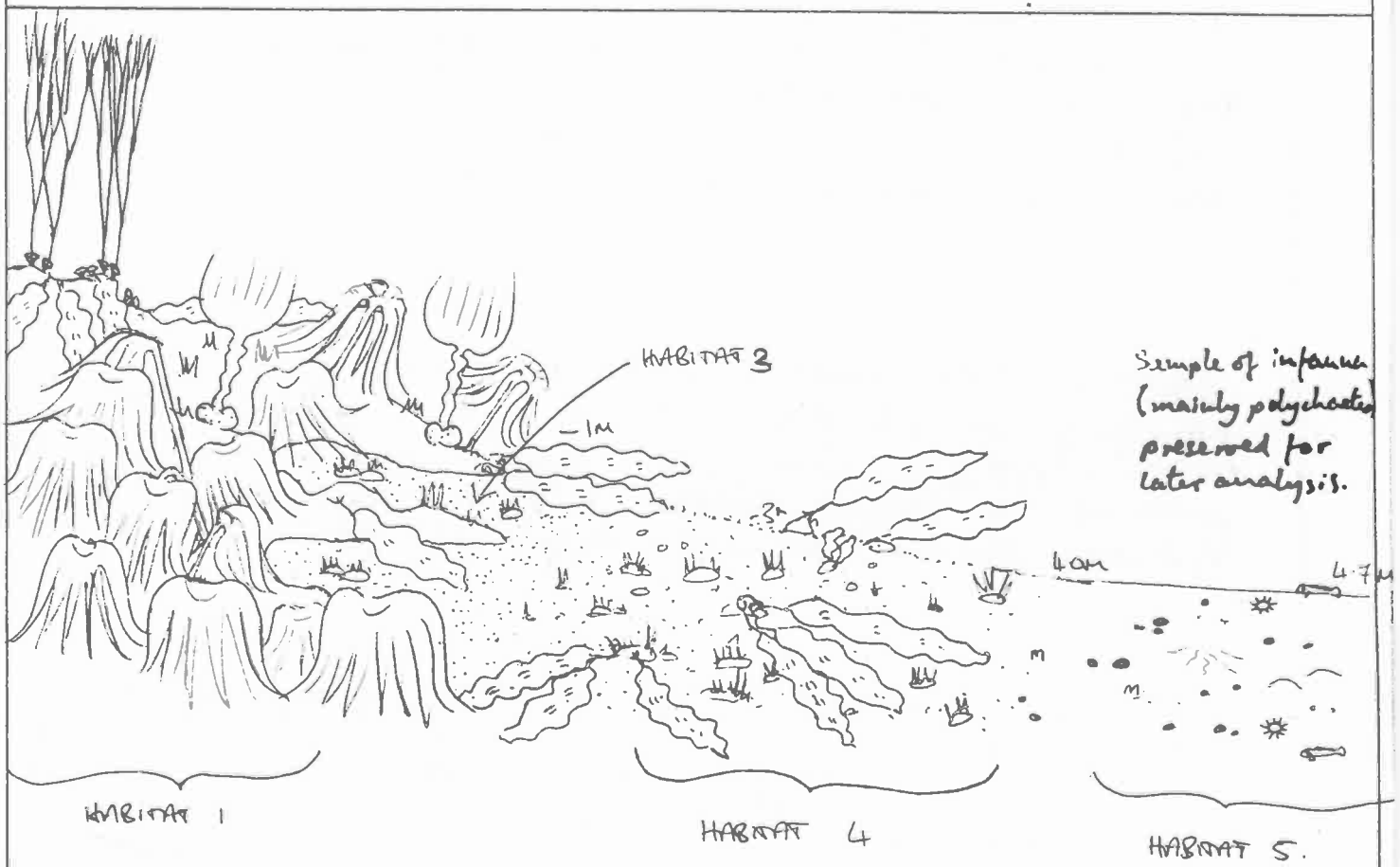
OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174	✓		✓	✓	✓	
HORIZONTAL	175						
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178	3					
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185	1					
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198	3					
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220					2	
SOFT	221					1	
SMOOTH	222			3	3		
WORKED	223				1	2	
RIPPLED	224						
MOUNDS	225					1	
BURROWS	226					3	
SHELLS (INTACT)	227			1	1	1	
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241			1	2		
ALGAL TURF	242					1	
ALGAL MAT	243						
UNATTACHED ALGAE	244				2	1	
LIVE MAERL BED	245						
FAUNAL BED	246						
DIATOMS ON SUFFACE						3	

SITE NO.: 103

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



Sample of infauna (mainly polychaetes) preserved for later analysis.

SITE NO.: 103

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

General. Mainly upward facing bedrock in the sublittoral fringe down to −1m BCD, with some rock ridges. At 1.3m large patches of coarse shell gravel with some small lots of flat shale. The gravel becoming extensive downwards and increasingly silty/muddy, until at ca 4m BCD an extensive mud plain with fairly rich fauna.

HABITAT 1 Laminaria ochroleuca forest on upward facing bedrock +0.7 to −1m BCD. Dense L. ochroleuca with silted cape fronds over silted bedrock. Saccorhiza and Laminaria saccharina frequent particularly at rock/gravel interface, and Himanthalia elongata frequent at +0.7m with many buttons beneath. Rock surfaces beneath heavily silted + with few erect algae, but with Abundant encrusting coralline and dark red algae, and Dendrodoa + barnacles.

HABITAT 2 Epiphytes on Laminaria ochroleuca and Saccorhiza polyschides. Filamentous brown algae were abundant on some fronds, + encrusting bryozoans frequent. Anemonia viridis occasional, + Obelia geniculata.

HABITAT 3 Clean shell gravel with shale fragments + a few shale pebbles at 1-3 to 3m BCD. Shell gravel apparently composed largely of barnacle shells. Algae present on shale pebbles + as drift. Chorda filum, Laminaria saccharina and Ulva sp. all frequent, and a small variety of foliose algae in lesser abundance. Some rotting kelp fronds.

HABITAT 4 Shale pebbles in muddy shell gravel at 3.5-4m BCD. More foliose algae than Habitat 3, less kelp. L. saccharina still frequent, as was Chorda filum, Ceramium rubrum, Polymera hillsiae and Ulva sp. Some particularly large Dictyota dichotoma plants, + a small variety of others. Mud content increasing downwards + merging into Habitat 5.

HABITAT 5. Mud plain at 4.2-4.7m BCD. Scattered algae on stones as above and digitate corey on the mud surface, with a few filamentous green algae. Many holes + burrows in the mud, and a few Terebellid mounds + tentacles. Philine aperta Common - Abundant on the surface, + occasional Sagartiogeton + Myxicola infundibuliformis. Frequent gobies, some bivalve siphons. Burrowing brittlestars collected. Mud with soft surface but fairly firm beneath.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Jennycliff Bay (103) GRID REFERENCE: SX 489 521 - 490 521

DATE: 23 07 86. - NAME OF RECORDER: S. Hiscock

KEY TO HABITAT COLUMNS:

1. Laminaria ochroleuca forest on upper stair bedrock at +0.7 to -1m BCD.
2. Epiphytes on Laminaria ochroleuca and Saccorhiza polyschides +0.7 to -2m BCD.
3. Clean shell gravel with shale fragments and a few shale pebbles at 1.3 to 3m BCD.
4. Shale pebbles on muddy shell gravel at 3.5 - 4m BCD.
5. Mud plain at 4.2 - 4.7 m BCD.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula				O	O	
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides						
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata	O			O		
Ceramium rubrum			F	F	O	
Ceramium sp.						
Chondrus crispus	O					
Chylocladia verticillata	R					
Corallina officinalis	F					
Corallinaceae indet. (pink encr.)	A		O			
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa						
Delesseria sanguinea						
Dilsea carnosa	O					
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera				R		
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides				R		
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii						
Kallymenia reniformis	R					
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum			O	F	O	
Palmaria palmata	R	R				
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides	O					
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii	F					
Polyneura hilliae	O		O	F	O	
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides			F			
Rhodophyllis divaricata				F	O	
Rhodophyllis sp.						
Rhodophyta indet. (encr.)	A					
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
Gracilaria verrucosa			F	F	O	
Polysiphonia nigrescens				R		
Gelidium latifolium	R					
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)			F		A	

SITE NAME: 103

	1	2	3	4	5	6	
PHAEOPHYTA							
Arthrocladia villosa							
Chorda filum			F	F			✓
Cladostephus spongiosus							
Cystoseira baccata							
Desmarestia aculeata							
Desmarestia ligulata							
Desmarestia viridis	R						✓
Dictyopteris membranacea							
Dictyota dichotoma				F			✓
Ectocarpoidea indet.		C					✓
Halidrys siliquosa							
Halopteris filicina							
Laminaria digitata							
Laminaria hyperborea							
Laminaria ochroleuca	A						✓
Laminaria saccharina	F		F	F			✓
Phaeophyta indet. (encr.)			O				✓
Pseudolithoderma sp.							
Saccorhiza polyschides	C		O				✓
Sargassum muticum							
Himanthalia elongata	F						✓
Laminaria spenlige	O						✓
CHLOROPHYTA							
Bryopsis hypnoides							
Bryopsis plumosa			R				✓
Chaetomorpha melagonium							
Cladophora pellucida							
Cladophora pygmaea							
Cladophora rupestris							
Enteromorpha sp.			O				✓
Ulva sp. (p)	O		F	F	R		✓
Chaetomorpha sp.	R						✓
Filamentous green algae					O		✓
ANGIOSPERMAE							
Zostera marina							

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Jennycliff Bay (103) GRID REFERENCE: SX 489 521 - 490 521

DATE: 23 07 86. NAME OF RECORDER: I Dixon / C Hawson

KEY TO HABITAT COLUMNS:

1. Laminaria ochroleuca forest on upward-facing bedrock at +0.7 to -1.0m BCD
2. Epilithon on Laminaria ochroleuca and Saccorhiza polyschides at +0.7m to -2.0m BCD
3. Clean shell gravel with shale fragments and a few shale pebbles at 1.3 to 3m BCD
4. Shale pebbles in muddy shell gravel at 3.5 - 4.0m BCD
5. Mud plain at 4.2 - 4.7m BCD
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum	F			R		✓
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea	O	O				✓
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						✓
Hydractinia echinata			O		O	
Hydrallmania falcata						
Nemertesia antennina						
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata		F		O		✓
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis		R				✓
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii					F	✓
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus					O	V
Urticina felina						

SITE NAME: 103

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum					O	
Polydora sp.						
Pomatoceros sp. (p)	O		R	O		
Sabella pavonina						
Terebellidae indet. (Grant Lance)			O			
Spirorbidae	F	F		O		
Salmacina	O	O				
Ophiodromus flexuosa					O	
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus	O			O		
Elminius modestus						
Verruca stroemia	C			F		
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
Corophium sp	P					
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus			O		O	
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria		F				
Nassarius incrassatus				O	O	
Nassarius reticulatus			R			
Ocenebra erinacea	O					

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Philine aperta					F/C	
Tergipes tergipes		F				
Calliopoea bellulus					F	
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
Anomia sp	P	P				
Sphenia binghami		P				
Nucula turgida					P	
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa	O					
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa		C		F		
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea		F		O		
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis		R				
Ophiura texturata						

SITE NAME: 103

	1	2	3	4	5	6
Amphiura chiajei					F	
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri	O	R				
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia	F/C	O				
Didemnidae indet.	O	O				
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Mogula manhattensis						
Morchellium argus			O			
Phallusia mammillata						
Polycarpa rustica	F	R				
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris	R					
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
Pomatoschistus pictus			O		F	
					P	
					P	
Melanogrammus aeglefinus					P	

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: Hooe Lake Point (Inner) SITE NO.: 104

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	450	512	TO		

LAT. LONG.

° '	° ' W/E		° '	° ' W/E
		TO		

RECORDER: Chris Howson / Jon Moore

DATE: 23 D 07 M 86 Y

TIME IN	1219	DEPTH CORRECTION APPLIED?	~~NO~~/YES +/- 2-1.5 m
TIME OUT	1247 BST/	DEPTH RANGE SURVEYED	5-6.5 M BELOW ~~SEA LEVEL~~/CHART DATUM
DURATION	30 ~~GMT~~	HORIZONTAL UNDERWATER VISIBILITY	4 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	✓

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	✓
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	✓
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	✓
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34 /oo)	41	✓
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	✓
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	✓
NOT KNOWN	56	
OTHER (tick and note below)	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURBANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

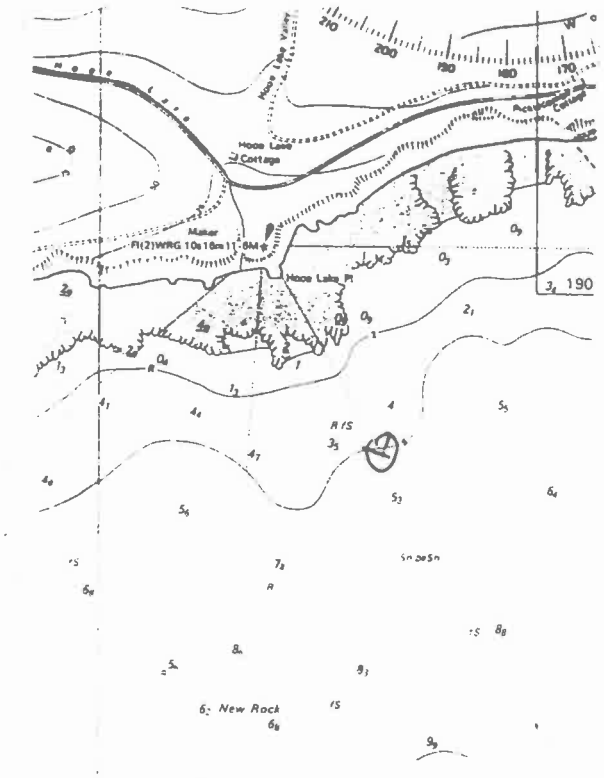
SITE NO. 104

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101	✓	✓	✓	✓		
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107						
5-10	108	✓	✓	✓	✓		
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	3	3				
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120				2		
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122				2		
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127				3		
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134			3			
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY		3					
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF			3				
FAUNAL BED		1			1		

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171		✓				
V. STEEP (40-80°)	172		✓				
STEEP (20-40°)	173						
SHALLOW (<20°)	174						
HORIZONTAL	175	✓		✓	✓		
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177	3					
(BROKEN ROCK	178		3				
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185		2				
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197	3					
THIN SILT ON ROCKS	198	2	2				
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220				2		
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227				2		
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241				1		
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE NO.: 104

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 104

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

1. Sand covered rock
2. Vertical bedrocks & kelp holdfasts.
3. Kelp as substratum.
4. Shell gravel & ~~cobble~~ angular pebbles.

(1) Sand covered rock at ca. 5m BCD with dense kelp canopy
Mixed kelp forest of L. hyperborea & L. ochroleuca on bedrock. Upward facing rock surfaces covered with thin layer of sand. Sparse cover of scattered red algae, particularly Cryptopleura, Kallymenia, Callophyllis, Phyllophora traillii. Brachiella frequent towards lower part of zone. Sparse cover of animals; a few Asterias, Morchellium and patches of sand covered barnacles.

(2). Vertical bedrock & kelp holdfasts.
Small vertical rockfaces ~0.5m high, particularly frequent where bordering gravel. Dense algal cover, particularly Polyneura hilliae, Rhodymenia holmesii & R. pseudopalmata, & Kallymenia. Dense cover of silt covered barnacles and Polydora tubes. Diverse ascidians, particularly Morchellium, Botryllus, Clavelina and the yellow brown Didemnid (indet). Patches of ?Myxicola aesthetica and Halichondria panicea

(3). Kelp as substratum.
Stipe flora fairly sparse; Cryptopleura, Phycodrys, Membranoptera, Myriogramme bonnemaisonii & Palmaria. Obelia geniculata and Gibbula cineraria fairly frequent on fronds. Holdfast fauna included under (2).

