The Marine Biological Association

Established 1884, incorporated by Royal Charter 2013

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House of Lords Select Committee on Science and Technology: The Relationship between EU Membership and the Effectiveness of Science, Research and Innovation in the UK.
Response from the Marine Biological Association, November 2015.

General comments

- The Marine Biological Association (MBA) is a Learned Society established in 1884 "to promote scientific research into all aspects of life in the sea and to disseminate to the public the knowledge gained". The Association was incorporated by Royal Charter in 2013 and currently has about 1400 members (including international members).

- The MBA has a long history of providing advice to the UK Government, the European Union and the Devolved Administrations. It continues to engage with policy and provide advice through a wide range of activities including responding to government consultations and giving evidence to Parliamentary committees.

- The MBA membership is made up mainly of professional marine biologists and as such regularly invites its members to provide input on a range of issues. The MBA therefore provides a 'clear independent voice to government' on behalf of the marine biological community.

- The MBA has been based at Citadel Hill Laboratory in Plymouth since the Marine Laboratory was built in 1887. MBA members and staff have been at the forefront of providing scientific information to support marine environment protection, management and education.

Questions

Funding

Question 1: What is the scale of the financial contribution from the EU to science and research in the UK? How does the financial contribution the UK receives compare with other member states in terms of, for instance, population, GDP, scientific strength or any other relevant indicators?

1.1 The UK is currently one of the leading countries in the world in terms of scientific output and impact. Consequently, research organisations, charities and universities are amongst the most successful in attracting EU funding as well as attracting the best talent from within the EU and abroad. In 2014, for example, the EU contributed €1.02 billion to the UK for research and development which is more than double the EU average of 7%[1]. In the Seventh Framework Programme (FP7) funding scheme from 2007-2013, the UK secured 16%[2] of the available funding (c. €4.4 billion), the equivalent of about 10% of the national science budget and second only to Germany[3].

1.2 Under the Seventh Framework Programme for research (2007-2013) the Commission contributed an average of around €350 million a year towards marine and maritime research. The majority of funding however is still provided at the national level. A JPI Oceans report revealed in 2011that "*most of the activities in the field of marine and maritime research are funded, programmed, implemented and assessed at national level*". National funding for marine research has not been increasing in real terms however and organisations such as the MBA are increasingly reliant on European funding.

1.3 As an example of a UK marine organisation, the Marine Biological Association (MBA) has been successfully applying for European funding since the beginning of FP7. The MBA currently participates in nine successful projects, bringing a total value of €3.7 million. Since then, EU funding through Horizon 2020 (the 8th Framework Project) has taken on higher importance, reflecting the reduction of available funding and higher competition in the UK for a decreasing amount of available funding. Since the start of H2020 in 2014, the MBA has participated in five successful projects of a total value of €3.7 million, including a European Research Council (ERC) Advanced Grant. For the year 2013-2014, EU funding constituted 20% of the MBA's budget (£760 000) and 16% (£653 000) for 2014-2015. For Smaller organisations, such as the MBA, which produce world class research of international significance, this funding stream is being used to make up for real-term declines in national funding.

[1] http://europa.eu/about-eu/basic-information/money/expenditure/index_en.htm

[2] Universities UK, Briefing – Horizon 2020 budget (http://www.universitiesuk.ac.uk/highereducation/Documents/2013/BriefingHorizon2020Budget.pdf)

[3] Creating the Future a 2020 Vision for Science & Research: A Department for Business Innovation and Skills Consultation on Proposals for Long-Term Capital Investment in Science & Research (2014)

1.4 EU funding is strongly project based which means that marine organisations can vary widely year to year on how much EU funding is received as projects start and finish or new framework programmes are implemented[4]. These 'drop-off points' in funding are also an issue at the national level however and more needs to be done to address this in order to retain capacity and develop expertise.

