

Annual Report 2018

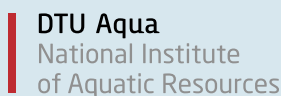
EUROPEAN MARINE BOARD

The European Marine Board provides a pan-European platform for its member organizations to develop common priorities, to advance marine research and to bridge the gap between science and policy, in order to meet future marine science and societal challenges and opportunities.

The European Marine Board was established in 1995 to facilitate enhanced cooperation between European organizations involved in marine science. In 2018, EMB represented 33 member organizations (research funding bodies, research institutes and nationally-based consortia of third-level institutes) from 18 countries. Through the EMB, these organizations are working together towards a common European vision on the research priorities and strategies for marine science.

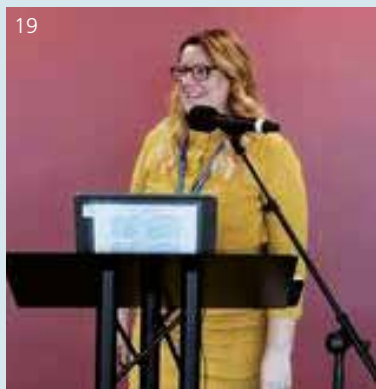
The EMB provides the essential components for transferring knowledge from the scientific community to decision makers, promoting Europe's leadership in marine research and technology. Adopting a strategic role, the EMB provides a unique forum within which marine research policy advice to national agencies and to the European Institutions is developed, with the objective of promoting the establishment of the European Marine Research Area.

www.marineboard.eu



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Highlights 2018

1. **European Parliament event “Europe, the Ocean & Feeding the world”,** 20 March, Brussels

2. **High level round table discussion on Mission for a Plastic Free Ocean,** 9 April, Brussels

3. **EMB Spring Plenary,** 18-19 April, Lisbon, Portugal

4. **University Consortium Panel Meeting,** 19 April, Lisbon, Portugal

5. **SOPHIE project kick-off & expert meeting,** 22-25 April, Galway, Ireland

6. **EMB Working Group European Research Vessels Kick-off meeting,** 15-16 May, Bergen, Norway

7. **European Maritime Day (EMD),** 18-19 May, Burgas, Bulgaria

8. **AtlantOS EU vision workshop,** 4-5 June, Brussels, Belgium

9. **4th Geo Blue Planet Symposium,** 4-6 July, Toulouse, France

10. **EMB Directors meet with Commissioner Vella,** 10 July, Brussels, Belgium

11. **Belem implementation meeting: A new era of Blue Enlightenment,** 23-25 July, Salvador, Brazil

12. **From COP21 towards the United Nations Decade of Ocean Science for Sustainable Development (2021-2030),** 10-11 September, Paris, France

13. **EOOS Steering Group and Advisory Committee,** 18 September, Brussels, Belgium

14. **EP Event: Young Talent and the Blue Economy: Towards a fit-for-purpose training for Marine Graduates,** 25 September, Brussels, Belgium

15. **EMB Brown Bag Lunch on Food from the Ocean,** 28 September 2019, Brussels, Belgium

16. **EMB Autumn Plenary,** 24-25 October, Trieste, Italy

17. **Business2Sea Forum,** 15-16 November, Porto, Portugal

18. **EOOS Conference,** 21-23 November, Brussels, Belgium

19. **CommOcean Conference,** 4-5 December, Southampton, UK

Images from some of these highlight events are shown on the left (page 4) and throughout the report.

Message from the Chair



The 2018 annual report will be the fifth and last report that I will present as Chair of the European Marine Board, as a new Chair for EMB will be elected in Spring 2019. It has been an honour to serve EMB these past 5 years, and I can only look back with a sense of fulfillment and satisfaction as the EMB has grown further as an independent, reliable and authoritative organization. I am certain that the next chair will enjoy chairing the Board as much as I did, and will continue to lead EMB on the forefront of Marine Science in Europe.

These past years have proven that EMB can function as an independent and solid organisation. It is thanks to the contributions and active participation of all EMB members in EMB plenary meetings, working groups, and other events that EMB can keep playing a prominent role in the European Marine Science Policy landscape.