(4). Shell gravel & angular pebbles at
Small area of shell gravel with scattered pebbles & small cobbles. Pebble/cobble supported Asperococcus, ~~kelp~~ young kelp plants. Schmitzia neapolitana, Naccaria, Sphondylothamnion, Laurencia, Chondrus, Brongniartella, Ulva, in addition to other plants occurring ~~common~~ on rocks. Phyides & P. pseudoceranoides on pebbles buried in gravel. Sagartiogetan undatis seen rarely, and some stones with Pomatoceros. Gobies and Callionymus lyra on surface.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Hook Lake Point (Inner) (104) GRID REFERENCE: SX 450 512

DATE: 23/7/86 NAME OF RECORDER: Chris Howson

KEY TO HABITAT COLUMNS:

1. Sand covered rock at ca 5m BCD
2. Vertical bedrock & kelp holdfasts at 5-6m BCD
3. Kelp as substratum
4. Shell gravel and angular pebbles at 6-6.5m BCD
5. ———
6. ———

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula	R			R		
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides		P		R		
Bonnemaisonia hamifera						
Brongniartella byssoides				O		
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata	C					
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus				F		
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa	C		C	F		
Delesseria sanguinea	O					
Dilsea carnosa	O					
Drachiella spectabilis	F					
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum		R		C		
Heterosiphonia plumosa						
Hypoglossum woodwardii		O				
Kallymenia reniformis	C	F				
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis	O	O				
Membranoptera alata			O			
Meredithia microphylla						
Myriogramme bonnemaisonii			O	C		
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata			F			
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides	O	O		F		
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum	F					
Polyides rotundus				O		
Polyneura gmelinii	F					
Polyneura hilliae		F		F		
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica		O				
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata	C					
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii		F				
Rhodymenia pseudopalmata	F	F				
Scinaia forcellata				O		
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Spondylothamnion multifidum				F		
Stenogramme interrupta						
Phycodrys rubens	O	O	F			
Phyllophora traillii	C					
Laurencia pinnatifida				O		
Schmitzia neapolitana				R		
Nizamia wigii				R		
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME: 104

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata						
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea	A					
Laminaria ochroleuca	F					
Laminaria saccharina						
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
Alpercoccus				F		
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)				F		
ANGIOSPERMAE						
Zostera marina						
Schottera nicaeensis		F				

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Hope Lake Point (104) GRID REFERENCE: SX 450 512

DATE: 23.7.86 NAME OF RECORDER: J Moore / I. D. Jones

KEY TO HABITAT COLUMNS:

1. Sand covered rock at ca. 5m BCD
2. Vertical bedrock and Kelp holdfasts at 5-6m BCD
3. Kelp or substratum
4. Shell gravel and angular pebbles at 6.5m BCD
5. ———
6. ———

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata		R				
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis		R				
Halichondria panicea	R	O				
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella		R				
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina	:					
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata			C			
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes	R	R				
Sagartiogetan undatus				R		
Urticina felina						

SITE NAME: 104

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.		A				
Pomatoceros sp. (p)				R		
Sabella pavonina						
Terebellidae indet.						
Salmacina dysteri		R				
? Myxicola sulcata		F				
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia						
Cirripedia indet. (juv.)		C				
Cirripedia indet.	F	A				
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea ~~squamifera~~ sp indet						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria			F			
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
Rissoa parva						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Acanthodoris pilosa		R				
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum	O	O				
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata		O				
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea		O				
Flustra foliacea						
Membranipora membranacea			O			
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens		R				
Henricia oculatata						
Marthasterias glacialis		R				
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: Hood Lake Point (Inner) (#04)

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIOIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii		O				✓
Botryllus schlosseri		F				✓
Ciona intestinalis						
Clavelina lepadiformis		F				✓
Dendrodoa grossularia						
Didemnidae indet. yellow brown mottled		F				✓
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus		O				✓
Lissoclinum perforatum		R				✓
Mogula manhattensis						
Morchellium argus	O	F				✓
Phallusia mammillata						
Polycarpa rustica	R	O				✓
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra				R		✓
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Syngnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
Gobiid indet.	O			O		

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: Off Hooe Lake Point

SITE NO.: 105

SURVEY AREA: Plymouth

SEA AREA:

OS GRID REF.:

	E - W	N - S	TO	E - W	N - S
SX	452	510			

LAT. LONG.

	°	'	°	'	W/E	TO	°	'	°	'	W/E
		:		:				:		:	

RECORDER: Iain Dixon

DATE: 23 D 07 M 86 Y

TIME IN 1217

TIME OUT 1243 BST/~~GMT~~

DURATION 26

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 2-1.5 m

DEPTH RANGE SURVEYED 9-9.5 m BELOW ~~SEA LEVEL~~/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 4 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	✓

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	✓
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	✓
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	✓
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	✓
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	✓
NOT KNOWN	56	
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

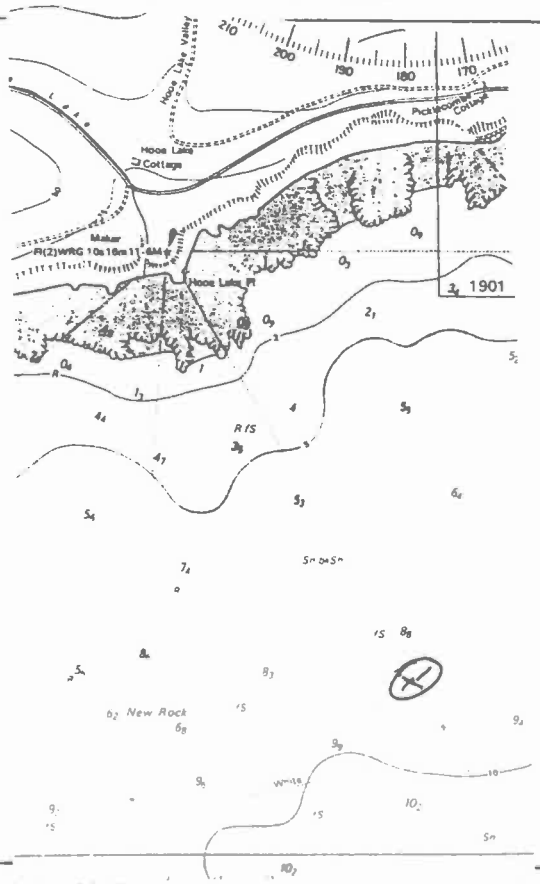
SITE NO. 105

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102	✓	✓				
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107						
5-10	108	✓	✓				
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	3					
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127		2				
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130		3				
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW		2					
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED							

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174						
HORIZONTAL	175	✓	✓				
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176	2					
(UNBROKEN ROCK	177						
(BROKEN ROCK	178	3					
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182	2					
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197	1					
THIN SILT ON ROCKS	198	2					
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220		2				
SOFT	221						
SMOOTH	222						
WORKED	223		2				
RIPPLED	224						
MOUNDS	225						
BURROWS	226		2				
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE NO.: 105

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)

9mBCD



(Habitat 1)
-outcrop within otherwise extensive sediment.

Habitat 2 - Muddy sand with shell gravel. Firm, but with a few burrows, tubes, bivalve siphons and infaunal brittle-stars present. Lanice tubes frequent.

Habitat 1 - Broken bedrock gentle slope. With occasional sediment-filled gullies (shallow; 1-2m wide) extending from habitat 2.
Dominated by rhodophyta, with occasional plants of Halidrys. Animals dominated by Urticina felina and Sagartiogeton undatus.

SITE NO.: 105

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

See enclosed sheet

Habitat 1 Lower infralittoral bedrock at 9.0m BCD.

Broken bedrock in gradual slope down to 9.5m BCD where sediment plain (habitat 2) started. The sediment area included outcrops of bedrock, records from which are included in the species lists and present description.

Habitat dominated by red algae as a meadow with small kelp plants occurring only rarely. Of the rhodophyta, most prominent were Dilsea carnosa, Calleblepharis ciliata, Delesseria sanguinea and Heterosiphonia plumosa. The brown Halidrys siliquosa occurred occasionally, with epiphytic Obelia geniculata and Aglaophenia pluma.

Animals not rich, but dominated by anemones (Urticina felina; Sagartiogeton undatus) - especially lower down on the bedrock, near the sediment. Other prominent fauna included Clavelina lepadiformis, and Morchellium argus. Erect bryozoa tended to occur on the small vertical and overhanging faces that were not affected by settling sediment.

Habitat 2: Muddy sand with shell gravel at 9.5m BCD

Sediment firm and worked biologically with burrows, tubes etc. Generally bare of conspicuous species apart from Lanice conchilega, Amphiura sp and rare occurrences of Philine aperta and Pagurus bernhardus. A single specimen of Echinocardium cordatum was dug up.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Off Mowe Lake Point (105) GRID REFERENCE: SX 452 510

DATE: 23-7-86 NAME OF RECORDER: Iain Dixon

KEY TO HABITAT COLUMNS:

1. Lower infralittoral rock at 9m BCD
2. Muddy sand and Shell gravel at 9.5m BCD
3.
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum	O					✓
Ahnfeltia plicata						
Antithamnion plumula						
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides						
Calliblepharis ciliata	O/F					✓
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)	O					✓
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa	O					✓
Delesseria sanguinea	F					✓
Dilsea carnosa	F					✓
Drachiella spectabilis						
Furcellaria lumbricalis	O					✓
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa	F					✓
Hypoglossum woodwardii						
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides	:					
Phyllophora sicula	O					✓
Phymatolithon calcareum						✓
Plocamium cartilagineum	O					
Polyides rotundus						
Polyneura gmelinii						
Polyneura hilliae						
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides	O					✓
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME: 105

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata						
Desmarestia viridis	R					
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.						
Halidrys siliquosa	O					
Halopteris filicina	P					
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
Laminaria saccharina	R					
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera marina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Off Move Lake Point (105) GRID REFERENCE: SX 452 510

DATE: 23.7.96 NAME OF RECORDER: Iain Dixon

KEY TO HABITAT COLUMNS:

1. Lower infralittoral rock at 9m BCD
2. Muddy sand and shell gravel at 9.5m BCD
3.
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea	R					✓
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						✓
Aglaophenia pluma	O					
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina	:					
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata	O					✓
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						✓
Cereus pedunculatus		R				
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus	F	R				✓
Urticina felina	F					✓

SITE NAME: 105

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega		F				
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)	O					
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus	O					
Elminius modestus						
Verruca stroemia	C					
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea ~~squamifera~~ sp. indet.	R					
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus	O	R				
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria	R					
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
Rissoa parva	F					
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Facelina bostoniensis	R					
Philine aperta		R				
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
?Mya (siphons)		O				
BRYOZOA						
Alcyonidium diaphanum	O					
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa	F					
Bugula turbinata						
Cellaria fistulosa	.					
Cellaria sinuosa						
Cellepora pumicosa	O					
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens	O	R				
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: off Moose Lake (105)

	1	2	3	4	5	6	✓
Amphiura sp.		O					✓
ECHINODERMATA:ECHINOIDEA							
Echinocardium cordatum		P					✓
Echinus esculentus							
Psammechinus miliaris							
ECHINODERMATA:HOLOTHUROIDEA							
Cucumaria sp.							
Holothuria forskali	R						✓
CHORDATA:ASCIDIACEA							
Aplidium punctum							
Ascidia mentula							
Ascidiella aspersa							
Botrylloides leachii	O						✓
Botryllus schlosseri	R						✓
Ciona intestinalis							
Clavelina lepadiformis	O						✓
Dendrodoa grossularia							
Didemnidae indet.							
Dicemnum gelatinosum							
Didemnum maculosum	F						✓
Diplosoma listerianum	O						✓
Diplosoma spongiforme							
Distaplia rosea							
Distomus variolosus							
Lissoclinum perforatum							
Mogula manhattensis							
Morchellium argus	F						✓
Phallusia mammillata							
Polycarpa rustica							
Polycarpa sp.							
Polyclinidae indet.							
Polyclinum aurantium							
Sidnyum elegans							
Sidnyum turbinatum							
Stolonica socialis	F						✓
Styela clava							
CHORDATA:PISCES							
Ammodytes sp.							
Callionymus lyra							
Centrolabrus exoletus							
Crenilabrus melaps							
Ctenolabrus rupestris							
Gobius niger							
Gobiusculus flavescens							
Labrus bergylta							
Labrus mixtus							
Pholis gunnellus							
Pleuronectidae indet. (juv.)							
Pleuronectys platessa							
Pollachius pollachius							
Pomataschistus minutus							

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: MILLBAY PIT SITE NO.: 106.

SURVEY AREA: PLYMOUTH SEA AREA: PLYMOUTH.

OS GRID REF.:

	E - W	N - S	TO	E - W	N - S
SX	468	534			

LAT. LONG.

	W/E	TO	W/E
° '	° '	° '	° '

RECORDER: B. BOLLIMORE, K. HISCOCK.

DATE: 23 D 07 M 86 Y

TIME IN 1410

TIME OUT 1427 BST/

DURATION 17 GMT

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 2.6 m

DEPTH RANGE SURVEYED 27.5 - ~~33.5~~ M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 2.5 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	✓
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	✓
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	✓
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	✓
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	✓

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	✓
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	✓
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	✓
C-J	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

SITE NO.

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104	✓					
NOT KNOWN	105						

DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107						
5-10	108						
10-20	109						
20-30	110	✓					
>30	111	✓					

SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112						
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114	1					
LG. COBBLES (128-256 mm)	115	2					
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117	3					
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127	3					
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135	1					
TREE BRANCHES	136						
OTHER (score & note type below)	137						

ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						

ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED							

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174	✓					
HORIZONTAL	175						

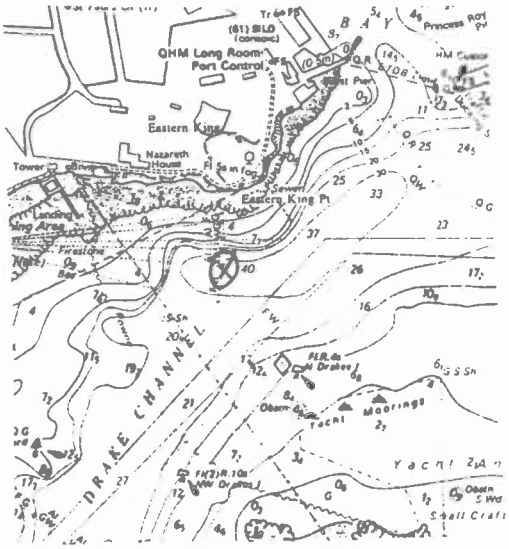
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191	3					
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200	✓					
STABLE COBBLES		3					

SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						

SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE NO.: 106

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 106

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

~~Shallow circalittoral~~ Gradual slope of cobbles and shell gravel, the lower circalittoral at 27 to 33m
Dominated by Polydora sp. Pomatoceros and barnacles - including B. crenatus
but with abundant V. stroemia spat + some adults.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Millbay Pit (106) GRID REFERENCE: SX 468 534

DATE: 23.07.86 NAME OF RECORDER: K Hiscock

KEY TO HABITAT COLUMNS:

1. Gradual slope of cobbles and shell gravel in the lower circalittoral at
2. 27 to 33m.
3.
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)	o					
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea						
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus	x2					
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina	:					
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata						
Plumularia setacea	o					
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						
Urticina eques	F					
Sagartia elegans miniata	F					

SITE NAME: 106

	1	2	3	4	5	6	
ANNELIDA:POLYCHAETA							
Arenicola marina (casts)							
Bispira volutacornis							
Branchiomma vesiculosum	x1						✓
Chaetopterus variopedatus							
Filograna implexa							
Lanice conchilega	O						✓
Myxicola infundibulum							
Polydora sp.	C						✓
Pomatoceros sp. (p)	F						✓
Sabella pavonina							
Terebellidae indet.							
? Lojmea medusa	O						* ✓
~~Scale worm~~ Aphroditidae	P						* ✓
Sabellaria spinulosa	x1						* ✓
CRUSTACEA:CIRRIPEDIA							
Balanus crenatus							
Elminius modestus							
Verruca stroemia (spat)	A						✓
CRUSTACEA:AMPHIPODA							
Amphipoda indet. (tubes)							
Caprellidae indet.	P						✓
CRUSTACEA:DECAPODA							
Cancer pagurus	O						✓
Carcinus maenas							
Crangon crangon							
Galathea squamifera							
Galathea strigosa							
Homarus gammarus							
Inachus sp.							
Liocarcinus depurator	x1						✓
Liocarcinus puber							
Macropodia rostrata	x1						✓
Maja squinado							
Paguridae indet.							
Pagurus berhardus	O						✓
Pagurus cuanensis							
Pagurus prideuxi							
Palaemon serratus							
Pisidia longicornis							
? Pandalus	F						*
MOLLUSCA:POLYPLACOPHORA							
Polyplacophora indet.							
MOLLUSCA:PROSOBRANCHIA							
Acmaea virginea							
Buccinum undatum							
Calliostoma zizyphinum							
Crepidula fornicata							
Gibbula cineraria							
Nassarius incrassatus							
Nassarius reticulatus							
Ocenebra erinacea							

	1	2	3	4	5	6	
Patella sp.							
Patina pellucida							
Trivia arctica							
MOLLUSCA:OPISTHOBRANCHIA							
Aplysia punctata							
Archidoris pseudoargus							
MOLLUSCA:BIVALVIA							
Chlamys opercularis							
Mytilus edulis							
Ostrea edulis							
Pecten maximus	X1						✓
Heteranomia squamula	P						✓
Hiatella arctica	P						✓
BRYOZOA							
Alcyonidium diaphanum							
Bowerbankia pustulosa							
Bicellariella ciliata							
Bryozoa indet. (encr.)	O						✓
Bugula flabellata							
Bugula plumosa							
Bugula turbinata							
Cellaria fistulosa							
Cellaria sinuosa							
Cellepora pumicosa	O						✓
Chartella papyracea							
Crisidia cornuta							
Crisiidae indet.							
Electra pilosa							
Escharoides coccinea							
Flustra foliacea							
Membranipora membranacea							
Parasmittina trispinosa							
Pentapora foliacea							
Schizomavella auriculata							
Scrupocellaria reptans							
Scrupocellaria scrupea							
Scrupocellaria scruposa							
Scrupocellaria sp.							
Umbonula littoralis							
Vesicularia spinosa							
Cryptosula pallasiana	P						✓
ECHINODERMATA:CRINOIDEA							
Antedon bifida							
ECHINODERMATA:STELLEROIDEA							
Asterias rubens	P						✓
Henricia oculatata							
Marthasterias glacialis							
Ophiocomina nigra							
Ophiothrix fragilis	P						✓
Ophiura texturata							

SITE NAME: Millbay Pk 106

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia	O					
Didemnidae indet.						
Didemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Mogula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra	O					
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Syngnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: Off Tinside Swimming Pool — SITE NO.: 107

SURVEY AREA: Plymouth — SEA AREA:

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	477	536	TO		

LAT. LONG.