Question 3: What is the effectiveness and efficiency with which these funds are managed in the EU compared to the management of science funding in the UK? Particularly, when administrative overheads, quality of decision-making and advisory processes are considered?

3.1 There has been an increasing drive to make access to European funding more straightforward and easier for grant-receiving bodies to manage so, for example, the ongoing project management and reporting (technical and financial) is much more streamlined with H2020 and decisions on proposals take about the same time for both H2020 and RCUK. H2020 therefore now compares very favourably with RCUK for administrative costs and reporting. This makes H2020 an attractive source of funding.

3.2 In addition, for H2020 100% of direct costs are funded and overheads are a simple flat rate of 25% of all eligible direct costs (staff costs, consumables, travel, equipment). RCUK in contrast only provides 80% of Full Economic Cost (FEC) and the overheads (Indirect and Estate costs) are allocated on an institutional basis (calculated annually based on 3 years accounts figures i.e. actual, budgeted and projected). Also, RCUK overheads are only based on staff time and due to the efficiency savings in RCUK, awarded indirect costs are generally top-sliced.

3.3 H2020 funding is therefore preferable to national funding in that is incurs less administration time (calculating annual overhead rates), is better in terms of cost recovery (100% vs 80%) and is more flexible in terms of indirect costs.

3.4 There are issues however over the type of organisation that benefits. For FP7 60% of UK participants were academics (only 11% were research organisations), the highest proportion in Europe**Error! Bookmark not defined.**. The top universities were best represented due to the dedicated support available for winning and managing awards. As a small research organisation (c. 60 staff) the MBA has found it difficult to take the lead in contributing to call development and leading on proposals. This is not due to issues around quality of science (the excellence of MBA Science can be seen in its high impact in terms of science output and winning of awards such as ERC grants) but the cost of engagement in European marine research and strategy development and subsequent project bids.

[4] http://www.sams.ac.uk/learned_society/sams-agm/SAMS%20Annual%20Report%202014.pdf

Collaboration

Question 4. What are the benefits to UK science and research of participation in EU collaborations and funding programmes such as Horizon 2020 and the European Research Council?

4.1 Marine scientific research requires collaboration over large geographical scales due to the interconnected nature of the marine environment; the large scale over which ocean processes operate; the wide distribution and large dispersal distances of many organisms; and the necessarily multidisciplinary nature of marine research. The EU's Strategy for Marine and Maritime Research states "*Maritime-related knowledge and innovation requires an integrated approach to cope with complexity*"[5]. The collaborative nature of EU funding programmes, such as Horizon 2020, help address the requirement for large-scale interdisciplinary research and facilitate the sharing of skills and transfer of ideas and knowledge over appropriate scales.

4.2 Working collaboratively at the European level also allows EU funding to sustain areas of research which are not currently considered as high strategic priority as they ought at the UK level, such as marine biology. An example would be the area of marine education (referred to as Ocean Literacy). This is seen as being of critical importance at the international level and the UK currently leads a major H2020 programme on Ocean Literacy (SeaChange[6]) involving 17 partners from nine countries across Europe. In these instances, EU funding enables the UK to remain competitive in lower priority sectors and to retain excellent capacity and capability on which it can build at a future time.

4.3 The collaborative nature of the EU funding streams is therefore a major benefit for the UK. It allows researchers to build projects with researchers from across the EU, as well as third countries, creating a critical mass of expertise and capability to address difficult and complex problems. It allows member states to pool resources to tackle global challenges, such as climate change, food shortage, and anti-bacterial resistance and discover joint solutions. The scale of these topics is beyond what could realistically and practically be done by a single country.

4.4 The fact that national funding is still the predominant means of supporting science (see 1.2) with most activities undertaken at the national level does have implications in terms of fragmentation in marine and maritime research across Europe**Error! Bookmark not defined.**. Even if national funding is proposed to replace any decrease in EU funding therefore, there still needs to be a method of ensuring that

[5] Communication from the commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions: A European Strategy for Marine and Maritime Research. A coherent European Research Area framework in support of a sustainable use of oceans and seas. Brussels, 3.9.2008. COM(2008) 534 final

[6] http://www.seachangeproject.eu/

collaborative research can be undertaken and that appropriate support is provided for networking and sharing of ideas and expertise at a pan-national scale.

