

Written evidence submitted by the Marine Biological Association (LEA0278)

House of Lords Select Committee on Science and Technology: Leaving the EU: implications and opportunities for science and research inquiry. **Response from the Marine Biological Association, August 2016.**

Summary of key points

- Any future model of EU engagement should support collaborative research and appropriate support should be provided for networking and sharing of ideas and expertise at an international level.
- Any model of EU engagement that restricts movement of individuals could be detrimental to the UK's ability to attract the best scientists.
- Efforts should be made therefore to put in place agreements with international partners to improve ease of travel for marine scientists. Clarifying the position for EU workers in the UK is also vital, both in terms of the employer's responsibility for the welfare of staff (at the moment no assurances can be given) and to avoid compromising the ability to deliver important research programmes.
- Funding should be made available for the UK to host international marine science programmes and support structures.
- A model that did not enable continued access to European funding would require significant investment at the national level to ensure the UK retained its position as a world-leader in marine research and contribute to the sustainable management of UK seas.
- In terms of science and research, the priorities are to agree a model whereby access to EU funding is continued, or a mechanism put in place to replace this funding and to ensure collaborative working can continue at a scale appropriate to the research required (i.e. supranational). This will ensure the UK can maintain its important position as a world leader and continue to be one of the best places in the world to undertake marine research.
- A risk analysis should be undertaken for marine research in the UK in terms of exposure to the potential withdrawal of EU funding. The analysis should also identify specific areas of marine research at particularly high risk due to current lack of funding opportunities at the national level.

General comments

1. The Marine Biological Association (MBA) previously provided comments (November 2015) to the House of Lords Select Committee on Science and Technology inquiry "*The Relationship between EU Membership and the Effectiveness of Science, Research and Innovation in the UK*". This submission complements the information contained in the original written submission available online at <http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/science-and-technology-committee-lords/relationship-between-eu-membership-and-the-effectiveness-of-uk-science/written/24752.html>.
2. The 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 1500 members (including international members).

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3. 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.
4. 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.

Specific issues

Question 1. What the effect of the various models available for the UK's future relationship with the EU will be on UK science and research, in terms of:

- Collaboration
5. Marine Science is highly multi-disciplinary. A single deep-sea cruise for example can involve collaboration between geophysicists, dynamical oceanographers, geochemists, ecologists, microbiologists, proto-zoologists and a number of taxonomists as well as specialist technicians operating equipment such as Remotely-operated or autonomous underwater vehicles, sea-bed landers, video-camera-equipped grabs and corers and pressurised collection devices and aquaria. This mixture of skills and equipment is not to be found in any single laboratory and it is now usual for most such cruises to involve international collaboration. Sophisticated Research Vessels, such as the new RRS Sir David Attenborough (cost £200 million), can still only operate in one location at any given time so that no one nation can afford to conduct research across the global oceans on their own. With the threats to the seas, through climate warming, acidification and pollution, international collaboration in marine science is essential.
 6. The UK marine biological community is both respected and influential at the EU level and is involved in a wide range of consortia and collaborative projects. The EU has funded a large number of marine networks and infrastructures to facilitate collaborative working including LifeWatch (European e-Science infrastructure for biodiversity and ecosystem research); EUROMARINE (Integration of European Marine Research Networks of Excellence) and MARS (The European Network of Marine Research Institutes and Stations) with the UK being well-represented in all of these networks. In addition, funding mechanisms such as EU-COSTS are specifically aimed at fostering collaborative working and access to this funding should be retained if possible under any future scenario.
 7. The proportion of UK scientific publications written with at least one co-author from another country had increased to over 50% by 2012, with 30% of all publications including an author from another EU country¹. Overall, publications co-authored with one or more scientists from other countries have a higher impact. Thus to maintain or increase the already-high impact of UK marine science there is a need to continue and increase international collaborations.
 8. The UK also gains influence, profile and opportunities to engage in marine science through its designations as EU centres of expertise in certain areas. For example, Cefas receives funding from DG Sante to support its status as an EU Reference Laboratory (EURL) for Crustacean Diseases, and for

¹ UK research and the European Union. The role of the EU in international research collaboration and researcher mobility. Royal Society Report. May, 2016.

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monitoring bacteriological and viral contamination of bivalve molluscs. This provides the UK with significant influence in this important area of research and management.