° '	° ' W/E	TO ° '	° ' W/E

RECORDER: Chris Howson / Jon Moore — DATE: 23 D 07 M 86 Y

TIME IN 1446

TIME OUT 1600 BST/~~GMT~~

DURATION 74

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 0.8-1.8m

DEPTH RANGE SURVEYED 0-4.5 M BELOW ~~SEA LEVEL~~/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 2-3 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	✓

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	✓
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	✓
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	✓
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	✓
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	✓
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	✓
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below)	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	✓
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	✓
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

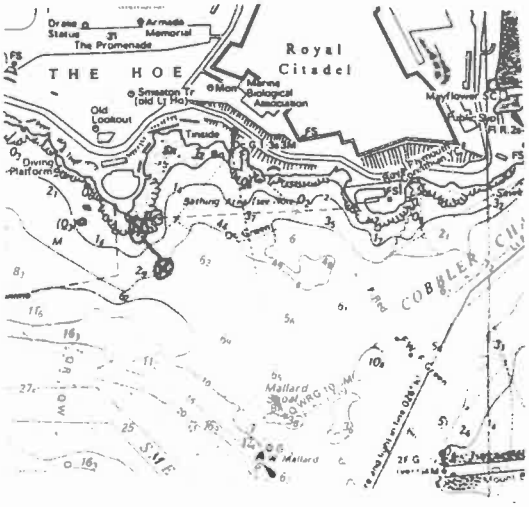
UNDERWATER DATA

SITE NO. 107

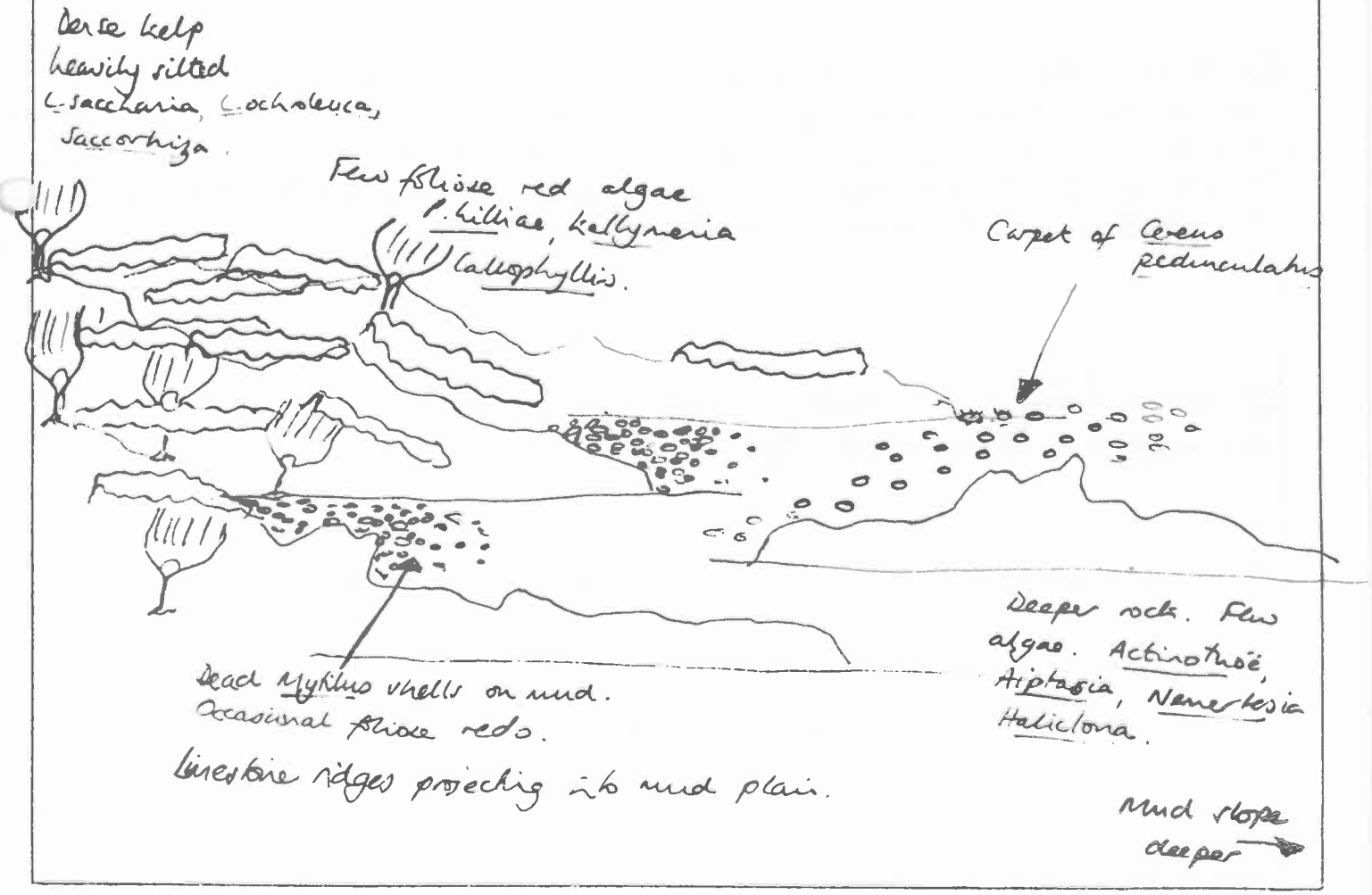
DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100	✓					
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102		✓	✓			
UPPER CIRCALITTORAL	103				✓	✓	
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						✓
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓	✓	✓	✓	✓	
5-10	108						✓
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	3		3		3	
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127				3		
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132		2		2		3
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135		3				
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY		3					
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED							

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174	✓	✓	✓	✓	✓	✓
HORIZONTAL	175						
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177	3		3		3	
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181	2		2		2	
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198	3		3		3	
THICK/FLOC. SILT ON ROCKS	199	1					
OTHER (tick & note/score below)	200						
Bored and pitted		3		3		3	
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221		2				3
SMOOTH	222						
WORKED	223						3
RIPPLED	224						
MOUNDS	225						
BURROWS	226				2		3
SHELLS (INTACT)	227		3				
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246				3		

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 107

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

1 ~~[illegible]~~ Upper infralittoral - bedrock + kelp forest. 0-1m BCD

2. Whole shell debris on mud between rock ridges. 1-2m

3. Limestone ridges - lower infralittoral 1-3m BCD
4. Mud and shell gravel 3m BCD
5. Limestone ridges - upper circalittoral 3-4.5m BCD

6. Mud plain

7. Kelp as substratum.

---

①. Bedrock with dense blanket canopy of Laminaria ochroleuca, with L. hyperborea, L. saccharina + Saccorhiza mixed in. Very heavily silted. Few algae amongst kelp - Callophyllis, Kallymenia + large Polyneura hilliae plants most frequent.

② Areas of dead Mytilus shells on mud between rock ridges. ~~Antith~~ Scattered pebbles + cobbles present. Occasional algae - Antithamnion plumula, Halarachnion, P. hilliae, Kallymenia, Laminaria sporeling.

③. Small ridges of limestone projecting into mud plain. Heavily bored by worms + molluscs. Kelp less dense - more L. saccharina + L. hyperborea than L. ochroleuca - and not as silty as shallower. Plants similar to sublittoral fringe. Desmarestia ligulata, Nitophyllum + Compsothamnion thuyoides additional species.

④ Mud ~~plain~~ areas with shell gravel at 3m BCD, between rock ridges. No algae. Dominated by Cereus.

⑤. Limestone ridges in upper circalittoral. Fauna more diverse. Few algae - Cryptopleura, Hypoglossum, Rhod. divaricata, Compsothamnion

#1 of 2

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Off Tinside Swimming Pool 107 (1) GRID REFERENCE: SX 477 536

DATE: 23/7/86 NAME OF RECORDER: Chris Hawson

KEY TO HABITAT COLUMNS:

1. Bedrock & kelp forest - upper infralittoral at 0-1m BCD
2. Whole shell debris on mud between rock ridges at 1-2m BCD
3. Limestone ridges - lower infralittoral at 1-3m BCD
4. Mud and shell gravel at 3m BCD
5. Limestone ridges - upper circalittoral at 3-4.5m BCD
6. Mud plain

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula		C			O	
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides		O	F			
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata	C	O	O			
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa				●	O	
Delesseria sanguinea						
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum		F				
Heterosiphonia plumosa						
Hypoglossum woodwardii	O				O	
Kallymenia reniformis	C	C	C	●	O	
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum			O			
Palmaria palmata	O					
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii						
Polyneura hilliae	C	C	C			
Polysiphonia elongata						
Polysiphonia sp.		O				
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides		F				
Rhodophyllis divaricata			O	●	O	
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
Phyllophora traillii	F		F			
Compsothamnion thuyoides			O	●	O	
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME:

	1	2	3	4	5	6	
PHAEOPHYTA							
Arthrocladia villosa							
Chorda filum							
Cladostephus spongiosus							
Cystoseira baccata							
Desmarestia aculeata							
Desmarestia ligulata			R				✓
Desmarestia viridis							
Dictyopteris membranacea							
Dictyota dichotoma							
Ectocarpoidea indet.							
Halidrys siliquosa							
Halopteris filicina							
Laminaria digitata							
Laminaria hyperborea	F		F				✓✓
Laminaria ochroleuca	A		D				✓✓
Laminaria saccharina	F		F				✓
Phaeophyta indet. (encr.)							
Pseudolithoderma sp.							
Saccorhiza polyschides	O						✓
Sargassum muticum							✓
Laminaria spp.		f					✓
CHLOROPHYTA							
Bryopsis hypnoides							
Bryopsis plumosa		O					✓
Chaetomorpha melagonium							✓
Cladophora pellucida		O					✓
Cladophora pygmaea							
Cladophora rupestris							
Enteromorpha sp.							
Ulva sp. (p)		F					✓
ANGIOSPERMAE							
Zostera marina							

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS
(Not including species sampled from sediments)

SITE NAME: Off Tinside Swimming Pool (107) GRID REFERENCE: SX 477 536

DATE: 23/7/86 NAME OF RECORDER: J. Moore

KEY TO HABITAT COLUMNS:

1. Bedrock and Kelp forest - upper infralittoral at 0-1m BCD
2. Whole shell debris on mud between rock ridges at 1-2m BCD
3. Limestone ridges - lower infralittoral at 1-3m BCD
4. Mud and shell gravel at 3-4m BCD
5. Limestone ridges - upper circalittoral at 3-4.5m BCD
6. Mud plain at 5-6.5m BCD

	1	2	3	4	5	6
PROTOZOA						
Maliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides					R	
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum					R	
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)			R		O	
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea	O				O	
Halichondria bowerbanki					F	
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve	O		O		R	
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa					O	
Stellata grubii						
Stelligera stuposa						
Suberites ~~[illegible]~~ ficus					F	
Tethya aurantium						
Porifera indet. (like Lophon)					R	
~~Haliclona sp. (large ridged brown)~~					O	

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum					R	
Hydractinia echinata		R				
Hydrallmania falcata						
Nemertesia antennina					O	
Nemertesia ramosa					O	
Obelia dichotoma						
Obelia geniculata						
Plumularia setacea					R	
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta					F	
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus		R		A	F	O
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						A
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans					R	
Sagartia troglodytes						
Sagartiogetan undatus		R		O		F
Urticina felina						
Aiptasia mutabilis					F	
Sagartia elegans rivea					R	

SITE NAME: Trivide 107 (1)

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.	F		C		A	
Pomatoceros sp. (p)						
Sabella pavonina						
Terebellidae indet.						
? Myxicola aesthetica	O		C		A	
Spirorbid sp (crassicornis-bottlet)					R	
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia						
Cirripedia indet.	C		C			
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.					C	
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado					R	
Paguridae indet.						
Pagurus berhardus		R				O
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
Goneplax rhomboides (Mes)						F
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
Aphanus asperus						O
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Corambella peterseni			R			
Facelina bostoniensis					R	O
Philine aperta						×1
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
Hiatella arctica	F		O		O	
Musculus marmoratus					O	
MOS mar						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa					R	
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: 107 (2) (1)

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis					F	
Dendrodoa grossularia	C					
Didemnidae indet. (Cystodytes)					●	
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum			R		O	
Diplosoma spongiforme (Fragile)					O	
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Moqula manhattensis						
Morchellium argus	O		O		O	
Phallusia mammillata						
Polycarpa rustica	O					
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans					O	
Sidnyum turbinatum						
Stolonica socialis						
Styela clava					R	
Tridemnum cereum					O	
Polycarpa pomaria					P	
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris					R	
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						x
Pollachius pollachius						
Pomataschistus minutus						F

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis					O	
Thorogobius ephippiatus						
Trisopterus luscus						
Phoronis sp.					O	

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Off Tinside Swimming Pool 107 (2) GRID REFERENCE: SX 477 536

DATE: 23/7/86 NAME OF RECORDER: Chris Hawkins

KEY TO HABITAT COLUMNS:

1. Kelp as substratum
2.
3.
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula						
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides						
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa						
Delesseria sanguinea						
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii						
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata	O					
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii						
Polyneura hilliae						
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME:

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata						
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.	F					
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
Laminaria saccharina						
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera marina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS
(Not including species sampled from sediments)

SITE NAME: Off Tinside Swimming Pool (107) GRID REFERENCE: SX 477 536

DATE: 23.7.86 NAME OF RECORDER: J. Moore

KEY TO HABITAT COLUMNS:

1. Kelp or substratum
2. In limestone (boring or in holes)
3. In bryozoan colony at 5m bed
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea						
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina						
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata	F					
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						

SITE NAME: Off Tinside Swimming Pool (w1) (2)

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)						
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria	O					✓
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
Musculus [illegible]			P			
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea	O					
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: Off [illegible] Swimming Pool [illegible] (2)

	1	2	3	4	5	6
Amphipoda [illegible]			P			
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Mogula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
[illegible]		P	P			
[illegible]		P				
[illegible]		P				
Sabella flabellata		P				
[illegible]		P				
[illegible]		P				
[illegible]		P				
[illegible]						
[illegible]		P				

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: Laira Bridge Piling SITE NO.: 108

SURVEY AREA: Plymouth SEA AREA:

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	502	542	TO		

LAT. LONG.

	°	'	°	'	W/E		°	'	°	'	W/E
		:		:		TO		:		:	

RECORDER: Dixon DATE: 24 D 07 M 86 Y

TIME IN 0853

TIME OUT 0908 BST/~~GMT~~

DURATION 15

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 5.2 m

DEPTH RANGE SURVEYED +5.2 -2.5 M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY ...1.5... m

SITUATION (TICK ONE ONLY)

OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	✓

COASTAL TYPE (TICK)

HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SML. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)

VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	✓

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	✓
VERY WEAK (negligible)	40	

SALINITY (TICK)

NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	✓
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)

THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	✓

ROCK TYPE (TICK)

IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)

MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURBANCE (tick & note below)	67	✓

Harbour area

OTHER DATA RECORDED

PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

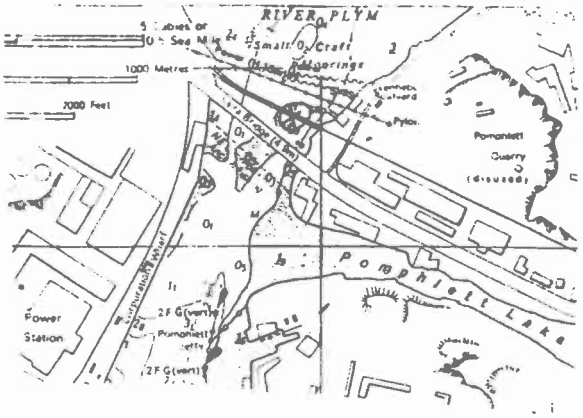
SITE NO. 108

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100	✓	✓	✓	✓		
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106	✓	✓				
0-5	107			✓	✓	✓	
5-10	108						
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112						
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128					3	
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150	3	3	3	3		
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153					✓	
Rubbish (Boots, chain, tyres etc)						2	
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW			2				
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF		2	2	3	3		
FAUNAL BED							

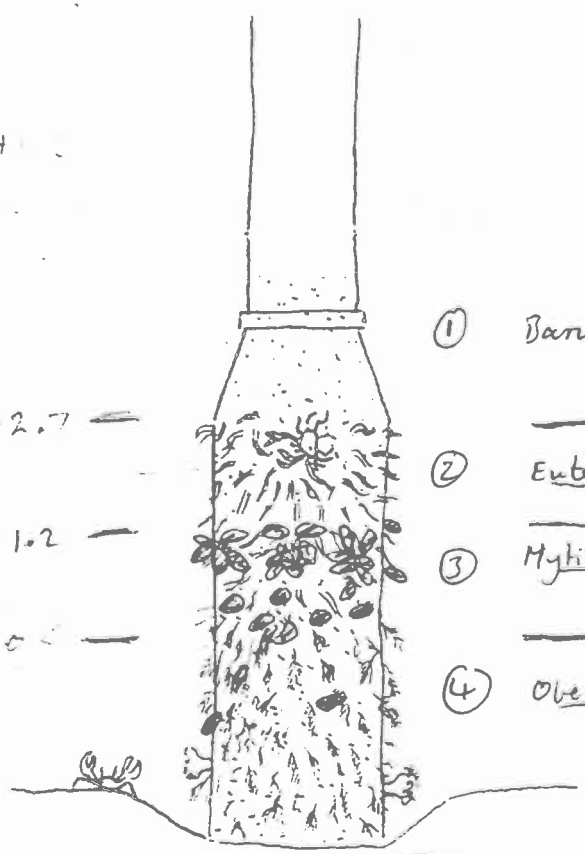
OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171	✓	✓	✓	✓		
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174						
HORIZONTAL	175					✓	
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221					2	
SMOOTH	222					3	
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227					2	
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE NO.: 108

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



⑤ River bed of coarse silty sand and shell gravel, with whole cockle shells. Lots of rubbish etc, mostly coloured by Balanus crenatus.

SITE NO.: 108

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

Steel piling of Laira bridge. Poor community developed. Overall, dominated by animals; Balanus crenatus, Elminius modestus, Mytilus edulis and with very few algae Enteromorpha sp only.

Carcinus occurred at all levels of the dive.

Sediment at base of piles is poor in conspicuous species. Overall zones as follows:-

Habitat ① Balanus crenatus. Elminius modestus.

② Plant dominated (Enteromorpha & nothing else)

③ Clumps of Mytilus edulis overgrown with Obelia sp (preserved) and little else. Silty.