Originally set up to provide a forum for its members, EMB's highly successful bi-annual plenary meetings function as one of the main tools for our members to discuss new science activities, put forward new topics, priorities and exchange ideas amongst experts. I would like to thank the Portuguese Science and Technology Foundation (FCT), and in particular delegates Sofia Cordeiro and Raquel Ribeiro for hosting and co-organising the Spring Plenary in Lisbon, and for organising an excursion to the 'Mar Mineral' exhibition in honour of Prof Mário Ruivo, who was for many years an active EMB delegate. Special thanks also go to Prof Alessandro Crise and the Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS) for hosting the EMB Autumn Plenary meeting in Trieste. Retiring in 2019, Alessandro organised this Trieste Autumn Plenary as his farewell to EMB. I would like to thank him for his active involvement as an EMB delegate and former member of the EMB Executive Committee. The same goes for Jan de Leeuw of NIOZ (Netherlands) who retired in 2018, and Robert Precali of the Ruđer Bošković Institute (Croatia), who will also retire in 2019.

In 2018, EMB successfully finalised publications on diverse topics such as Marine Graduate Training; Biological Ocean Observations; and Marine Ecosystem Modelling. Furthermore, several experts and EMB delegates have been working hard to write the fifth edition of the EMB's most renowned publications, Navigating the Future. The first draft of this publication was ready by the end of 2018, and will be launched at another of EMB's flagship events which I much look forward to: the EurOCEAN 2019 Conference. EMB is in full preparation for this event, that will take place at the IOC/UNESCO headquarters in Paris on 11-12 June 2019.

Other highlights in 2018, include the meeting with Commissioner Vella on 10 June 2018, and the EMB Brown Bag Lunch Session on Food from the Oceans. Both events provided excellent platforms for the ocean research community, represented by EMB, to communicate directly with policy makers on ocean research issues.

Finally, I would like to thank the EMB Secretariat for their excellent work in the past years, ensuring that EMB publications, events and meetings are delivered according to our high standards. In particular, I would like to thank Kate Larkin, Senior Science Officer at the EMB Secretariat, as she will move on to a new position as Director of Seascope Belgium and Deputy Head of the EMODnet Secretariat on 1 January 2019. Kate has worked for EMB for nearly 7 years, successfully leading different working groups, projects, and the EMB Secretariat team in the second half of 2017 after the departure of former EMB Executive Director Niall McDonough. I would like to congratulate Kate with her new role and wish her all the best in her future career.

Prof. Jan Mees, EMB Chair

Executive Director's report



My first year as Executive Director to the European Marine Board has passed in a blur of attending and organizing exciting events, editing interesting policy documents and the navigating the steep learning curve of getting to know Brussels and European Commission politics. Knowing that I can always count on the Secretariat to keep all the balls in the air, and on the extensive experience of our Chair has made this a very fruitful and enjoyable year. I have been particularly pleased that we were able to publish three Future Science Briefs: the first on “Training the 21st Century Maritime Professional” – which was a comfortable way of learning on the job as it was closer to my previous role. The second, on “Strengthening the European Capacity for Biological Ocean Observations” was a pleasure to edit as the working group was fully engaged and I learned a lot about biological observations. The third brief: “Enhancing Europe’s Capability in Marine Ecosystem Modelling for Societal Benefit” was the most difficult as I had to set my personal modelling preferences aside to

enable the publication of a balanced science brief that can represent the modelling community at large. I look forward to the new publications that we are working on: 1) Valuing Marine Ecosystem Services – another longstanding working group that will be published early in 2019; 2) Marine Research Vessels Position paper – which again has an engaged working group; and 3) Navigating the Future V – which might be one of the most important documents I will ever edit. Having the weight of the European Marine Science community’s opinion on you can be quite daunting, but having met so many of our members over the past year will help.