9. It is not only UK scientists concerned about losing opportunities for collaborative work. EU marine scientists are also raising this issue. Dr Karen Wiltshire from AWI, Germany for example states “*in the European Marine Board, they [the UK] always have excellent scientists partaking in these discussions, and we've actually moved policy along for the good of all..... It is imperative that the UK has an input, and I really think it a tragedy if we no longer were to interact with the excellence which we have in the scientific community in Britain*”². **Any future model of EU engagement should support collaborative research and appropriate support should be provided for networking and sharing of ideas and expertise at the international level.**
- Free movement of researchers and students
10. Organisations ranging from large government agencies (e.g. Cefas) through to marine research centres (e.g. IECS, SAMS) report over 10% of their current staff complement as non-UK EU nationals. There is no direct evidence of staff leaving in response to the leave vote but reports of individuals being concerned over their future status are frequent. It is not just individuals being able to work in the UK that is an issue however; there is also the issue of grant transfers as currently grants can be transferred from EU to UK institutions. A model that allowed Marie-Curie fellows to come to the UK and for ERC grant holders to be able to transfer these grants to UK institutions for example would be preferable. **It would be detrimental to the UKs ability to attract the best scientists if EU engagement does not facilitate their free movement.**
- Access to funding
11. As of May 2016 Marine Knowledge gate listed 926 European marine projects in which the UK has been involved since 2006³ including 52 H2020 programmes⁴ (this is likely to be an underestimate however as the database relies on manual updates). The UK consistently does well in winning European funds and Under the Seventh Framework Program for example (2007-2013) the Commission contributed an average of around €350 million a year towards marine and maritime research. Over the last decade marine institutes have been increasingly reliant on EU funding with annual EU income ranging from 10 to 25% depending on year and institute (e.g. NOC, 15-25%; IECS, 10 – 15%; MBA, 10 – 20%).
12. A number of UK marine organizations also participate in EU industry funded projects and significant funding is received from ‘other EU areas’ such as the European Fisheries Fund.
13. **A model that did not enable continued access to European funding would require significant investment at the national level to ensure the UK retained its position as a world-leader in**

² Koley, K (2016). Tides of Change: Brexit’s Potential Impact on Marine Policy and Research. ECO Magazine. Available at: [http://www.mydigitalpublication.com/publication/?i=327714#{"issue_id":327714,"page":0}](http://www.mydigitalpublication.com/publication/?i=327714#{)

³ <http://www.kg.eurocean.org/list.jsp>

⁴ <http://www.kg.eurocean.org/list.jsp?Programmes=260>

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marine research (see points 18 and 19) and contribute to the sustainable management of UK seas.

- Access to EU-funded research facilities, both in the UK and abroad
14. A number of UK marine organisations are involved in major international research infrastructure projects such as the ESFRI European Marine Biological Resource Centre (EMBRC). 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 research infrastructure not available in the UK for scientists to utilise all over Europe.
15. The opportunities presented for UK marine science by leaving the EU depend on some of the UK contributions to the EU science and science infrastructure budget being re-deployed to foster greater collaboration with non-EU countries (see points 5 -9). The UK already has a collaboration agreement between the Meteorological Office and the US National Oceanic and Atmospheric Administration (NOAA). It should be possible to agree joint funding opportunities with NOAA and the NSF to promote collaboration between UK and US marine scientists. There are also agreements already in place over sharing some facilities such as use of the ROVs ISIS and JASON2.
- Intellectual property and commercialisation of research
16. The UK marine biological community has a good track record of working with industry and a number of marine organisations have highlighted their work with European commercial partners. There is a strong push for improving industry links as stated in the Marine Science Coordination Committee (MSCC) report, 2013, which stated *“There is considerable scope for further collaboration, particularly in the EU and international markets with the aim of benefiting the UK economy and strengthening the UK competitive base. Other countries, such as the US, are currently viewed as being better than the UK at securing productive collaboration between the private and public sectors and adopting a joint strategic approach”*⁵. New negotiations around Brexit therefore provide an ideal opportunity to move forward with the recommendations of the MSCC report particularly in terms of horizon scanning and *“examining the scope for creating and fostering additional market opportunities open to UK based businesses both within the UK and overseas”*⁴.
17. In our previous submission we noted the strong drive from the EU for collaboration between the public and private sectors on innovation in order to support the blue economy⁶. This includes areas such as new methodologies (e.g. marine monitoring technology) and Horizon 2020 marine research calls for example have been developed in light of the Blue Growth Agenda⁶.

Question 2. What the science and research priorities for the UK Government should be in negotiating a new relationship with the EU.

⁵ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/446192/milg-marine-science-private-sector-report.pdf

⁶ 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>

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18. The UK marine area is more than 3 times its land area and much more than that that if UK overseas territories are included. This area is increasingly being exploited and also underpins and supports the maritime sector, which made a £9.9 billion gross value added contribution to UK GDP in 2013 (0.6% of the UK economy's total output)⁷. The marine research sector supports and informs much of this activity (e.g. through providing information to support climate change adaptation, work on biofouling prevention etc.). The UK also consistently outperforms many other countries in terms of the impact from its marine scientific research⁸ and has been reported as achieving a higher level of knowledge outputs from its work than any other European country⁹. Despite all this, the marine sector suffers from having a lower public profile than other areas of scientific research so there is a real danger it may not be given the profile in negotiations it deserves. **In terms of science and research, the priorities are to agree a model whereby access to EU funding is continued, or a mechanism put in place to replace this funding and to ensure collaborative working can continue at a scale appropriate to the research required (i.e. supranational). This will ensure the UK can maintain its important position as a world leader and continue to be one of the best places in the world to undertake marine research.**

Question 3. What science and technology-related legislation, regulations and projects will need to be reviewed in the run up to the UK leaving the EU.