④ Dominated by almost monoculture of Obelia sp

⑤ No fauna, apart from Carcinus.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

108

SITE NAME: Lava Bridge Piling GRID REFERENCE: SX 502 472

DATE: 24.07.86 NAME OF RECORDER: DIXON

KEY TO HABITAT COLUMNS:

1. Barnacle dominated zone +2.7 – +5.2m BCD
2. Enteromorpha dominated zone +1.2 – +2.7m BCD
3. Mytilus edulis dominated zone -0.5 – +1.2m BCD
4. Abra sp dominated zone -0.5 – -2.5m BCD
5. Silty coarse sand with shells at 2.5m BCD
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula						
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides						
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa						
Delesseria sanguinea						
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii						
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii						
Polyneura hilliae						
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME: 108

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata						
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
Laminaria saccharina						
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.		C				
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera marina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

108

SITE NAME: Lara Bridge Piling GRID REFERENCE: SX 502 542

DATE: 24 07 86 NAME OF RECORDER: DIXON

KEY TO HABITAT COLUMNS:

1. Barnacle dominated zone +2.7 - +5.2 m BCD
2. Enteromorpha dominated zone +1.2 - 2.7 m BCD
3. Mytilus edulis dominated zone -0.5 - +1.2 m BCD
4. Obelia sp. dominated zone at -0.5 - -2.5 m BCD
5. Silty coarse sand with shells at 2.5 m BCD
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea						
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve				O		
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina	:					
Nemertesia ramosa						
Obelia dichotoma		F	C	A		
Obelia geniculata						
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile				O		
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						

SITE NAME: 108

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)						
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus	C	F	F	F		
Elminius modestus	F	O	O	O		
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas	R	F	F	F	F	
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis			C	O		
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: 108

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Mogula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: N. of Mountbatten Breakwater. SITE NO.: 109

SURVEY AREA: Plymouth SEA AREA: Plymouth.

OS GRID REF.:

	E - W	N - S	TO	E - W	N - S
SX	483	533			

LAT. LONG.

	°	'	°	'	W/E	TO	°	'	°	'	W/E

RECORDER: B. Bullimore, C. Howson

DATE: 24 D 07 M 86 Y

TIME IN 0948

TIME OUT 1014 BST/

DURATION 26 GMT

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 4.8 m

DEPTH RANGE SURVEYED +1 → -3.2 M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 1.5 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	✓

Breakwater.

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <5 km)	35	✓

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	✓

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	✓

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	✓

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below) :	57	✓

? CONCRETE BLOX

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

30 4
95 49
1010 < 8

UNDERWATER DATA

SITE NO. 109

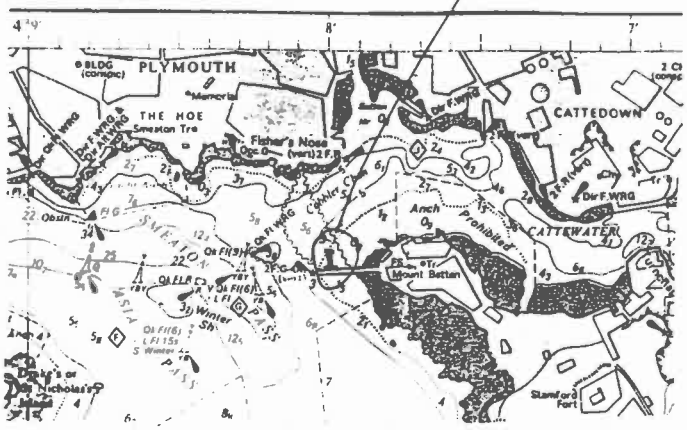
DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100		✓				
UPPER INFRALITTORAL	101	.	✓	✓			
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105	✓					
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106		✓				
0-5	107	✓	✓	✓			
5-10	108						
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112		1				
LG. BOULDERS (500 mm+)	113		3	3			
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118	1					
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132	3					
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY			3				
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST			1				
FAUNAL TURF							
FAUNAL BED				2			

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173		✓				
SHALLOW (<20°)	174	✓	.				
HORIZONTAL	175						
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187		2				
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193		3	3			
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200		✓	✓			
Block faces at various angles			3	3			
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221	3					
SMOOTH	222						
WORKED	223	2					
RIPPLED	224						
MOUNDS	225	1					
BURROWS	226	2					
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243	2					
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

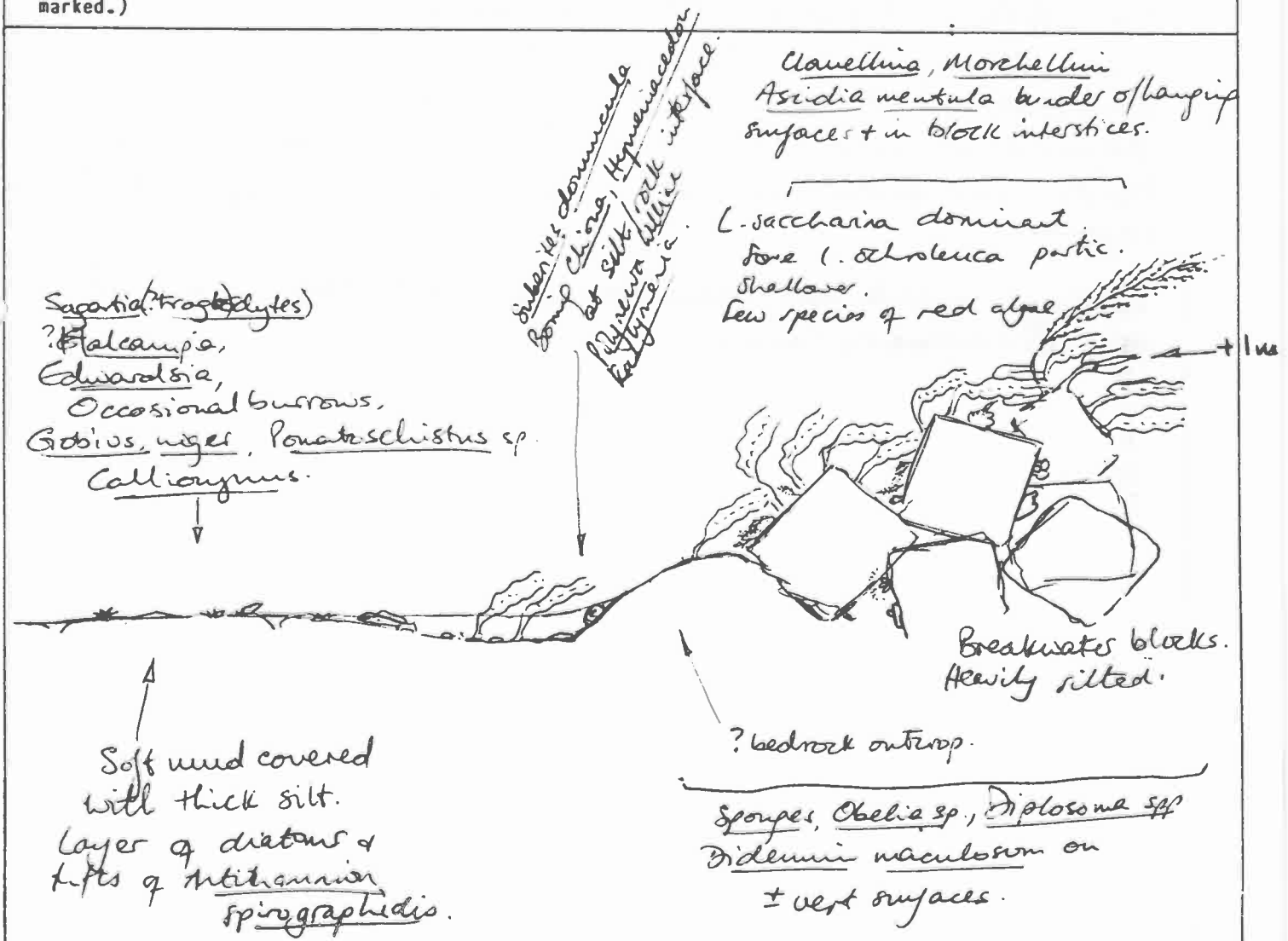
SITE NO.: 109

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)

Opposite small slipway on breakwater



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 109

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

(1) Shallow silt gloopy mud slope with occasional Sagartia troglodytes, Cerianthus, Edwardsia claparedii and rare Halcampa (photo) Occasional burrows, Gobius niger, Pomatoschistus sp., Callionymus & Nassarius. Sagartiagetin occ. on rare pebbles (with thick flocc. silt on). Layer of diatoms and Antitamnion spirographidis on mud surface.

(moderate in my terminology)

Steep overall slope of ? concrete blocks (breakwater). (2) Dense kelp forest on upward facing surfaces. Thick flocculent silt overall. L. saccharina dominant some L. ochroleuca, occasional Saccorhiza Few species of algae - mostly Callophyllis, Cryptopleura, Polyneura hilliae and Kallymenia

(3) Vertical surfaces silty with Halichondria occasional, Hymeniacedon rare, Diplosoma listerianum rare, Yellow indet Diplosoma occasional and Obelia sp. frequent. Didemnum maculosum x1

Under slightly more overhanging surfaces - Morchellium & Clavellina occasional and Ascidia mentula rare (c. x3). B. crenatus & Pomatoceros frequent on least silty areas. Liocarcinus puber (x1) between blocks. Juv. gadids present. Algae similar to upward facing surfaces.

Obelia geniculata and Membranipora both frequent on kelps. Also Ectocarpoids common.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Mountbatten Breakwater GRID REFERENCE: SX 483553.

DATE: 24/7/86 109 NAME OF RECORDER: Clare Howran

KEY TO HABITAT COLUMNS:

1. Soft gloopy mud with thick flocculent mud on top. 3.2 - 1.2m CD
2. Upper infralittoral - concrete blocks upward facing surfaces. Kelp forest 1.2 - +1
3. " " " " downward " " "
4. Algae as substratum. 1.2 - +1.3m CD
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula						
Antithamnion spirographidis	C	F		O		
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides						
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata		F				
Ceramium rubrum		O				
Ceramium sp.						
Chondrus crispus		R				
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa		F				
Delesseria sanguinea						
Dilsea carnosa		O				
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii						
Kallymenia reniformis		F				
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata		R				
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides	:					
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii		O				
Polyneura hilliae	R	F				
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME: 109

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata						
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.				F		
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca		A				
Laminaria saccharina	R	A				
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides		F				
Sargassum muticum		O				
Diatom	A					
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)		O				
ANGIOSPERMAE						
Zostera marina						
/						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: N. of Mountbatten Breakwater (109) GRID REFERENCE: SX 483533.

DATE: 240786. NAME OF RECORDER: B. BULLIMORE

KEY TO HABITAT COLUMNS:

1. SOFT GLOOPY MUD WITH THICK FLOCCULENT SILT ON TOP.
2. UPPER INFRALITTORAL, CONCRETE BLOCKS, UPWARD FACING SURFACES, KELP FOREST.
3. " " " " DOWNWARD " "
4. ALGAE AS SUBSTRATE
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)		R	R			
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea			O			
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve		R	R			
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						
Suberites domuncula		R				

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata	R					✓
Hydrallmania falcata						
Nemertesia antennina						
Nemertesia ramosa						
Obelia dichotoma		F				✓
Obelia geniculata				F		✓
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii	O					✓
Corynactis viridis						
Edwardsia claparedii	O					✓
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes	O					✓
Sagartiogetan undatus	O					✓
Urticina felina						
?Halcampa chrysanthellum	R					✓

SITE NAME: 109

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)			F			
Sabella pavonina						
Terebellidae indet.						
Myxicola aesthetica		R				
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus			F			
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber			R			
Macropodia rostrata						
Maja squinado						
Paguridae indet.	R					
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus	R					
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea				F		
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: 107

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula			R			
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri			R	R		
Ciona intestinalis						
Clavelina lepadiformis			O			
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum			R			
Diplosoma listerianum			R			
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Molgula manhattensis						
Morchellium argus			O			
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
Diplosoma - yellow indet.		R	F			
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra	P					
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger	O					
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus sp.	F					

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
Pleuronect. platessa	x1					
Gadids juv.	?					

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: Clovelly Bay — SITE NO.: 110

SURVEY AREA: Plymouth — SEA AREA:

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	491	531	TO SX	492	532

LAT. LONG.

	° '	° ' W/E	TO	° '	° ' W/E

RECORDER: J J. Moore — DATE: 24 D 07 M 86 Y

TIME IN: 1029 — TIME OUT: 1102 BST/GMT — DURATION: 33

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 1.5 m

DEPTH RANGE SURVEYED +15.2 M BELOW ~~SEA LEVEL~~/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 2 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	✓

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	✓
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	✓

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	✓
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

SITE NO.

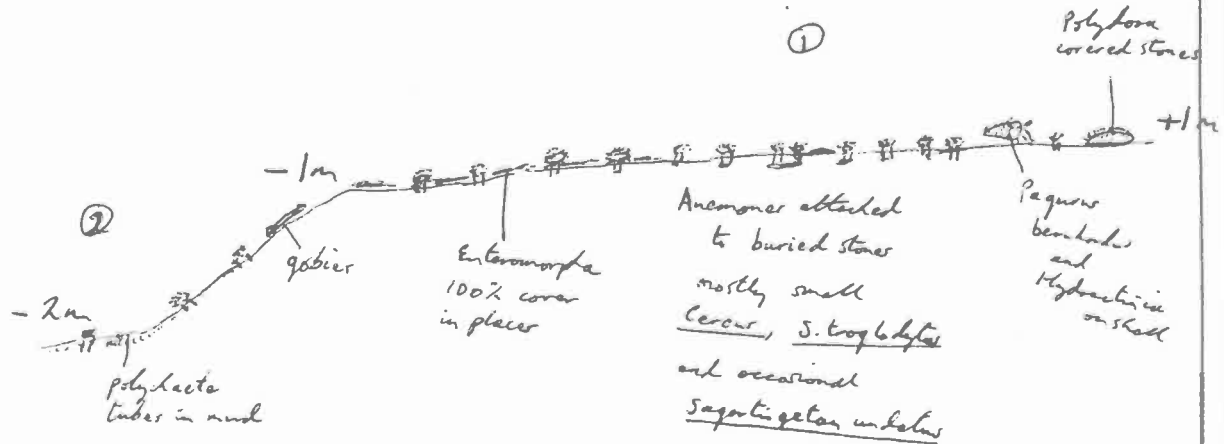
		STN./HABITAT					
DEPTH ZONE (OPEN ROCK) (TICK ONE)		1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105	✓	✓				
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓	✓				
5-10	108						
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112						
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120	2					
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122	3	1				
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132	3	3				
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF							
FAUNAL BED							

		STN./HABITAT					
OVERALL INCLINATION (TICK ONE)		1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173		✓				
SHALLOW (<20°)	174	✓					
HORIZONTAL	175	✓					
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221	2	3				
SMOOTH	222	3	3				
WORKED	223	3	3				
RIPPLED	224						
MOUNDS	225						
BURROWS	226		1				
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
Thick flocculated silt		2	2				
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246	3	1				

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 110

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

① Soft thick glutinous mud with thick flocculent silt on surface and large and small angular pebbles at +1m to -1m BCD. Very abundant anemones, mostly small Cerews with frequent Sagartia troglodytes and occasional Sagartiogeton undatus. 71/0.01m². Some stones on surface with Hymeniacidon, Halichondria panicea and dense cover of Polydora tubes. Some patches of Enteromorpha sp. with up to 100% cover in places. Occasional Pagurus bernhardus, some with Hydractinia echinata. Some Crangon sp. and gobies. One Mysicola infundibuli

③ Steep sloping mud at 1-2m BCD. Fewer, though still abundant, Cerews. Many polychaete tubes buried in the sediment. Few other conspicuous species.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Clovelly Bay (110) GRID REFERENCE: SX 491 531 - SX 492 532

DATE: 24.7.86 NAME OF RECORDER: J J Moore

KEY TO HABITAT COLUMNS:

1. Mud and angular pebbles at -1 to -1 BCD
2. Mud slope at 1 & 2 m BCD
3.
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula						
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides						
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa						
Delesseria sanguinea						
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii						
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii						
Polyneura hilliae						
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME: 110

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia ligulata						
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
Laminaria saccharina						
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.	c					
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera marina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Clovelly Bay (110) GRID REFERENCE: SX 491 531 - SX 492 532

DATE: 24.7.86 NAME OF RECORDER: J J. Moore

KEY TO HABITAT COLUMNS:

1. Mud and angular pebbles at +1 to -1 BCD
2. Mud Slope at 1 to 2 m BCD
3.
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Caliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea	R					
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve	R					
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata	R					
Hydrallmania falcata						
Nemertesia antennina	:					
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata						
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus	A	A				
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes	F					
Sagartiogetan undatus	F					
Urticina felina						

SITE NAME: 110

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum	R					
Polydora sp.						
Pomatoceros sp. (p)						
Sabella pavonina						
Terebellidae indet.						
Polychaet. tubes in sed.		A				
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas	O					
Crangon crangon	O	O				
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus	O					
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: 110

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Mogula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa	R					
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Syngnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
Gobius indet.	0	0				

SUBLITTORAL HABITAT RECORD

RECORD NO.:

SITE NAME: Cattedown Wharf Piles

SITE NO.: 111

SURVEY AREA: Plymouth

SEA AREA:

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	4 9 6	5 3 5	TO		

LAT. LONG.

