

The Protection of Crabs and Lobsters.

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“Every legislative restriction means the creation of a new offence. In the case of fishery it means that a simple man of the people, earning a scanty livelihood by hard toil, shall be liable to fine or imprisonment for doing that which he and his fathers before him have, up to that time, been free to do.

“If the general interest clearly requires that this burden should be put upon the fisherman—well and good. But if it does not—if, indeed, there is any doubt about the matter—I think that the man who has made the unnecessary law deserves a heavier punishment than the man who breaks it.”—HUXLEY, Inaugural Address, Fisheries Exhibition, 1883.

SEVERAL of the local Sea Fisheries Committees have recently been, or are still engaged in, considering the question of the advisability of adopting restrictive measures for the protection of crabs and lobsters within their respective districts. To Mr. Gregg Wilson, of the Natural History Department of Edinburgh University, I am indebted for copies of two reports on the subject prepared by him for the Northumberland Sea Fisheries' Committee; to Mr. W. H. St. Quintin, chairman of the North-Eastern Committee, for a copy of the evidence taken by their sub-committee from fishermen at various centres in the district; and to the clerk to the Cornwall Sea Fisheries' Committee for a copy of the report of their sub-committee, signed by Mr. E. W. Rashleigh, and a summary of the evidence taken prepared by Mr. Rupert Vallentin. The committee of the Eastern District have, I understand, also had the matter under consideration.

In all cases the suggested restrictions are of two kinds: (1) the establishment of a close-season; and (2), an increase of the present size limit.

With regard to the first of these proposed remedies, it is hardly necessary to point out, that from a scientific standpoint a close-season for any animal can, in the majority of cases, only be justified, when the breeding season of the animal extends over only a limited portion of the year, and when the close-season can be made to correspond with the

breeding season. That any attention should be paid to such arguments as those brought forward by the Looe fishermen in favour of a close time, namely, that the "nets belonging to the drift fishermen become entangled with the floats, which mark the positions of the crab or lobster pots," appears to me to be quite unjustifiable.

The biological question is, in the case under consideration, considerably complicated by the fact that the breeding seasons of the crab and lobster are very different, as well as by the circumstance that both these crustaceans periodically cast their shell, and remain for some time in a soft state, when they are quite unfit for food. It is necessary for us therefore to consider, in the first place, each of the animals independently, and then, bearing in mind that both are caught at the same time and in the same traps, and that in most cases to try to establish a close-season for one and not for the other, would make the fishing during that time quite unprofitable, we must endeavour to ascertain whether, on the whole, one close-season could be justly enforced.

With regard to the reproductive habits of the lobster, we have considerable accurate information. In the last number of this Journal I endeavoured to give a summary of the present state of knowledge on the subject, from which it appeared that most lobsters laid their eggs in August, and that most of these eggs were hatched in the following June, being carried by the female for ten months. During July, the number of females bearing eggs was not large, and of these some carried eggs on the point of hatching, whilst others carried those which had just been laid, the two seasons to some extent overlapping. The evidence given by the fishermen at the different enquiries quite agreed with this statement, for they maintained that they took berried hen lobsters all the year round, and could point to no month in which they were undoubtedly specially numerous. For the lobster alone, therefore, it does not, under these circumstances, appear that any particular period of the year could be legitimately recommended as a close time. A more practical suggestion from the point of view of maintaining the species is that there should be a perpetual close time for berried hens, that is, that the taking of females carrying eggs should be entirely prohibited; and in one locality, at least, in the North Eastern District, a fisherman was found who appeared to be strongly in favour of this extreme step.*

On the other hand, in certain districts it is maintained that such a proceeding would practically close the fishery. Whether or not this would be the case depends on the proportion which the number of berried females bears to the whole catch. The data for determining this proportion are not numerous. From Ehrenbaum's table,† it appears

* *Report*, p. 100.

† Reprinted in this Journal, vol. iv. p. 64.

that out of a total of 3,470 lobsters (unsorted catches) counted by him at Heligoland, between November, 1892, and July, 1893, 383 were females carrying eggs, that is, 11 per cent. of the total number taken. Of the lobsters taken by one boat at Plymouth* during May, June, and the first half of July, 1890, about $6\frac{1}{2}$ per cent. were berried females. These numbers represent, therefore, the nearest approximation we can get at the present time as to the amount of loss which the men would immediately suffer, if they were compelled to return all berried females to the sea. In his report to the Northumberland Committee, Mr. Gregg Wilson recommends that there should be a close time for berried hen lobsters only, during the months of June and July, on the ground that more berried females are got during those two months than at other times of the year. I can only say that, according to my experience at Plymouth, it is more difficult to obtain berried lobsters in July than during any other month when the boats are fishing.

With respect to the crab, however, the facts are in many important respects different from what they are in the case of the lobster.

In the first place, the berried crabs are already protected under the Fisheries Act, 1877, it being illegal to buy, sell, or have in one's possession such crabs, and in the second place, these crabs never, or very rarely, enter the pots. When in spawn they migrate to the deeper water, and appear to bury themselves in the sand. At any rate, they are taken in this condition from smooth ground by the trawlers.

As to the spawning time of the crab, Mr. Gregg Wilson gives some interesting information derived from his own observations on the coast of Northumberland, and comes to the conclusion that the spawning period includes November, December, and January. A large proportion of the take of crabs during these months consists of females which are just about to spawn, and Mr. Wilson suggests that these might be protected, and proposes a close time from the 1st of September to the end of January. As an additional argument in favour of this close time he adduces the fact that many crabs during these months are soft, that is, have cast their shell and are quite unfit for food. In November, two out of every three crabs were found to be "casters," and although the men profess to throw these soft crabs back, many of them are so much injured by the rough treatment they receive that there is little chance of their surviving.