19. Access to the single market will entail various marine technical and environmental directives to be kept in place. This will have implications, particularly for applied research, much of which is directed to supporting marine policy objectives. Management of activities in the marine environment is informed by a wide range of policy including national, European and international legislation. Much of this policy interacts in the marine environment so that national legislation for marine reserves, for example, contributes to European and international commitments. A review will therefore be required to see what legislation is required if European marine directives no longer apply. Much of the legislation is transposed via regulations into UK law and, at least among the public, there is not much appetite for wide-spread repeal of environmental legislation¹⁰. The regulations however will need to be considered to see how reporting and enforcement may occur if there are no longer obligations to the European Union. Key legislation such as the Common Fisheries Policy (CFP) will need to be reviewed so that appropriate alternative mechanisms can be put in place. All of this is highly relevant to the marine science community who provide the scientific knowledge and expertise to inform the delivery of CFP and other policy.

Question 4. The status of researchers, scientists and students working and studying in the UK when the UK leaves the EU, and what protections should be put in place for them.

32. Preferably the UK should agree to give assurances to EU marine scientists based in the UK. This is particularly an issue for established scientists who have relocated to the UK with their families in order to take up research and related academic posts. Clarifying the position for EU workers in the UK with some urgency is therefore vital both in terms of the employer's responsibility for the welfare of staff (at the moment no assurances can be given) and to avoid compromising the ability to deliver important research programmes.

⁷ The economic impact of the UK Maritime Services Sector. Oxford Economics. A Report for Maritime UK March 2015.

⁸ <http://www.kg.eurocean.org/?chart=country>

⁹ <http://www.kg.eurocean.org/?chart=country>

¹⁰ <http://www.independent.co.uk/environment/brexit-eu-wildlife-protection-laws-tougher-uk-environment-a7207146.html>

Question 5. The opportunities that the UK's exit presents for research collaboration and market access with non-EU countries, and how these might compare with existing EU arrangements.

20. It would also be beneficial to make it easier for international scientists outside of the EU to obtain work visas and for UK scientists to be able to work internationally and additional support should be provided to encourage liaison at a much wider international level. One MBA scientist, for example, reported working with scientists from laboratories in Russia, Norway, Sweden, Denmark, Germany, The Netherlands, Ireland, France, Monaco, Portugal, Italy, Greece, Turkey, Taiwan, Canada, USA and Mexico in his career and this level of international collaboration is not unusual. **Efforts should be made therefore to put in place agreements with international partners to improve ease travel for marine scientists.**
21. Another way of fostering collaborations is by building on the UK's long tradition of both helping and setting up global international marine science initiatives. These include GOOS (Global Ocean Observing System) InterRIDGE (mid-ocean ridge studies, (www.interRIDGE.org), INDEEP (International network for Scientific investigation of deep-sea ecosystems, www.indeep-project.org) and DOSI (the Deep-Ocean Stewardship Initiative, <http://dosi-project.org/>). Hosting such initiatives in the UK means that we can attract leading marine scientists to the UK and further UK - international collaborations. The costs of doing this are small, for example the INDEEP office needs £40k p.a. to run. **Funding should be made available therefore for the UK to host international marine science programmes and support structures.**

Question 6. What other measures the Government should undertake to keep UK science and research on a sound footing, with sufficient funding, after an EU exit.

22. National funding for marine research has not been increasing in real terms in recent years so organisations are increasingly reliant on European funding (see point 1 – access to funding). The majority of funding for marine research however is still provided at the national level. A JPI Oceans report revealed in 2011 that “most of the activities in the field of marine and maritime research are funded, programmed, implemented and assessed at national level”. It is important to note however that there is still a significant exposure to loss of EU funds for marine research generally (up to 25%) and also that EU funding is used to sustain areas of research where funding is not being prioritised at the UK level. Marine education, for example, is seen as being of critical importance at the international level and the UK currently leads a major H2020 programme on Ocean Literacy (SeaChange) involving 17 partners from nine countries across Europe. The NOC reports marine technology innovation as another specific research area heavily reliant on EU funds (up to 50%). Finally, it is important to note that the UK substantially more funding for science than it contributes to the EU science programmes and it is this level of funding that should be maintained. **A risk analysis should be undertaken for marine research in the UK in terms of exposure to the potential withdrawal of EU funding. The analysis should also identify specific areas of marine research at particularly high risk due to current lack of funding opportunities at the national level.**

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