	° '	° ' W/E	TO ° '	° ' W/E

RECORDER: J.J Moore

DATE: 24 D 07 M 86 Y

TIME IN: 1112

TIME OUT: 1127 BST/~~GMT~~

DURATION: 15

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- ..4.. m

DEPTH RANGE SURVEYED 0-4 M BELOW ~~SEA LEVEL~~/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY ..2.. m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
LINEAR COAST	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SML. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	✓
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	✓

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	✓
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	✓
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below) :	57	✓

Concrete

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURBANCE (tick & note below)	67	✓

Wharf operations

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	
ALGAL CHECKLIST	86	
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

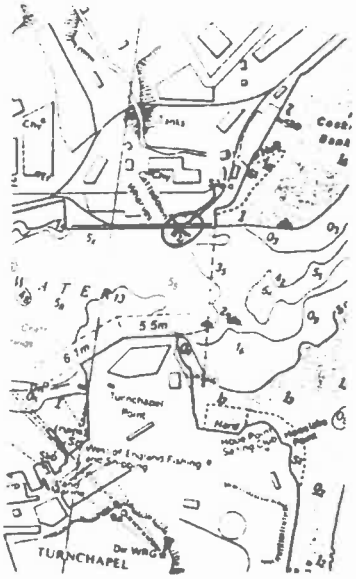
SITE NO. 171

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104	✓	✓				
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓	✓				
5-10	108						
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112						
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122		2				
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132		3				
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151	3					
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW							
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF		2					
FAUNAL BED		3					

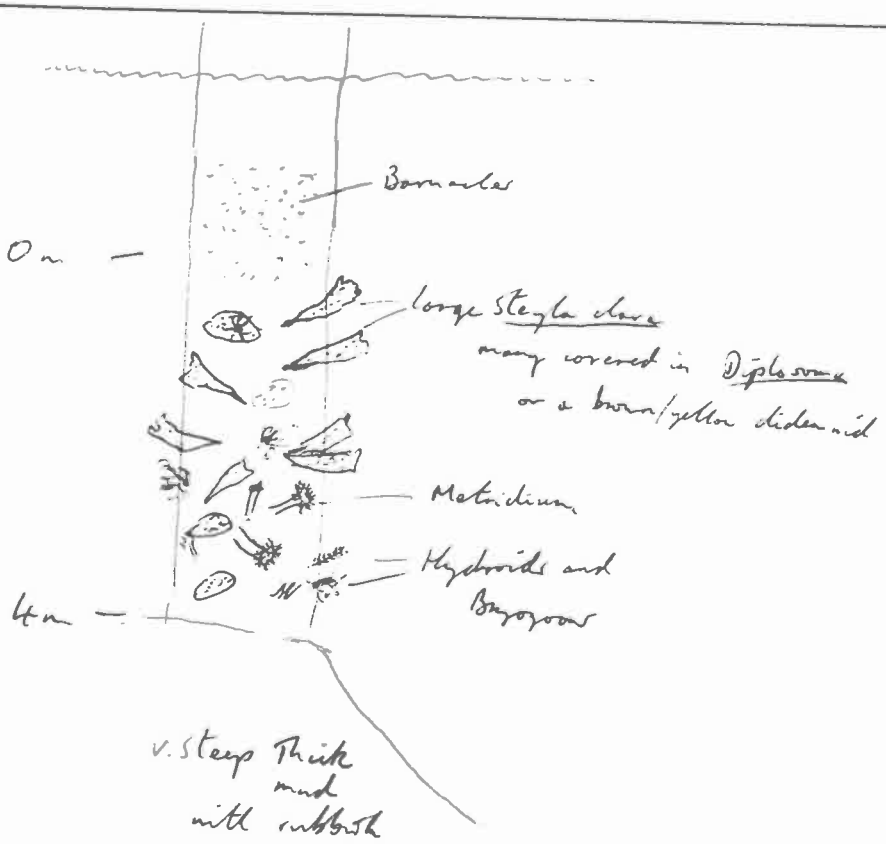
OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171	✓					
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174						
HORIZONTAL	175						
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177	3					
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198	3					
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221		3				
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
Rubbish			2				
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE NO.: 111

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 111

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

① Concrete vertical surfaces of wharf piles at ca. 0 - 4m BCD with silt on many surfaces. Many large *Stegelacava*, many of them covered in *Diplosoma listerianum* or another brown/yellow didemnid. A few *Metridium* and *Ciona*. *Halichondria bowerbanki* and *Myxeniacidon* frequent. *Isophon nordmani* in one patch. Some hydroid (*Obelia* sp. and *Kirchenpauria*) and lots of *Umbonula*. *Membranipora* occasional. Many *Corophium*.

② V. Steep mud at bottom of piles. Thick and soft with some angular pebble. No life seen

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Cattedown Wharf Piles (iii) GRID REFERENCE: SX 496 535

DATE: 24-7 83 NAME OF RECORDER: J J Moore

KEY TO HABITAT COLUMNS:

1. Concrete vertical surface at 0-4m BCD
2. V. Steep mud and angular pebbles at 4m BCD
3.
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea						
Halichondria bowerbanki	F					
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve	O					
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						
Iophon nodosum	R					

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina						
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata						
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
Obelia sp.	F					
Kirchenpauria pinnata	O					
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum	O					
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile	F					
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						

SITE NAME: (((

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)						
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus	O					
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas	F					
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis	F					
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis	R					
Ophiura texturata						

SITE NAME: III

	1	2	3	4	5	6	
ECHINODERMATA:ECHINOIDEA							
Echinocardium cordatum							
Echinus esculentus							
Psammechinus miliaris							
ECHINODERMATA:HOLOTHUROIDEA							
Cucumaria sp.							
Holothuria forskali							
CHORDATA:ASCIDIACEA							
Aplidium punctum							
Ascidia mentula	O						✓
Ascidiella aspersa							
Botrylloides leachii							
Botryllus schlosseri							
Ciona intestinalis	O						✓
Clavelina lepadiformis	F						✓
Dendrodoa grossularia							
Didemnidae indet. (yellow/brown)	F						✓
Dicemnum gelatinosum							
Didemnum maculosum							
Diplosoma listerianum	F						✓
Diplosoma spongiforme							
Distaplia rosea							
Distomus variolosus							
Lissoclinum perforatum							
Mogula manhattensis							
Morchellium argus	F						✓
Phallusia mammillata							
Polycarpa rustica							
Polycarpa sp.							
Polyclinidae indet.							
Polyclinum aurantium							
Sidnyum elegans							
Sidnyum turbinatum							
Stolonica socialis							
Styela clava	A						✓
CHORDATA:PISCES							
Ammodytes sp.							
Callionymus lyra							
Centrolabrus exoletus							
Crenilabrus melaps							
Ctenolabrus rupestris							
Gobius niger							
Gobiusculus flavescens							
Labrus bergylta							
Labrus mixtus							
Pholis gunnellus							
Pleuronectidae indet. (juv.)							
Pleuronectys platessa							
Pollachius pollachius							
Pomataschistus minutus							

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: Reef near "the" Elk" — SITE NO.: 112

SURVEY AREA: Plymouth — SEA AREA:

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	452	473	TO SX	455	474

LAT. LONG.

	°	'	°	'	W/E		°	'	°	'	W/E
						TO					

RECORDER: J. Moore / B. Bellmore / I. M. T. Dixon, C. Howson, S. Hiscock, V. Morgan — DATE: 24 D 07 M 86 Y

TIME IN 1530 — DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 0.2-2.1 m

TIME OUT 1730 BST/ — DEPTH RANGE SURVEYED 18 - 2.5 M BELOW ~~SEA LEVEL~~/CHART DATUM

DURATION 1 08 ~~GMT~~ — HORIZONTAL UNDERWATER VISIBILITY 8-10 m

SITUATION (TICK ONE ONLY)

OPEN SEA (> 1 km offshore	1	✓
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)

HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH ✓	14	
ESTUARY/MARINE INLET	15	
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	✓

Submerged offshore Reef

WAVE EXPOSURE (SURFACE) (TICK)

VERY EXPOSED (prevailing wind and swell)	30	✓
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	✓
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)

NORMAL (around 34°/oo)	41	✓
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)

THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	.
NOT KNOWN	49	✓

ROCK TYPE (TICK)

IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	✓
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)

MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURBANCE (tick & note below)	67	

OTHER DATA RECORDED

PHOTOGRAPHS: SURF	80	
W-A	81	✓
C-U	82	
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

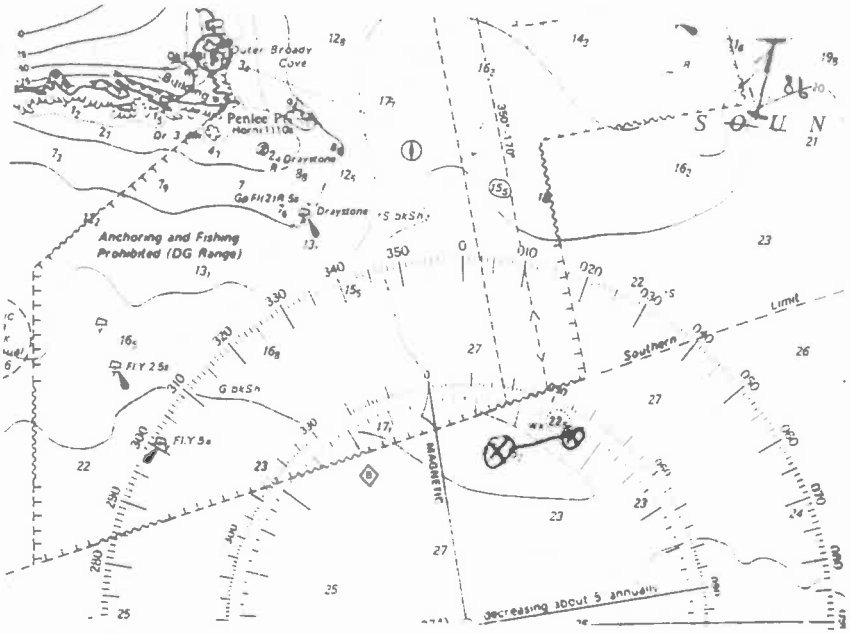
SITE NO. 11A

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102	✓					
UPPER CIRCALITTORAL	103		✓	✓			
LOWER CIRCALITTORAL	104				✓		
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107						
5-10	108						
10-20	109	✓	✓				
20-30	110		✓	✓	✓		
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	3	3	3			
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114			2	3		
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116				3		
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128			2			
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137				✓		
wreck debris					1		
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW		3		1			
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF			2				
FAUNAL BED			2	2			

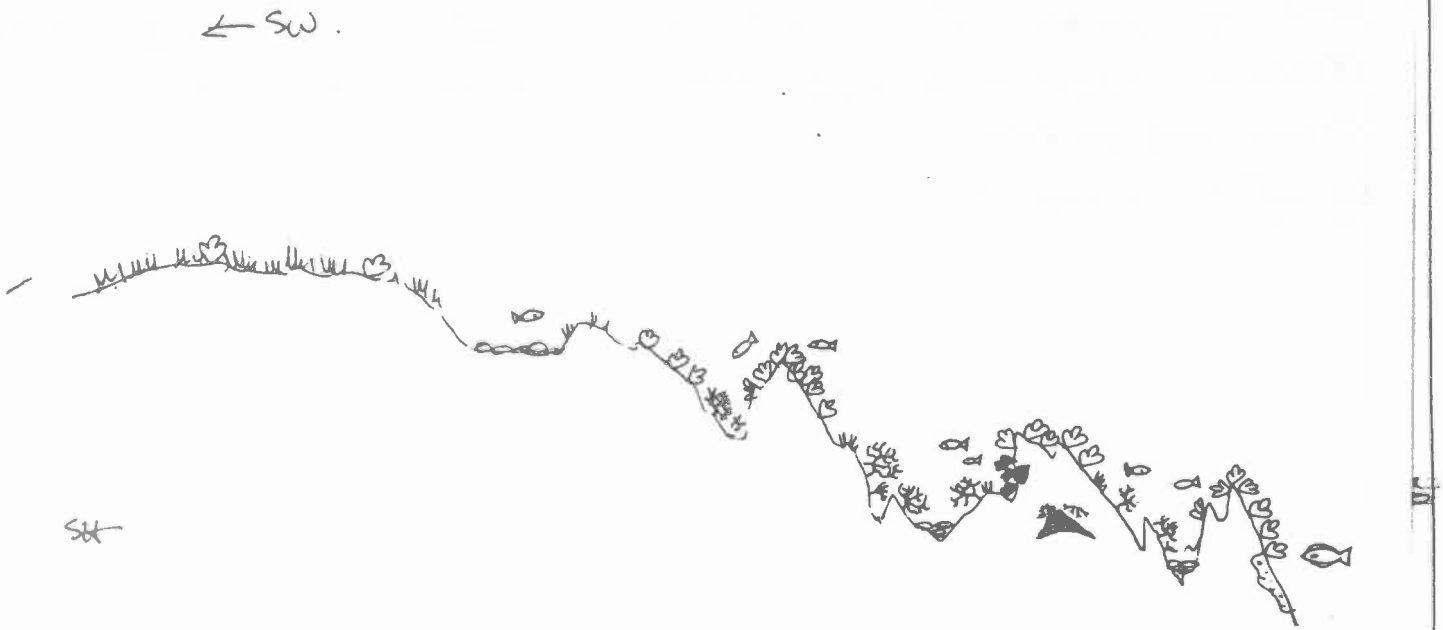
OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171		✓				
V. STEEP (40-80°)	172						
STEEP (20-40°)	173			✓			
SHALLOW (<20°)	174						
HORIZONTAL	175	✓			✓		
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177			2			
(BROKEN ROCK	178		3	2			
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181		2				
OPEN GULLIES	182			3			
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184		2				
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187		1				
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190			2	2		
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198	1		2			
THICK/FLOC. SILT ON ROCKS	199				2		
OTHER (tick & note/score below)	200						
Stable Boulder Plain					3		
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220			2			
SOFT	221						
SMOOTH	222						
WORKED	223			2			
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE NO.: 112

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 112

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

① Lower infralittoral horizontal bedrock at 18m BCD. Algae dominated. Bonnemaisonia asparagoides + Bonnemaisonia asparagoides Corna + a variety of other, mostly typical lower infralittoral / upper circalittoral species. Caryophyllia cornuta occasional.

② Vertical and broken bedrock at 18 - 22m BCD. Small cliffs 2 - 3m high, some solid bedrock, others highly fissured with horizontal crevices along slate bedding plane. Some Eunicella, Alcyonium abundant. Lower circalittoral scattered algae, mostly Rhodophyllis bifida. Large areas of Parazoanthus on solid rock faces. Caryophyllia cornuta occasional.

③ Open gullies - sloping sides and slates in base. Forests of Eunicella in bases of gullies and on landward side of slopes. Occasional large Pentapora. Alcyonium common. Nemertesia antennina + ramosa frequent. Occasional patches of sand between + under boulders - Cancer + Liocarcinus burrowing into it.

④ Silt covered slate + boulder plain. Fairly barren - not recorded due to time. One big scar!

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Reef near the 'Silk' (112) GRID REFERENCE: SX 452 473 to 455 474

DATE: 24 07 86 NAME OF RECORDER: S Hiscock

KEY TO HABITAT COLUMNS:

1. Lower infralittoral upward facing bedrock
2. Vertical and broken bedrock
3. Open gullies with sloping sides and slates in base
4. Silt covered slate and boulder plain.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula	O					
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides	C		C			
Bonnemaisonia hamifera						
Brongniartella byssoides	C	O	C			
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)	F					
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa						
Delesseria sanguinea	F	O	O			
Dilsea carnosa						
Drachiella spectabilis	O		F			
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum		O	R			
Heterosiphonia plumosa		R				
Hypoglossum woodwardii			R			
Kallymenia reniformis		O	O			
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum		F				
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa		O	R			
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii	F	C	F			
Polyneura hilliae	O	O				
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica	R					
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata						
Rhodophyllis sp. big	F		C			
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata	O					
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
Schottera	O	F	O			
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME: 112

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata	R					
Desmarestia ligulata			R			
Desmarestia viridis						
Dictyopteris membranacea	F	F	O			
Dictyota dichotoma	O		C			
Ectocarpoidea indet.						
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
Laminaria saccharina						
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
Cystoseira tamariscifolia	O	O				
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa						
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.						
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera marina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Reef near The Elk (112) GRID REFERENCE: SX 452 473 & 455 474

DATE: 24/7/82 NAME OF RECORDER: CMH/BB/JMJ/ID

KEY TO HABITAT COLUMNS:

1. Lower infralittoral horizontal bedrock
2. Vertical and broken bedrock.
3. Open gullies with slates in base and sloping sides
4. Silt covered slate + boulder plain. (Not recorded)
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata		R				
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata	R	O	O			
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea						
Halichondria bowerbanki						
Hliclona oculata						
Hamimycale columella		O	O			
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia		R				
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						
Thymosia guernei		x1				

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina		F	C			
Aglaophenia pluma						
Aglaophenia tubulifera		O	F			
Campanularia angulata						
Halecium beanii						
Halecium halecinum	R	F				
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina	O	O	F			
Nemertesia ramosa	O	O	F			
Obelia dichotoma						
Obelia geniculata						
Plumularia setacea						
Sertularella polyzonias		R				
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa		R				
Tubularia larynx						
Sertularella gayi		F	F			
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta	O	F				
Adamsia carciniopados						
Alcyonium digitatum		A	F			
Anemonia viridis						
Caryophyllia smithii	R	F	O			
Cereus pedunculatus						
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii		R				
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes		O				
Sagartiogetan undatus						
Urticina felina						
Parazoanthus axinellae		R				
Eunicella verrucosa		F	A			
Alcyonium glomeratum		R				

SITE NAME: 112

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis		R				
Branchiomma vesiculosum						
Chaetopterus variopedatus		O				
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)	O	O				
Sabella pavonina						
Terebellidae indet.						
Salmacina dysteri		R				
? Serpula sp		R				
Hydroides norvegica		K				
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus						
Elminius modestus						
Verruca stroemia	F	C				
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus		R				
Carcinus maenas						
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator		R				
Liocarcinus puber						
Macropodia rostrata						
Maja squinado						
Paguridae indet.						
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum		F	O			
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata		F	O			
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa	F		O			
Chartella papyracea		O				
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa	F	O	O			
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa		C	F			
Pentapora foliacea		R	F			
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
Omalosecosa ramulosa		O				
Schizomavella linearis	O	C				
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens	F	F	F			
Henricia oculatata						
Marthasterias glacialis	R	F	F			
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: (112)

	1	2	3	4	5	6
Ophiuroidea		O				
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus	O	F	O			
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp. (frauenfeldi)	R	C				
Holothuria forskali	O	F	O			
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula		O				
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri	R	O	C			
Ciona intestinalis						
Clavelina lepadiformis	O	C	O			
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Molgula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava						
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus		F				
Crenilabrus melops						
Ctenolabrus rupestris		F				
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta		O				
Labrus mixtus	O	F				
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomatoschistus minutus						

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus		C	O			
Molva molva				x1		
Zeus faber		x1				

#194

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: Sand Acre Point — SITE NO.: 113 (1)

SURVEY AREA: Plymouth — SEA AREA:

OS GRID REF.:

	E – W	N – S		E – W	N – S
SX	419	572	TO	421	573

LAT. LONG.