It has been a pleasure to get to know all the members, delegates and alternates of the European Marine Board, and I am particularly pleased that we have been able to welcome two new members at our Autumn Plenary in Trieste. GEOMAR had been a member of EMB previously, and decided to return to EMB after our meeting with Commissioner Vella in July 2018. This meeting showed how influential our network of Research Institution Directors could be, and it was a real pleasure to welcome GEOMAR back to the EMB. The second new member is CETMAR: a Spanish non-profit foundation that applied as a Consortium member on behalf of the Universidade de a Coruña, Universidade de Santiago de Compostela, Universidade de Vigo, Consejo Superior de Investigaciones Científicas (CSIC), Instituto Español de Oceanografía (IEO), and five ministries and maritime associations in Spain. This consortium will bring a different perspective to our membership and I look forward to working with scientists and other members from both institutions.

During 2018 we had the joy of having two very well suited interns working for us: Claudia Viegas, who helped with our surveys on research vessels, and Christine Rundt who helped us with our website, and is now working on her thesis on Oceans and Human Health after learning about the SOPHIE project. However, we also had to say goodbye to Dr Kate Larkin, who left at the end of December to join Seascope Belgium as Director. I want to thank Kate for her hard work, for keeping the team together, and for helping me in my first months when everything was very new. Finally, I want to thank our Chair, Jan Mees, who is always around when we have a question, and our ExCom and Board members who have shown such commitment to the EMB and support to the Secretariat. I look forward to another exciting year with the launch of NFV at our EurOCEAN2019 conference in Paris in June.

Prof. Sheila Heymans, EMB Executive Director

EMB mission, structure and governance

MISSION

The European Marine Board (EMB) provides an independent platform for organizations involved in supporting, delivering and using marine research and technology to promote common positions on research priorities and strategies in Europe.

EMB is a unique marine science forum which develops scientific foresight by initiating state-of-the-art analysis and studies and translating them into clear policy recommendations to national agencies and governments as well as to European institutions.

Where the EMB identifies a topic of strategic interest as the basis for a new activity, it applies a range of instruments to deliver a tailored impact. Targeted at European and national research programme managers, strategy developers, policymakers and the marine research community, EMB outputs drive future European and national marine research agendas, programmes and supporting strategies and policies.

EMB acts as a science-policy interface, transferring and translating scientific knowledge to policy makers, and channelling policy needs back to the research community.

STRUCTURE AND GOVERNANCE

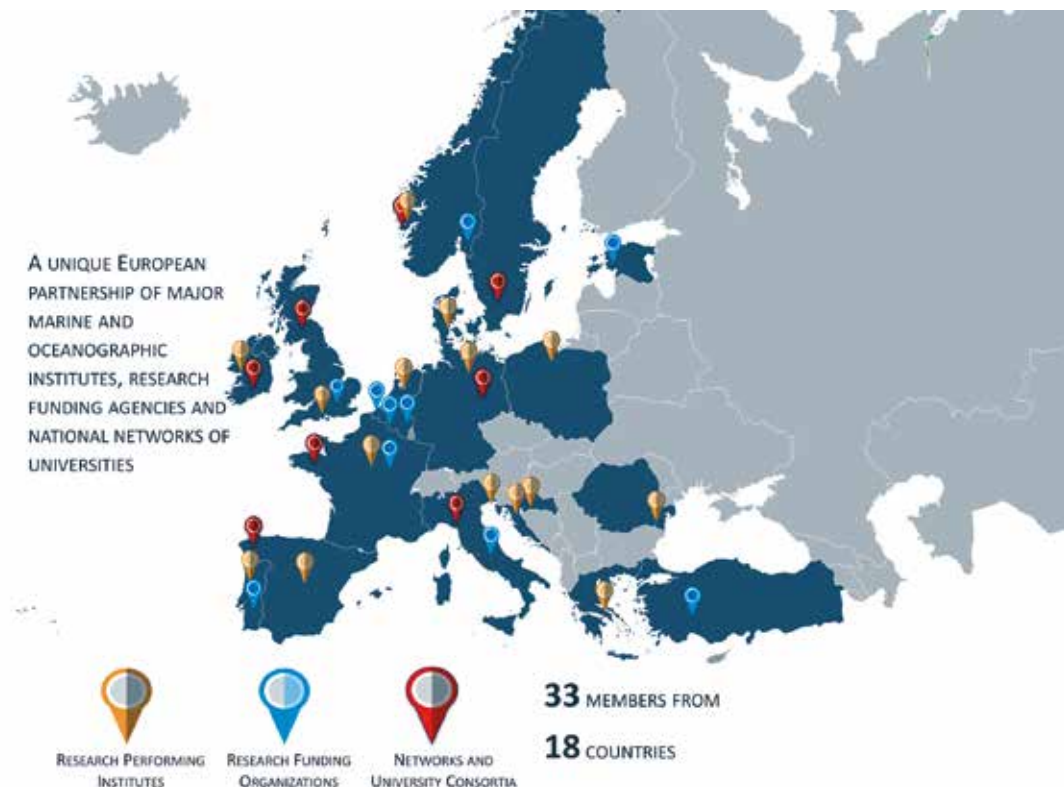
The European Marine Board is a pan-European partnership of national organizations which are either research funding organizations (e.g. research councils or ministries), research performing organizations (e.g. national marine research institutes) or nationally-based consortia of third-level institutes. EMB activities and the operation of its secretariat are funded through annual member contributions and EMB external contracts. In 2018, EMB represented 33 organizations from 18 countries. A full list of EMB member organizations and delegates is available on the website: www.marineboard.eu/members, and in Annex 1 of this report.