"I know of one village," says Mr. Wilson, "where the sorting of the crabs is done, not at the fishing grounds, but on dry land, and where, too, it is done so badly, that as little as a shilling a barrel was got for crabs sent to market in November; and I know another village where the men confess that if the law against the sale of caster-crabs could

* This Journal. Vol. ii. N.S. p. 15.

be strictly enforced, they would have to give up fishing in the late months of the year."

Such, then, are the facts upon which the desirability or otherwise of establishing a close time for crabs and lobsters has to be decided. And it appears to me that, taking these facts as a whole, the Sub-Committee of the Cornwall Sea Fisheries' District adopted the only reasonable course in deciding that no close time could be recommended. For not only do the lobsters carry their spawn equally during at least eleven months of the year, whilst the berried crabs never enter the pots at all, but during the winter months, when it is proposed that the close time should be established, very little fishing takes place, owing to the stormy weather which then prevails. There is, in fact, a natural close time imposed by this cause, which, under any circumstance, would render legislative interference unnecessary.

Passing to the second of the proposed restrictions, viz., an increase of the present size limit, we have first to consider the basis upon which legislation of this kind rests. I cannot do better, in order to make this clear, and to give both sides of the argument, than quote the following from the report of the enquiry held by the Sub-Committee in the North-Eastern Sea Fisheries' District—

"By Mr. Pannett—*

"Q. Before asking the next question, I would explain that in considering what should be the size—the smallest size—at which crabs and lobsters should be allowed to be taken, there are two classes of men who each hold different opinions. There are those who are of opinion that crabs and lobsters might fairly be taken as soon as they can be sold, as soon as they are marketable; that is, not to take them wastefully, not to take them for children to play with, not to take them wantonly, not unless they can be sold in the market. These people think the fish should not be allowed to remain in the sea until they get their growth, but that they should be allowed to be taken as soon as they can be sold in the market. Now there is another class of men who say that that is a very improper rule; they say that crabs and lobsters which are not able to reproduce their species, are not able to breed till they reach, on an average, a certain size, although they may be marketable below that size, although they might be sold for money below that size, should not be allowed to be taken till they reach the size at which they have had the chance of breeding once. If so, every she-crab and hen-lobster would, before being killed, have a chance of reproducing one brood to take its place. . . . Would you object to a crab being allowed to grow to the size at which it should breed once before it should be taken, or would you claim that it might be taken as soon as it was saleable?

"A. (Fisherman.) As soon as it was saleable."

* *Report*, p. 58.

Again, to another witness.*

“By Mr. Pannett—

“Q. If they do not breed till they are much larger than four-and-a-quarter inches, do you not, by killing all the crabs that are under the breeding size, stop the supply of crabs from these fish?

“A. (Fisherman.) I don't think so.

“Q. How is the supply to be kept up if you kill the crab before sufficient time is allowed for it to spawn once?

“A. (Fisherman.) We don't kill them all.

“By Mr. Mally—

“Q. With reference to what Mr. Pannett was asking you. Suppose all girls are killed when they are twelve years of age, there would be no young women or young children; that is what we wanted to know. I think you understand that, and if young crabs under the age at which they can spawn be killed, it follows that there can be no crabs from them?

“A. (Fisherman.) But crabs breed a deal different to what girls do. Crabs, when they spawn, spawn many a thousand at a time.”

There is, of course, also another point of view from which the protection of undersized animals may be advantageous to the fishery, in addition to this matter of allowing each animal to breed once, viz., that if the small crabs or lobsters, which are of little value, be returned immediately to the water, they themselves will grow, and become much more valuable.

Under the Fisheries Act (1877) a limit has already been fixed, below which it is illegal to take either crabs or lobsters. For crabs, the minimum size is $4\frac{1}{4}$ inches, measured across the broadest part of the back, and for lobsters 8 inches, measured from the tip of the beak to the end of the tail. Now both these sizes are considerably below the sizes at which the greater number of the animals begin to breed, so that at the present time large numbers of both crabs and lobsters are sold at very low prices indeed, which have never had an opportunity of breeding, and so helping to maintain the future supply. It appears to be in the direction of raising the limit that legislative interference can with advantage take place. According to Mr. Gregg Wilson's observations, which are, however, not very definite on this head, the majority of female crabs do not spawn until they reach a size of from six to seven inches, whilst the males may be ripe at five inches. In the case of lobsters, although a few females may spawn at eight inches, it does not appear that many do this under ten inches. Hence the limits which would be recommended from purely biological considerations would be, for female crabs at least six inches, for male crabs five inches, for female lobsters ten inches, with possibly a lower limit for the males.

* Report, p. 76.

It must not, however, be forgotten that according to the evidence given in the North-Eastern District, the immediate effect of such limits would be, in certain places, at any rate, to entirely stop the fishing, and it would be several years before any very great benefit could follow from the fact that more of the crabs had been allowed to breed. On the other hand, if the limit could be raised gradually, the beneficial effect might be slowly brought about without entailing any sudden hardship upon individuals. This might be done by adopting the recommendation of Mr. Wilson, viz., a limit of five inches for crabs, and by raising the limit for lobsters to, say, nine inches. It is more than probable that if these limits were maintained for a few years, sufficient improvement in size would have taken place to allow of their being raised to the more reasonable standard without serious injury to any individuals.