Question 5: What is the influence of EU membership on bilateral collaboration between the UK and other EU member states? Are collaborations with member states stronger than with non-EU countries as a result of EU membership? Or, are bilateral collaborations with member states inhibited by requirements to work through EU mechanisms?

5.1 Bilateral collaboration is facilitated by various EU initiatives and participation in EU funding programmes is also of great use in attracting international talent. For example, the Marie-Curie programme under FP7 the UK attracted more than 3000 projects[7].

5.2 Some marine scientists however feel being a part of the EU adds unnecessary costs and restrictions on liaising with non-EU partners and that additional support should be provided to encourage liaison at a much wider international level.

Question 7. How does the UK participate in the creation and operation of international facilities that are available as a consequence of our EU membership? Are there any restrictions in the creation and operation of international facilities outside the EU as a consequence of our EU membership?

7.1 A number of UK marine organisations are involved in major international research infrastructure projects such as the ESFRI European Marine Biological Resource Centre (EMBRC). Partner countries currently include Belgium, France, Greece, Israel, Italy, Norway, Portugal, Spain, United Kingdom. For the UK, partner institutes currently include the MBA, Scottish Association of Marine Science, British Antarctic Survey and Scottish Oceans Institute. The EMBRC is making resources, infrastructure and expertise available to increase the research and up-take of marine biological discoveries by enabling both public and private sector researchers from around the world to access this network of marine stations and their research facilities. A relatively modest investment from the UK as a national node opens up access to a huge amount of research infrastructure for scientists to utilise all over Europe.

Question 8: What contribution does EU membership make to the quality of UK science and research through the free movement of people? How does this compare with flows of people between the UK and non-EU countries such as the USA, India, China and Singapore?

8.1 Membership of the EU currently allows the UK to attract top marine researchers. The main reasons for this are that Marie-Curie fellows can come to the UK and ERC grant

[7] Russel Group Response to the Government Review of the Balance of Competences between UK and EU: Research and Development (http://russellgroup.ac.uk/media/5082/35russell-group-response-to-balance-of-competences-research-and-development-consultation.pdf)

holders can transfer their grants to UK institutions. Withdrawal from the EU would stop this happening as these grants must be spent in the EU. Marine organisations such as the MBA also undertake collaborations with and invite researchers from non-EU countries. This is more difficult due to non-EU researchers not having being able to utilise the EU agreements on movement and employment. Also arrangements tend to be bilateral agreements with organisations rather than large consortia agreements.

Regulation

Q10. What are the key EU regulatory frameworks/mechanisms that directly affect the science and research community in the UK?

10.1 A major driver of current EU marine research has been the Marine Strategy Framework Directive (MSFD). This complements and feeds into other EU legislation such the Water Framework Directive and Habitats Directive and also supports national legislation of member states (such as the UK Marine and Coastal Access Act). Working to address major gaps in understanding for the implementation of EU environmental legislation has been a significant undertaking for the marine science community and led to an integrated approach to common problems e.g. the need to have indicators of marine ecosystem health that can be used across member states.

Question 12: How is the innovation landscape affected by EU membership?

12.1. The innovation landscape is affected positively by; the promotion of cross-border collaboration leading to enhanced capacity to address global issues through global scale research; the sharing of ideas and expertise through EU networks (e.g. COST actions) and transnational access programmes; the common policy issues (see 10.1) that can be addressed at the appropriate scales and which require new methodologies (e.g. marine monitoring technology); a strong drive for collaboration between the public and private sectors on innovation in order to support the blue economy[Error! Bookmark not defined.].