		W/E			W/E
			TO		

RECORDER: Iain Dixon. — DATE: 25 D 07 M 86 Y

TIME IN 1018 — DEPTH CORRECTION APPLIED? NO/YES +4.7 m

TIME OUT 1106 BST/ — DEPTH RANGE SURVEYED 4.3 ± 0.7 M BELOW SEA LEVEL/CHART DATUM

DURATION 48 GMT — HORIZONTAL UNDERWATER VISIBILITY ...1:0... m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	✓
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	✓
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	✓
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	✓

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	✓
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

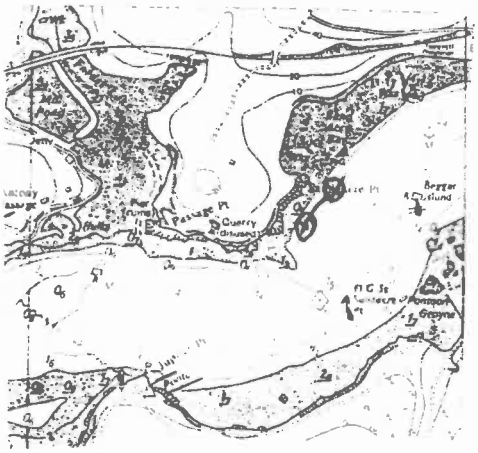
UNDERWATER DATA

SITE NO. 113 (1)

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100	✓					
UPPER INFRALITTORAL	101		'				
LOWER INFRALITTORAL	102		✓				
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106	✓					
0-5	107		✓				
5-10	108						
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112						
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114	2	.				
LG. COBBLES (128-256 mm)	115	.	2				
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119		2				
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120	3					
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130		3				
SANDY MUD	131						
MUD	132	.1.	2				
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135		2				
TREE BRANCHES	136		2				
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW		2					
ALGAL TURF		-	2				
ALGAL CRUST							
FAUNAL TURF			1				
FAUNAL BED			.				

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174	✓	✓				
HORIZONTAL	175						
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198						
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221	2	3				
SMOOTH	222						
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227						
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246		2				

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



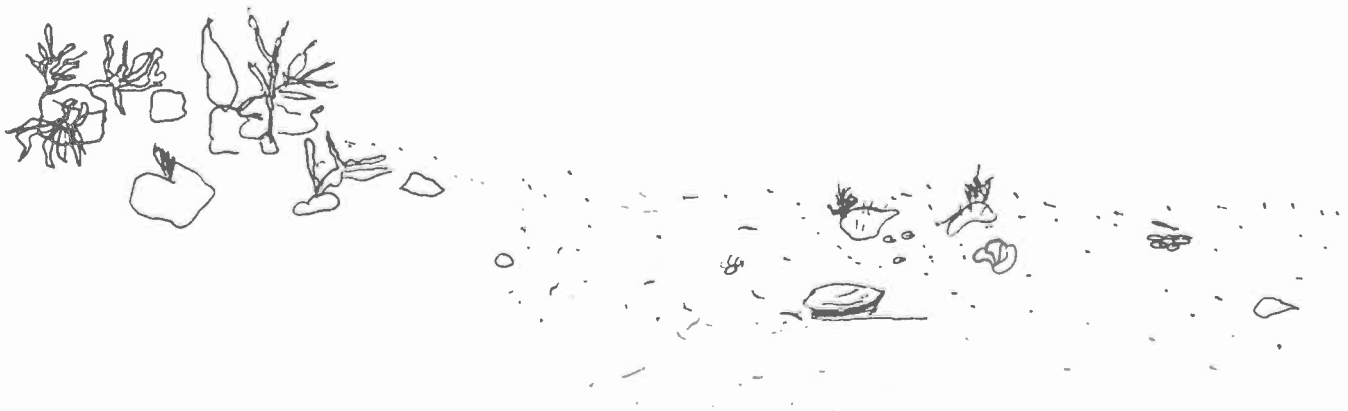
SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)

1. Sublittoral fringe.

Dominated by Ulva sp, Fucus serratus & F. vesiculosus.

2. Upper circalittoral.

Fairly diverse epifauna; including many Carcinus, Pagurus bernhardus, Mytilus, Ostrea, & Pagurid



SITE NO.: 113 (1)

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

1. Boulders in sublittoral fringe at +0.7m BCD

Lower intertidal - type biota, dominated by Fucoids, and green algae. ~~Fauna~~ Sparse fauna compared to that below 0m BCD in Habitat 2. (Mainly Balanus crenatus with some Elminius modestus and Tomaloura sp.

2. Shells and shale pebbles overlying mud and muddy sand below 0m. Silted.

Biota falls within definition of upper circalittoral zone, presumably due to lack of stable hard substrata. Small red algae growing on shells and on fauna dominated by Polysiphonia sp and Apoglossum ruscifolium.

Mobile fauna of Carcinus, Pagurus and Crangon. Sessile fauna dominated by hydroid cover (specimens preserved for I.D.), together with large Ostrea edulis and Mytilus edulis. Latter species also provide a habitat for Arcidiella scabra and Polydora sp. Mytilus was recorded as fragment here. However, further north, directly off the Point and subject to fast currents, there was a full mature mussel bed with v. little encrusting growth.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Sand Acre Point (113) (1) GRID REFERENCE: SY 419 572 - 421 573

DATE: 25.07.86 NAME OF RECORDER: I. DIXON

KEY TO HABITAT COLUMNS:

1. Boulders in sublittoral fringe at +0.7m BCD
2. Shells and shale pebbles overlying mud and muddy sand between 0 - 4.3m BCD
3.
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula		D				
Antithamnion spirographidis						
Apoglossum ruscifolium		F				
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides						
Calliblepharis ciliata						
Callithamnion sp.	F	O				
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum						
Ceramium sp.	O	O				
Chondrus crispus						
Chylocladia verticillata						
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa						
Delesseria sanguinea						
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides						
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii						
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum						
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides						
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii		R				
Polyneura hilliae						
Polysiphonia elongata						
Polysiphonia sp.	O	F				
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
Porphyra sp	O					
Gracilaria verrucosa		O				
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						

SITE NAME: U3 (1)

	1	2	3	4	5	6
PHAEOPHYTA						
Arthrocladia villosa						
Chorda filum						
Cladostephus spongiosus						
Cystoseira baccata						
Desmarestia aculeata						
Desmarestia liqulata						
Desmarestia viridis						
Dictyopteris membranacea						
Dictyota dichotoma						
Ectocarpoidea indet.	C					
Halidrys siliquosa						
Halopteris filicina						
Laminaria digitata						
Laminaria hyperborea						
Laminaria ochroleuca						
Laminaria saccharina						
Phaeophyta indet. (encr.)						
Pseudolithoderma sp.						
Saccorhiza polyschides						
Sargassum muticum						
Fucus serratus	F					
F. vesiculosus	O					
Ascophyllum nodosum	R					
CHLOROPHYTA						
Bryopsis hypnoides						
Bryopsis plumosa	O					
Chaetomorpha melagonium						
Cladophora pellucida						
Cladophora pygmaea						
Cladophora rupestris						
Enteromorpha sp.	C					
Ulva sp. (p)						
ANGIOSPERMAE						
Zostera marina						

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Sand Acre Point (113) (1) GRID REFERENCE: SX 419 572 - 421 573

DATE: ca. 07.86. NAME OF RECORDER: I. DIXON

KEY TO HABITAT COLUMNS:

1. Boulders in subtidal fringe
2. Shells and shale pebbles overlying mud and muddy sand between 0 - 4.3 m BCD.
3.
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)		R	O			
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea		O	D			
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve		R	O			
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata		F				✓
Hydrallmania falcata						
Nemertesia antennina						
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata						
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina			O			✓
Tubularia indivisa						
Tubularia larynx						
Gonothyraea loveni		F				✓
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus		R	X1			✓
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile		R	X1			✓
Sagartia elegans						
Sagartia troglodytes			O			✓
Sagartiogetan undatus		O				✓
Urticina felina						

SITE NAME: off Pawnage Point (113) (1)

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.		F				
Pomatoceros sp. (p)	O	F	F			
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus	O	F	C			
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas		O	F			
Crangon crangon		F				
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp. phalangium		R				
Liocarcinus depurator						
Liocarcinus puber			O			
Macropodia rostrata						
Maja squinado						
Paguridae indet.			F			
Pagurus berhardus		F				
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum		R				
Calliostoma zizyphinum						
Crepidula fornicata		O	O			
Gibbula cineraria		O				
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Tomuna tomentosa		F	O			
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis	O	F	F			
Ostrea edulis		O				
Pecten maximus						
Cerastoderma edule		R				
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
Vittella sp	P	P				
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: 113 (1)

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella ~~aspersa~~ scabra		O				
Botrylloides leachii			O			
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Molgula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava		R	O			
~~Molgula~~ sp.	F	F				
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra			R			
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus		R	R			
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus ~~minutus~~ sp			O			

	1	2	3	4	5	6
Syngnathus acus		R				
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						

#242

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: Sand Acre Point — SITE NO.: 113 (2)

SURVEY AREA: Plymouth — SEA AREA: Plymouth

OS GRID REF.:

	E - W	N - S		E - W	N - S
SX	419	572	TO SX	421	573

LAT. LONG.

	°	'	°	'	W/E		°	'	°	'	W/E
						TO					

RECORDER: B. BULLIMORE — DATE: 25 D 07 M 86 Y

TIME IN: 1015 — TIME OUT: 1102 BST/~~GMT~~ — DURATION: 47

DEPTH CORRECTION APPLIED? ~~YES~~ +/- 4.7 m

DEPTH RANGE SURVEYED 1.5 - 5.5 M BELOW SEA LEVEL/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY 1.0 - 0.5 m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	✓
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	✓
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	✓

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	✓

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	✓
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

SITE NO. 113 (2)

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100						
UPPER INFRALITTORAL	101						
LOWER INFRALITTORAL	102	✓					
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓					
5-10	108						
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112						
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114	1					
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117	2					
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120	2					
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121	2					
MED. & SM. PEBBLES (4-16 mm)	122	2					
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127	3					
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132	1					
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135	3					
TREE BRANCHES	136	1					
OTHER (score & note type below)	137	✓					
Shell gravelly mud		2					
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152	1					
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW							
ALGAL TURF		1					
ALGAL CRUST							
FAUNAL TURF		.					
FAUNAL BED		2					

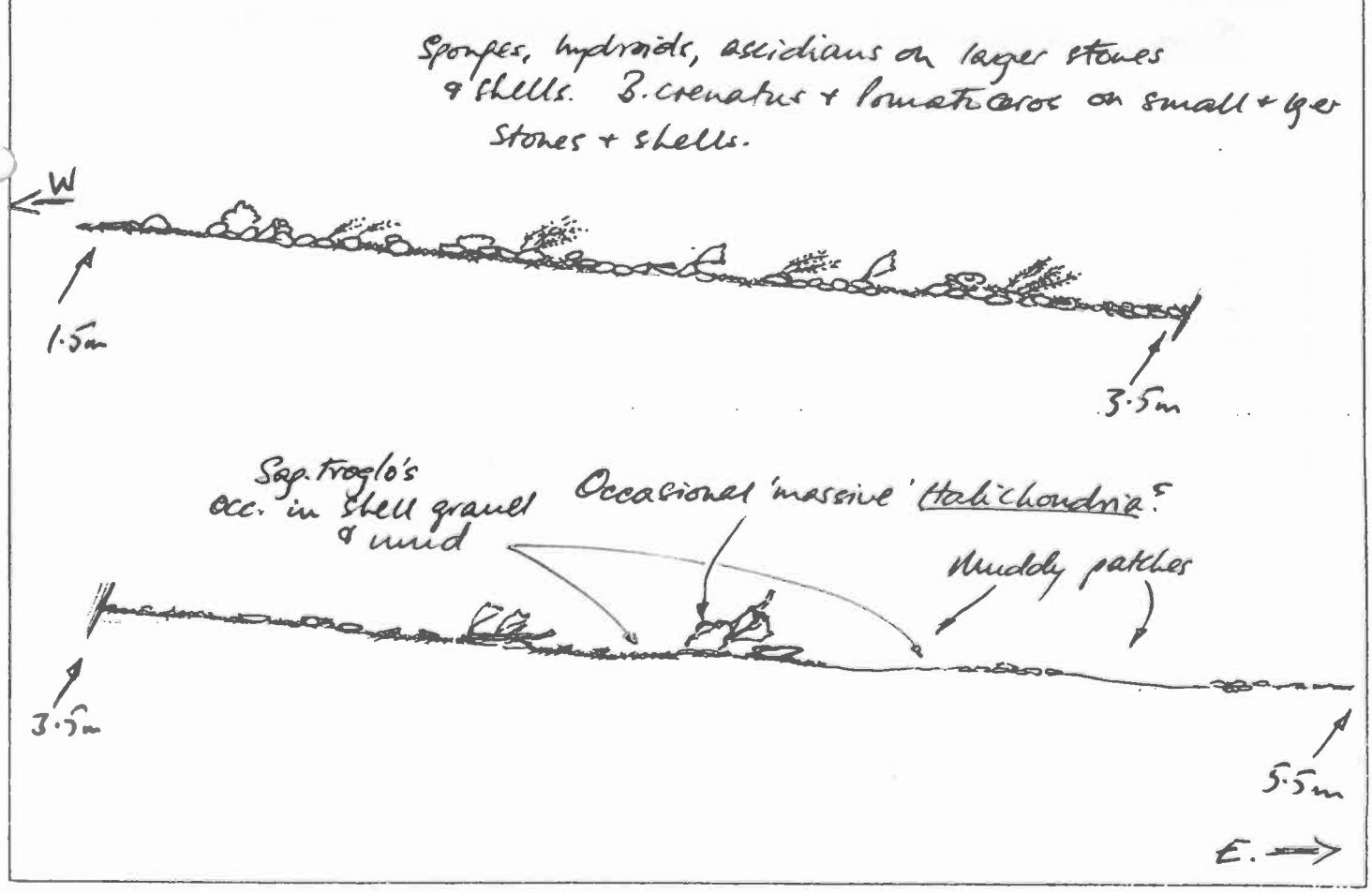
OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174	✓					
HORIZONTAL	175						
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191	✓					
(PEBBLE INTERSTICES	192	✓					
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198	2					
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200	✓					
STABLE SHELLS + COBBLES							
SHELL INTERSTICES.							
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221	2					
SMOOTH	222						
WORKED	223	1					
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227	2					
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241						
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246						

SITE NO.: 113 (2)

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)

See Sheet # 1

SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

Shallow slope of mainly shells with lge angular pebbles & small cobbles and muddy shell gravel, giving way with increasing depth to less shell + stone, more shell gravel & silt between and occasional mud patches and small boulders.

Fauna generally the same throughout, but no's of spp on stones, shells etc. decr. as substrata decr., and anemones in sedi inc. with decr. in shell / stones - 3.5 -> 5.5m.

Hard substrata dominated by B. crenatus and Pomatoceros with occasional Halichondria, (especially on rare sticks and deeper areas), Stylla and hydroids. Small clumps of Kirchenpauria pinnata + ?Obelia longissima occasional. Small Suberites carnosus occasional on small stones + Paguridis. Hymeniacedon 'massive' a occasional on small stones.

Mytilus and Crepidula amongst whole shells (incl. Ostrea shells bored with Cliona). Mytilus generally frequent but locally common, with B. cren, hydroids + silt on.

Sorunna occasional including aggregation on Halichondria.

The Haymouth -> York Flats is not very steady.

JON. Note: All specimens [illegible] — with sedi samples. Of use for commoner stuff maybe since I lost the board.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

#2 of 2

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Sand Acre Point (113)(2) GRID REFERENCE: SX 419 572 to 421 573

DATE: 250786 NAME OF RECORDER: B Bullimore

KEY TO HABITAT COLUMNS:

1. SHALLOW SLOPE, SHELLS, MUDDY SHELL GRAVEL, STONES & MUD. 1.5-5.5m.
2.
3. NOTE - This site now amalgamated
4. with sheet (1) 3 sites
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Caliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)	O					
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea	O					
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve	O					
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						
Suberites ~~domuncula~~ ficus	O					
Orange enc. (Specimen)	X2					

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina						
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata						
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina	O					
Tubularia indivisa						
Tubularia larynx						
Kirchenpauria pinnata	O					
?Obelia longissima	O					
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus	X1					
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile	X1					
Sagartia elegans						
Sagartia troglodytes	O					
Sagartiogetan undatus						
Urticina felina						

SITE NAME: 113 (2)

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)	F					
Sabella pavonina						
Terebellidae indet.						
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus	C					
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus						
Carcinus maenas	F					
Crangon crangon						
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber	O					
Macropodia rostrata						
Maja squinado						
Paguridae indet.	F					
Pagurus berhardus						
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.						
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata	O					
Gibbula cineraria						
Nassarius incrassatus						
Nassarius reticulatus						
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Jorunna tomentosa.	O					
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis	F					
Ostrea edulis						
Pecten maximus						
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)	F					
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: 113 (2)

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii	O					
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia						
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Molgula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Styela clava	O					
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra	R					
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus	x/					
Pleuronectidae indet. (juv.)						
Pleurorectys platessa						
Pollachius pollachius						
Pomataschistus sp.	O					

	1	2	3	4	5	6
Sygnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: Off Ballast Pound — SITE NO.: 114

SURVEY AREA: Plymouth — SEA AREA:

OS GRID REF.:

	E – W	N – S		E – W	N – S
SX	441	547	TO SX	443	546

LAT. LONG.

	°	'	W/E		°	'	W/E
				TO			

RECORDER: J. Moore — DATE: 25 D 07 M 86 Y

TIME IN: 1141 — TIME OUT: 1239 BST/~~GMT~~ — DURATION: 58

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 4.5.3 m

DEPTH RANGE SURVEYED +/- 5.4 M BELOW ~~SEA LEVEL~~/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY ..... 1 ..... m

SITUATION (TICK ONE ONLY)

OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENC. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	✓

COASTAL TYPE (TICK)

HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	✓
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)

VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	
EXTREMELY SHELTERED (fetch <3 km)	35	✓

MAX. TIDAL STREAM STRENGTH (TICK)

VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	✓
WEAK (<1 k)	39	
VERY WEAK (negligible)	40	

SALINITY (TICK)

NORMAL (around 34°/oo)	41	
VARIABLE (30°/oo+)	42	✓
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)

THERMOCLINE	46	
HALOCLINE	47	
NOT STRATIFIED	48	✓
NOT KNOWN	49	

ROCK TYPE (TICK)

IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	
FRIABLE SLATE/SHALES	55	✓
NOT KNOWN	56	
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)

MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	✓
OTHER SOURCES OF DISTURBANCE (tick & note below)	67	

OTHER DATA RECORDED

PHOTOGRAPHS: SURF	80	
W-A	81	.
C-U	82	✓
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	✓
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

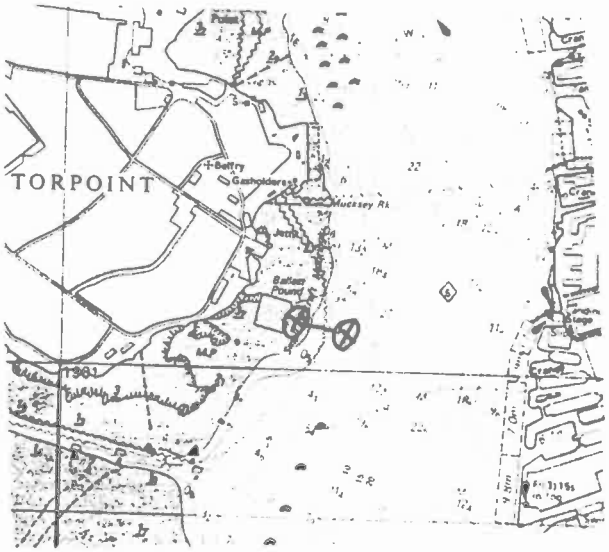
UNDERWATER DATA

SITE NO. 114

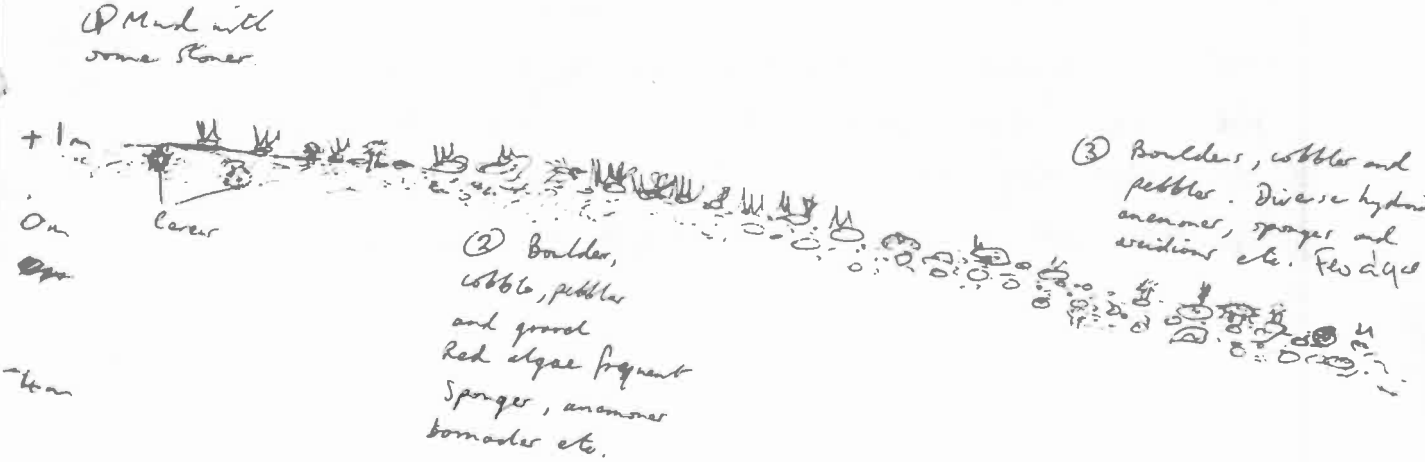
DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100	✓					
UPPER INFRALITTORAL	101		✓				
LOWER INFRALITTORAL	102		✓				
UPPER CIRCALITTORAL	103			✓			
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106	✓	✓				
0-5	107		✓	✓			
5-10	108						
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112						
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114		2	2			
LG. COBBLES (128-256 mm)	115		2	3			
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117		3	3			
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119						
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120	2	3	2			
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121		2				
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124		2				
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130						
SANDY MUD	131						
MUD	132	3					
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS	134						
WHOLE SHELLS	135		2	2			
TREE BRANCHES	136						
OTHER (score & note type below)	137						
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY							
ALGAL MEADOW			2				
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF				1			
FAUNAL BED			2	2			

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174	✓	✓	✓			
HORIZONTAL	175						
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176						
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191		2	2			
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197						
THIN SILT ON ROCKS	198		2	2			
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220						
SOFT	221						
SMOOTH	222	2					
WORKED	223						
RIPPLED	224						
MOUNDS	225						
BURROWS	226						
SHELLS (INTACT)	227	1					
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240						
ALGAL MEADOW	241	1					
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244						
LIVE MAERL BED	245						
FAUNAL BED	246	1					

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)



SITE NO.: 114

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

① Mud with some stones and shell at +1m to +0.5m. Occasional Cereus and Carcinus. Lumps of Hymeniacidon on stones. Pomatoceros and Balanus crenatus on most stones. Filamentous red algae abundant. Filamentous brown algae (probably including dictyotes) ~~frequent~~ common, and a variety of other algae frequent (Enteromorpha sp, Ulva sp + Bryopsis plumosa, Gracilaria rubra, Antithamnion plumula + Gracilaria verrucosa). Filamentous red algae included several species but mainly A. plumula, Callithamnion sp + Antithamnion spongiophilus.

② Small boulders, cobbles and pebbles with patches of muddy gravel at +0.5m to -1m BCD. Cereus and Anemonia frequent. Boulders and cobbles with Halichondria, Balanus crenatus, Dendrodoa and Botryloides. Large lumps of Hymeniacidon wrapped round small pebbles. Cryptosula pallasiana and Pomatoceros frequent on pebbles. Occasional gobies. Algal species mostly similar to Habitat 1, but corr up to 50%. Griffithsia devoniensis occasional, + Nitophyllum punctatum + Polysiphonia hillosa + P. gruelinii all frequent.

③ Small boulders, cobbles and pebbles at -1.5 to -3.5m BCD. Diverse fauna of sponges, hydroids, decapods etc. Including Scypha ciliata, Halichondria panicea, boring Cliona, Halecium beanii, Kirchenpauria pinnata, Actinothoe sphyrodeta, Cancer pagurus, Macropodia rostrata, Anomia, Nassarius reticulatus and Diplosoma listerianum. Nothing particularly dominant. Continually adding species to the list, i.e. no distinct communities. Similarly for algal species but other way round, i.e. species dropping out with depth + decreasing in abundance. At 1.5m algal abundance starting to drop off. At 2.5m algae occasional; at 3.0m algae rare, at 3.5m no algae seen. Only fluffy reds left near lower limit, including Griffithsia devoniensis

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Off Ballast Pound (114) GRID REFERENCE: 441 527 to 443 526.

DATE: 25 7 86 NAME OF RECORDER: S Hiscock

KEY TO HABITAT COLUMNS:

1. Mud with some stones and shell at +1m to +0.5m
2. Small boulders, cobbles + muddy gravel at +0.5 to -1m BCD.
3. Small boulders, cobbles at -1.5 to -3.5m BCD.
4.
5.
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula	F	F	F			
Antithamnion spirographidis		F	F			
Apoglossum ruscifolium			R			
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides						
Calliblepharis ciliata						
Callithamnion sp.	O	F	O			
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum	F	F				
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata		R				
Corallina officinalis						
Corallinaceae indet. (pink encr.)		O				
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa		O				*
Delesseria sanguinea						
Dilsea carnosa						
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis		O	O			
Griffithsia corallinoides		R				
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii			R			
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum	O	F	F			
Palmaria palmata						
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides	:					
Phyllophora sicula						
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii		F				
Polyneura hilliae		F				
Polysiphonia elongata						
Polysiphonia sp. (4 strepta)		P				
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
Gracilaria verrucosa	F					
Filamentous red algae	A	A				
Chordia dasyphylla		R				
Antithamnion spirale		P				
CHRYSOPHYTA						
Chrysophyta indet. (diatoms)						
Colonial diatoms	F	F	O			

SITE NAME: Off Barkat Pond 114

	1	2	3	4	5	6	
PHAEOPHYTA							
Arthrocladia villosa							
Chorda filum	O						✓
Cladostephus spongiosus							
Cystoseira baccata							
Desmarestia aculeata							
Desmarestia liqulata							
Desmarestia viridis							
Dictyopteris membranacea							
Dictyota dichotoma							
Ectocarpoidea indet.	C						✓
Halidrys siliquosa							
Halopteris filicina							
Laminaria digitata							
Laminaria hyperborea							
Laminaria ochroleuca							
Laminaria saccharina							
Phaeophyta indet. (encr.)							
Pseudolithoderma sp.							
Saccorhiza polyschides							
Sargassum muticum							
CHLOROPHYTA							
Bryopsis hypnoides	R						
Bryopsis plumosa	F	F					✓
Chaetomorpha melagonium							
Cladophora pellucida							
Cladophora pygmaea							
Cladophora rupestris							
Enteromorpha sp.	F	F	O				✓
Ulva sp. (p)	F	F					✓
Cladophora sp		O					✓
ANGIOSPERMAE							
Zostera marina							

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Off Ballast Pound (114) GRID REFERENCE: SX 441 547 to 443 546

DATE: 25.7.86 NAME OF RECORDER: J Moore

KEY TO HABITAT COLUMNS:

1. Mud with some stones and shell at +1m to +0.5m
2. Small boulders, cobbles, pebbles and muddy gravel at +0.5 to -1m BCD
3. Small boulders, cobbles and pebbles at -1.5 to -3.5m BCD
4.
5.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata	R		R			
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)		R	R			
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea		F	O			
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve	O	F	A			
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus			R			
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina	:					
Nemertesia ramosa						
Obelia dichotoma			O			
Obelia geniculata			R			
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
Kirchenpauria pinnata			A			
Halecium beanii			R			
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta			R			
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis		F	O			
Caryophyllia smithii						
Cereus pedunculatus	O	F	O			
Cerianthus lloydii						
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus						
Urticina felina						

SITE NAME: 114

	1	2	3	4	5	6
ANNELIDA:POLYCHAETA						
Arenicola marina (casts)						
Bispira volutacornis						
Branchiomma vesiculosum						
Chaetopterus variopedatus						
Filograna implexa						
Lanice conchilega						
Myxicola infundibulum						
Polydora sp.						
Pomatoceros sp. (p)	R	C	C			
Sabella pavonina						
Terebellidae indet.						
Serpulid indet.			O			
CRUSTACEA:CIRRIPEDIA						
Balanus crenatus	O	C	F			
Elminius modestus						
Verruca stroemia						
CRUSTACEA:AMPHIPODA						
Amphipoda indet. (tubes)						
Caprellidae indet.						
CRUSTACEA:DECAPODA						
Cancer pagurus			R			
Carcinus maenas	O	O	O			
Crangon crangon		O				
Galathea squamifera						
Galathea strigosa						
Homarus gammarus						
Inachus sp.						
Liocarcinus depurator						
Liocarcinus puber						
Macropodia rostrata		O	O			
Maja squinado						
Paguridae indet.						
Pagurus berhardus	R					
Pagurus cuanensis						
Pagurus prideuxi						
Palaemon serratus						
Pisidia longicornis						
MOLLUSCA:POLYPLACOPHORA						
Polyplacophora indet.		R				
MOLLUSCA:PROSOBRANCHIA						
Acmaea virginea						
Buccinum undatum						
Calliostoma zizyphinum						
Crepidula fornicata						
Gibbula cineraria		R				
Nassarius incrassatus						
Nassarius reticulatus			R			
Ocenebra erinacea						

	1	2	3	4	5	6
Patella sp.						
Patina pellucida						
Trivia arctica						
Littorina littorea	P					
Calyptraea chinensis			P			
MOLLUSCA:OPISTHOBRANCHIA						
Aplysia punctata						
Archidoris pseudoargus						
Aeolidia papillosa		R				
Jorunna tomentosa			F			
MOLLUSCA:BIVALVIA						
Chlamys opercularis						
Mytilus edulis						
Ostrea edulis						
Pecten maximus						
Venerupis pullastra		O	R			
Anomia ephippium			F			
BRYOZOA						
Alcyonidium diaphanum						
Bowerbankia pustulosa						
Bicellariella ciliata						
Bryozoa indet. (encr.)						
Bugula flabellata						
Bugula plumosa						
Bugula turbinata						
Cellaria fistulosa						
Cellaria sinuosa						
Cellepora pumicosa						
Chartella papyracea						
Crisidia cornuta						
Crisiidae indet.						
Electra pilosa						
Escharoides coccinea						
Flustra foliacea						
Membranipora membranacea						
Parasmittina trispinosa						
Pentapora foliacea						
Schizomavella auriculata						
Scrupocellaria reptans						
Scrupocellaria scrupea						
Scrupocellaria scruposa						
Scrupocellaria sp.						
Umbonula littoralis						
Vesicularia spinosa						
Cryptosula pallasiana		F	O			
ECHINODERMATA:CRINOIDEA						
Antedon bifida						
ECHINODERMATA:STELLEROIDEA						
Asterias rubens						
Henricia oculatata						
Marthasterias glacialis						
Ophiocomina nigra						
Ophiothrix fragilis						
Ophiura texturata						

SITE NAME: 114

	1	2	3	4	5	6
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum						
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii		R				
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia		F	F			
Didemnidae indet.						
Dicemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum			R			
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Mogula manhattensis						
Morchellium argus						
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Stolonica socialis						
Styela clava		R				
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta						
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Syngnathus acus						
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
Gobius niger		O				

SUBLITTORAL HABITAT RECORD — RECORD NO.:

SITE NAME: Cawsand Bay South — SITE NO.: 115

SURVEY AREA: Plymouth — SEA AREA:

OS GRID REF.:

	E - W	N - S	TO	E - W	N - S
SX	437	499		438	499

LAT. LONG.