12.2. The drive for collaborative research from the EU has not just been about scientific necessity but also to promote broader European objectives such as cohesion and industrial growth[8], or since FP6, to help "*create a coordinated European 'internal market'*"[9]. This can stimulate innovation (see 12.1) but can impact on the type of research that is funded. Horizon 2020 marine research calls for example have been developed in light of the Blue Growth Agenda with a focus on "*how new technologies can put marine resources to productive use and create sustainable growth and jobs, while at the same ensuring that these resources can be*

[8] Parliamentary Office of Science and Technology. POSTNOTE number 83, October 1996. Research and the European Union. http://www.parliament.uk/documents/post/pn083.pdf.

[9] Parliamentary Office of Science and Technology. POSTNOTE number 359, June 2010. EU Science & Technology Funding. http://researchbriefings.parliament.uk/ResearchBriefing/Summary/POST-PN-359.

enjoyed by future generations"[10]. It is important that fundamental science is not overlooked if it cannot be seen to support this agenda. This is also an issue however at the national level where there is an ongoing debate between the appropriate balance between fundamental (or 'blue-skies') and applied research.

Scientific advice

Question 13. How does the quality and effectiveness of scientific advice on matters of public policy compare between the EU and the UK? What are the effects, if any, of differences in the provision of scientific advice between the EU and the UK?

13.1 The marine biological community has a strong track record in working in working with the policy community. As a learned society with members who are experts across many areas, the MBA for example has been able to provide expert input to numerous enquiries and investigations[11]. This input has been facilitated by the fact that the UK government and Devolved Administrations have clear principles for consulting on policy matters[12]. Consultations have a clear process and timeline and are open and transparent. Also, the system of Chief Scientific Advisors and the proactive engagement of civil servants in marine science issues and committees helps the marine biological community to feed directly into policy (there are some issues with process but here is not the place to discuss these). For the EU it is more difficult to create links between marine experts and the appropriate policy officials and the whole system of science to support policy is less clear, particularly since the EU decided not to retain the post of Chief Scientific Advisor. This often restricts input to occasional consultation responses. The reporting system is also less clear at the EU level on how decisions are reached and legislation is developed. For example, it is relatively easy to look at the discussions that led to the creation of the UK Marine and Coastal Access Act by going back through meeting notes, the green and white papers, select committee minutes, Hansard etc. this clear process facilitated engagement. This can be compared with, for example, the Marine Strategy Framework Directive where it is more difficult to establish how the legislation was drafted and developed.

Question 14. To what extent does EU membership enable UK scientists to inform and influence public policy at EU or international levels? To what extent does EU membership inhibit UK scientists from influencing public policy at EU or international levels?

14.1 The UK marine biological community is both respected and influential at the EU level and as such is invited to contribute in areas of policy. For under-resourced communities such as the UK marine biological community however it is difficult to

[10] Innovation in the Blue Economy: realising the potential of our seas and oceans for jobs and growth. Brussels, COM(2014) 254 final/2 http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=COM:2014:254:REV1&from=EN

[11] http://www.mba.ac.uk/policy/

[12] https://www.gov.uk/government/publications/consultation-principles-guidance

build up close working relationships with EU policy officials or to engage with some of the committees set up to facilitate science policy links such as the European Marine Board[13], or JPI Oceans[14]. Policy influence is therefore left in the hands of a few larger institutes or with government departments and agencies (although the same argument can be made for other international marine boards such as the International Council for the Exploration of the Sea, ICES[15]). It is important that links are made between experts in the field, wherever they are based and the EU policy community.

14.2 EU membership is unlikely therefore to inhibit the UK marine biological community from influencing policy but more could be done on the 'enabling' front to make sure UK marine expertise is better utilized.

[13] http://www.marineboard.eu/
[14] http://www.jpi-oceans.eu/csa-oceans/csa-oceans-partners
[15] http://www.ices.dk/Pages/default.aspx