		W/E	TO		W/E
° '	° '			° '	° '	

RECORDER: Iain Dixon, Sue Hiscock. DATE: 25 D 07 M 86 Y

TIME IN 1532 BST/GMT

TIME OUT 1625 BST/GMT

DURATION 53 BST/GMT

DEPTH CORRECTION APPLIED? ~~NO~~/YES +/- 1.0 m

DEPTH RANGE SURVEYED 0.5 - 4.0 M BELOW ~~SEA LEVEL~~/CHART DATUM

HORIZONTAL UNDERWATER VISIBILITY ...6..... m

SITUATION (TICK ONE ONLY)		
OPEN SEA (> 1 km offshore	1	
OPEN COASTLINE-ROCK (>30° deep-water window to open sea)	2	
OPEN COASTLINE-SEDIMENT (>30° deep-water window to open sea)	3	
ENCLOSED COASTLINE-ROCK (<30° deep-water window to open sea)	4	✓
ENCL. COASTLINE-SEDIMENT (<30° deep-water window to open sea)	5	

COASTAL TYPE (TICK)		
HEADLAND	6	
'LINEAR COAST'	7	
BAY	8	✓
SPIT/BAR	9	
OFFSHORE SM. ISLAND	10	
AMONGST ROCKS/ISLETS	11	
SOUND/NARROWS	12	
SHALLOW RAPIDS	13	
SEA LOCH	14	
ESTUARY/MARINE INLET	15	
COASTAL LAGOON	16	
HARBOUR	17	
SEA CAVE	18	
WRECK	19	
OTHER (tick and note below)	20	

WAVE EXPOSURE (SURFACE) (TICK)		
VERY EXPOSED (prevailing wind and swell)	30	
EXPOSED (prevailing wind)	31	
SEMI-EXPOSED (strong wind frequent)	32	
SHELTERED (strong wind rare)	33	
VERY SHELTERED (fetch <20 km)	34	✓
EXTREMELY SHELTERED (fetch <3 km)	35	

MAX. TIDAL STREAM STRENGTH (TICK)		
VERY STRONG (6 k+)	36	
STRONG (3-6 k)	37	
MOD. STRONG (1-3 k)	38	
WEAK (<1 k)	39	✓
VERY WEAK (negligible)	40	

SALINITY (TICK)		
NORMAL (around 34°/oo)	41	✓
VARIABLE (30°/oo+)	42	
LOW (<30°/oo)	43	
SALINITY MEASURED (TICK)	44	
NOT KNOWN	45	

WATER STRATIFICATION (TICK)		
THERMOCLINE	46	✓
HALOCLINE	47	
NOT STRATIFIED	48	
NOT KNOWN	49	

ROCK TYPE (TICK)		
IGNEOUS	50	
LIMESTONES	51	
HARD SAND./MUDSTONES	52	
SOFT SAND./MUDSTONES	53	
HARD SLATE/SHALES	54	✓
FRIABLE SLATE/SHALES	55	
NOT KNOWN	56	
OTHER (tick and note below) :	57	

SITE INFORMATION (TICK)		
MNR, NNR, LNR, SSSI NEARBY	65	
SEWAGE/INDUSTRIAL OUTFALL NEAR	66	
OTHER SOURCES OF DISTURBANCE (tick & note below)	67	

OTHER DATA RECORDED		
PHOTOGRAPHS: SURF	80	
W-A	81	
C-U	82	
WATER ANALYSIS	83	
SEDIMENT ANALYSIS	84	
SPECIMENS COLLECTED	85	
ALGAL CHECKLIST	86	✓
ANIMAL CHECKLIST	87	✓
OTHER (tick and note below)	88	

UNDERWATER DATA

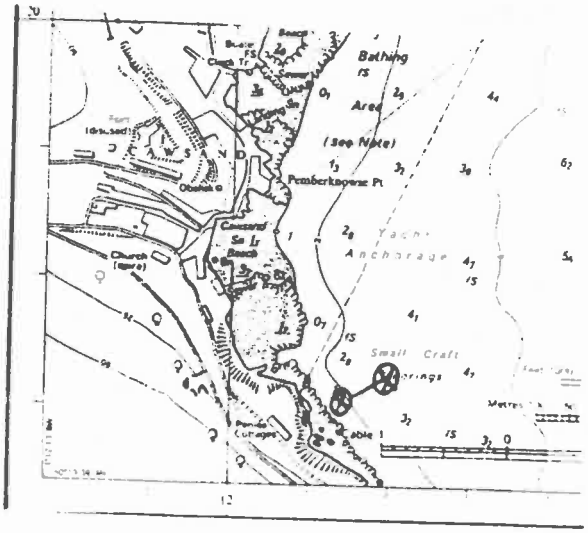
SITE NO. 15

DEPTH ZONE (OPEN ROCK) (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
SUBLITTORAL FRINGE	100	✓	✓				
UPPER INFRALITTORAL	101		✓	✓	✓	✓	
LOWER INFRALITTORAL	102						
UPPER CIRCALITTORAL	103						
LOWER CIRCALITTORAL	104						
NOT KNOWN	105						
DEPTH BAND (m) BELOW CD (TICK ONE)		1	2	3	4	5	6
<0	106						
0-5	107	✓	✓	✓	✓	✓	
5-10	108						
10-20	109						
20-30	110						
>30	111						
SUBSTRATUM (SCORE 1 = RARE, 2 = SECONDARY, 3 = PREDOMINANT		1	2	3	4	5	6
BEDROCK	112	3					
LG. BOULDERS (500 mm+)	113						
SM. BOULDERS (256-500 mm)	114						
LG. COBBLES (128-256 mm)	115						
LG. SLATES (128-256 mm)	116						
SM. ANGULAR COBBLES (64-128 mm)	117						
SM. ROUND COBBLES (64-128 mm)	118						
SM. SLATES	119	1					
V. LG. & LG. ANG. PEBBLES (16-64 mm)	120						
V. LG. & LG. ROUND PEBBLES (16-64 mm)	121						
MED. & SM. PEBBLES (4-16 mm)	122						
CLEAN GRAVEL (2-4 mm)	123						
MUDDY GRAVEL (2-4 mm)	124						
MAERL GRAVEL	125						
CLEAN SHELL GRAVEL	126						
MUDDY SHELL GRAVEL	127						
COARSE SAND (0.5-2 mm)	128						
FINE CLEAN SAND	129						
FINE MUDDY SAND	130			3	3		
SANDY MUD	131						
MUD	132						
MIXTURE OF TYPES IN HABITAT	133						
KELP PLANTS (Fronds + holdfast)	134	2	3				
WHOLE SHELLS	135						
TREE BRANCHES	136						
OTHER (score & note type below)	137		2				
Red algae							
ARTIFICIAL SUBSTRATUM (SCORE 1-3)		1	2	3	4	5	6
METAL	150						
CONCRETE	151						
WOOD	152						
OTHER (tick & note/score below)	153						
ROCK COVER (SCORE 1-3)		1	2	3	4	5	6
KELP CANOPY		3					
ALGAL MEADOW		1					
ALGAL TURF							
ALGAL CRUST							
FAUNAL TURF			2				
FAUNAL BED							

OVERALL INCLINATION (TICK ONE)		STN./HABITAT 1	2	3	4	5	6
OVERHANG	170						
VERTICAL (80-100°)	171						
V. STEEP (40-80°)	172						
STEEP (20-40°)	173						
SHALLOW (<20°)	174			✓	✓		
HORIZONTAL	175	✓					
ROCK FEATURES (SCORE 1-3)		1	2	3	4	5	6
OUTCROP	176	2					
(UNBROKEN ROCK	177						
(BROKEN ROCK	178						
(TERRACES	179						
(LEDGES	180						
ROCK WALLS	181						
OPEN GULLIES	182						
(STEEP-SIDED GULLIES (MAN)	183						
LARGE FISSURES/CREV. (ARM)	184						
(SMALL FISSURES/CREV. (FINGER)	185						
LARGE CAVE (SWIM IN)	186						
SMALL CAVE (PUT HEAD IN)	187						
POTHOLES	188						
ROCKMILLS	189						
(BOULDER INTERSTICES	190						
(COBBLE INTERSTICES	191						
(PEBBLE INTERSTICES	192						
STABLE BOULDER SLOPE	193						
SCREE	194						
MOBILE COBBLES	195						
SCOURED ROCK	196						
SAND ON ROCKS	197	2					
THIN SILT ON ROCKS	198	2					
THICK/FLOC. SILT ON ROCKS	199						
OTHER (tick & note/score below)	200						
SEDIMENT FEATURES (SCORE 1-3)		1	2	3	4	5	6
FIRM	220			2	2		
SOFT	221						
SMOOTH	222						
WORKED	223			2	2		
RIPPLED	224						
MOUNDS	225						
BURROWS	226			3	3		
SHELLS (INTACT)	227			1	1		
OTHER (tick & note/score below)	228						
SEDIMENT COVER (SCORE 1-3)		1	2	3	4	5	6
SEAGRASS BED	240			1	3		
ALGAL MEADOW	241			1			
ALGAL TURF	242						
ALGAL MAT	243						
UNATTACHED ALGAE	244			2			
LIVE MAERL BED	245						
FAUNAL BED	246			2	2		

SITE NO.: 115

SITE LOCATION DETAILS (large- and small-scale maps, details for relocation of monitoring sites, transit marks etc.)



SKETCH/PROFILE OF SITE (showing different habitats and communities. Depth zones/limits clearly marked.)

1. Bedrock outcrops with 100% algal cover. Faunally sparse.
2. Encrusting fauna on fronds & holdfasts.



3. Muddy sand - shallow slope between 1.5 - 4.0m BCD. Very rich in infauna, with bivalve siphons (?Mya); Acromida worms, Lanice, Sagartiogeton ~~and~~ Arenicola, Myxilla, and Cerianthus.

4. Patchy Zostera in muddy sand.
5. Algae on Zostera (No fauna observed apart from Nassarius eggs).



SITE NO.: 115

REPORT SECTION (Describe each habitat and associated community with a note of depth limits etc.)

1). Bedrock outcrops in sand at 0.5 to 1.0 m BCD.

Algal dominated; mainly Laminaria ochroleuca and L. hyperborea on top of otherwise silty and sandy rock. Fauna very sparse, and concentrated on algal fronds and holdfasts. Very sparse kelp undergrowth

2). Epiphytes on algae.

In kelp holdfasts, fauna dominated by Callopora lineata, Verruca stroemia and Diplosoma sp. Kelp fronds colonised by Ovelia geniculata and Membranipora membranacea, whilst rhodophyta were very overgrown with Electra pilosa. Filamentous brown algae common on kelp fronds + other algae

3). Muddy sand at 1.5 to 4.0 m BCD.

In shallower water (ca 1.5 – 2.5 m BCD), infauna appeared sparse; but increased gradually in density and variety with depth. The main conspicuous species included Arenicola marina, Lanice conchilega, bivalves (unidentified siphons; deep-burrowing species) Sagartiogeton undatus (often colonising bivalve siphons) and Acrocnida brachiata. Epifauna sparse; including Nassarius spp and Philine aperta. Few algal species attached; much drift and loose-lying algae particularly filamentous brown. Diatom film on sand surface.

4.) Patchy Zostera marina at 3.0 to 4.0 m BCD. Fairly dense individual clumps with wide sand spaces between. Some drift around bases, and L. saccharina occasional. One John Dory seen + a Syngnathus acus.

5). Little variety of epiphytes, mainly filamentous brown algae + diatoms, and Nassarius eggs.

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - PLANTS

(Not including species sampled from sediments)

SITE NAME: Cawsand Bay South (15) GRID REFERENCE: 437499 to 438499

DATE: 25.7.86. NAME OF RECORDER: S. Hiscock

KEY TO HABITAT COLUMNS:

1. Bedrock outcrops in sand at 0.5 to 1m BCD.
2. Epiphytes on algae
3. Muddy sand at 1.5 to 4m BCD.
4. Patchy Zostera marina at 3-4m BCD.
5. Epiphytes on Zostera marina
6.

	1	2	3	4	5	6
RHODOPHYTA						
Acrosorium reptans						
Acrosorium uncinatum						
Ahnfeltia plicata						
Antithamnion plumula						
Antithamnion spirographidis						
Apoglossum ruscifolium						
Asparagopsis armata						
Bonnemaisonia asparagoides						
Bonnemaisonia hamifera						
Brongniartella byssoides						
Calliblepharis ciliata						
Callithamnion sp.						
Callithamnion tetragonum						
Callophyllis laciniata						
Ceramium rubrum						
Ceramium sp.						
Chondrus crispus						
Chylocladia verticillata				R		
Corallina officinalis						
Corallinaceae indet. (pink encr.)						
Cordylecladia erecta						
Cruoria pellita						
Cryptopleura ramosa	O					
Delesseria sanguinea	F					
Dilsea carnosa	O					
Drachiella spectabilis						
Furcellaria lumbricalis						
Gastroclonium ovatum						
Gigartina acicularis						
Gracilaria foliifera						
Grateloupia filicina						
Griffithsia devoniensis						
Griffithsia corallinoides				R		
Griffithsia flosculosa						
Gymnogrongrus crenulatus						
Halarachnion ligulatum						
Heterosiphonia plumosa						
Hypoglossum woodwardii						
Kallymenia reniformis						
Lomentaria clavellosa						

	1	2	3	4	5	6
Lomentaria orcadensis						
Membranoptera alata						
Meredithia microphylla						
Myriogramme bonnemaisonii						
Myriogramme heterocarpum						
Nitophyllum punctatum				O		
Palmaria palmata		F				
Peyssonelia sp.						
Phyllophora crispa						
Phyllophora pseudoceranoides	O					
Phyllophora sicula	O					
Phymatolithon calcareum						
Plocamium cartilagineum						
Polyides rotundus						
Polyneura gmelinii	F					
Polyneura hilliae	F			O		
Polysiphonia elongata						
Polysiphonia sp.						
Pterosiphonia parasitica						
Radicilingua thysanorhizans						
Rhodomela confervoides						
Rhodophyllis divaricata						
Rhodophyllis sp.						
Rhodophyta indet. (encr.)						
Rhodymenia delicatula						
Rhodymenia holmesii						
Rhodymenia pseudopalmata						
Scinaia forcellata						
Scinaia turgida						
Spermothamnion repens						
Sphaerococcus coronopifolius						
Sphondylothamnion multifidum						
Stenogramme interrupta						
Lanadaria atlantica	O					
Gracilaria verrucosa			F	O		
CHRYSOPHYTA (colour)						
Chrysophyta indet. (diatoms)		C	C	F	F	
Diatom film on sediment			C	F		

SITE NAME: Cowsad Bay South 115

	1	2	3	4	5	6	
PHAEOPHYTA							
Arthrocladia villosa							
Chorda filum			O				✓
Cladostephus spongiosus							
Cystoseira baccata							✓
Desmarestia aculeata	R						✓
Desmarestia ligulata							
Desmarestia viridis							
Dictyopteris membranacea							
Dictyota dichotoma							
Ectocarpoidea indet.		A	F	F	F		✓
Halidrys siliquosa							
Halopteris filicina							
Laminaria digitata							
Laminaria hyperborea	O						✓
Laminaria ochroleuca	A						✓
Laminaria saccharina	F			O			✓
Phaeophyta indet. (encr.)							
Pseudolithoderma sp.							
Saccorhiza polyschides							
Sargassum muticum							
CHLOROPHYTA							
Bryopsis hypnoides							
Bryopsis plumosa							
Chaetomorpha melagonium							
Cladophora pellucida							
Cladophora pygmaea							
Cladophora rupestris							
Enteromorpha sp.							
Ulva sp. (p)							
? Derbesia sp.				O			✓
ANGIOSPERMAE							
Zostera marina				F			✓

SURVEYS OF HARBOURS, RIAS AND ESTUARIES IN SOUTHERN BRITAIN

SUBTIDAL SURVEYS - ANIMALS

(Not including species sampled from sediments)

SITE NAME: Cawsand Bay South (115) GRID REFERENCE: SX 437 499 – 438 499

DATE: 25.07.86. NAME OF RECORDER: I. DIXON

KEY TO HABITAT COLUMNS:

1. Bedrock outcrops in sand at 0.5 to 1.0m BCD
2. Epiphytes on algae.
3. Muddy sand at 1.5 to 4.0m BCD
4. Patchy Zostera at 3.0 to 4.0m BCD
5. Epiphytes on Zostera marina.
6.

	1	2	3	4	5	6
PROTOZOA						
Haliphysema tumanowiczi						
PORIFERA:CALCAREA						
Clathrina coriacea						
Grantia compressa						
Leuconia barbata						
Leucosolenia botryoides						
Scypha ciliata						
PORIFERA:DEMOSPONGIAE						
Amphilectus fucorum						
Ciocalypta penicillus						
Cliona celata						
Cliona sp. (boring)						
Dercitus bucklandi						
Dysidea fragilis						
Halichondria panicea						
Halichondria bowerbanki						
Haliclona oculata						
Hemimycale columella						
Hymeniacidon perleve						
Myxilla incrustans						
Pachymatisma johnstonia						
Phorbas fictitius						
Polymastia mamillaris						
Polymastia boletiforme						
Raspailia hispida						
Raspailia ramosa						
Stellata grubii						
Stelligera stuposa						
Suberites ficus						
Tethya aurantium						

	1	2	3	4	5	6
COELENTERATA:HYDROZOA						
Abietinaria abietina						
Aglaophenia pluma						
Aglaophenia tubulifera						
Campanularia angulata						
Halecium beanii						
Halecium halecinum						
Hydractinia echinata						
Hydrallmania falcata						
Nemertesia antennina						
Nemertesia ramosa						
Obelia dichotoma						
Obelia geniculata		F				✓
Plumularia setacea						
Sertularella polyzonias						
Sertularia argentea						
Sertularia cupressina						
Tubularia indivisa						
Tubularia larynx						
COELENTERATA:ANTHOZOA						
Actinothoe sphyrodeta						
Adamsia carciniopados						
Alcyonium digitatum						
Anemonia viridis						
Caryophyllia smithii						
Cereus pedunculatus						
Cerianthus lloydii			O			✓
Corynactis viridis						
Edwardsia claparedii						
Epizoanthus couchii						
Isozoanthus sulcatus						
Metridium senile						
Sagartia elegans						
Sagartia troglodytes						
Sagartiogetan undatus			C			
Urticina felina						

SITE NAME: Cawsand Bay South. 115

	1	2	3	4	5	6
Acrocnida brachiata			F			
ECHINODERMATA:ECHINOIDEA						
Echinocardium cordatum			O			
Echinus esculentus						
Psammechinus miliaris						
ECHINODERMATA:HOLOTHUROIDEA						
Cucumaria sp.						
Holothuria forskali						
Labidoplax digitata.			O			
CHORDATA:ASCIDIACEA						
Aplidium punctum						
Ascidia mentula						
Ascidiella aspersa						
Botrylloides leachii						
Botryllus schlosseri						
Ciona intestinalis						
Clavelina lepadiformis						
Dendrodoa grossularia						
Didemnidae indet.						
Didemnum gelatinosum						
Didemnum maculosum						
Diplosoma listerianum						
Diplosoma spongiforme						
Distaplia rosea						
Distomus variolosus						
Lissoclinum perforatum						
Molgula manhattensis						
Morchellium argus	O					
Phallusia mammillata						
Polycarpa rustica						
Polycarpa sp.						
Polyclinidae indet.						
Polyclinum aurantium						
Sidnyum elegans						
Sidnyum turbinatum						
Styelonica socialis						
Styela clava						
Diplosoma sp.		O				
CHORDATA:PISCES						
Ammodytes sp.						
Callionymus lyra						
Centrolabrus exoletus						
Crenilabrus melaps						
Ctenolabrus rupestris						
Gobius niger						
Gobiusculus flavescens						
Labrus bergylta	R					
Labrus mixtus						
Pholis gunnellus						
Pleuronectidae indet. (juv.)						
Pleuronectys platessa						
Pollachius pollachius						
Pomataschistus minutus						

	1	2	3	4	5	6
Syngnathus acus				x		
Taurulus bubalis						
Thorogobius ephippiatus						
Trisopterus luscus						
Pomatoschistus pictus			O			
Pomatoschistus sp			F			
Zeus faber			.	R		