EMB DELEGATES

Representing the major organizations involved in marine research in Europe, the Board's member organization delegates: (i) provide a high-level overview of national science policy priorities; (ii) guarantee multidisciplinary and high-quality scientific expertise for the Board's activities; and (iii) ensure high-level uptake of the Board's strategic recommendations at national and European levels.

The EMB's mixed membership of research performing organisations (RPOs), research funding organisations (RFOs) and national university consortia, ensures its unique capacity to deliver science policy advice on issues of identified strategic importance and to influence European marine research agendas.

EMB delegates meet twice a year at plenary meetings to share knowledge, to define common priorities, and to agree on activities and outputs. Observers and guests are invited to attend EMB plenary meetings on an ad hoc basis. These include the European Commission (EC), the Intergovernmental Oceanographic Commission of UNESCO (IOC-UNESCO), and other international and European marine science networks.



EXECUTIVE COMMITTEE

EMB operations are overseen by the Executive Committee (ExCom). The ExCom meets three times per year to follow up on the implementation of the actions agreed by the Board at plenary meetings, make operational and financial decisions and give strategic guidance to the Board and Secretariat.

ExCom members and their mandates in 2018:



Jan Mees – Chair
Flanders Marine Institute/Research
Foundation Flanders, Belgium
May 2014 - May 2019



Gilles Lericolais – vice-Chair
French Research Institute for the
Exploration of the Sea (Ifremer), France
October 2016 - October 2018



Mark James – vice-Chair
Marine Alliance for Science and
Technology Scotland (MASTS), UK
May 2015 - May 2018



Jan-Stefan Fritz – vice-Chair
Konsortium Deutsche
Meeresforschung (KDM), Germany
May 2015 - June 2018



Carlos Carcía Soto – vice-chair
Spanish Oceanographic Institute
(IEO), Spain
April 2017 - April 2020



Ferdinando Boero – vice-chair
CoNISMa, Italy
April 2017 - April 2020



Yves-Marie Paulet – vice-Chair
Universités Marines (UM), France
April 2018 - April 2021



Jeremy Gault – vice-Chair Irish
Marine Universities Consortium
(IMUC), Ireland
October 2018 - October 2021



**Sheila JJ Heymans – Executive
Director**
Ex officio member

SECRETARIAT

The strategic and operational decisions and activities proposed by the Board and ExCom are implemented by the Secretariat, based in Ostend, Belgium. A full list of the current EMB Secretariat team is available on the website: www.marineboard.eu/about/secretariat



The EMB Secretariat at the 2018 Autumn Plenary meeting in Trieste.

From left to right: Paula Kellett (Science Officer), Joke Coopman (Executive and Finance Officer), Kate Larkin (Senior Science Officer), Sheila JJ Heymans (Executive Director) and Ángel Muñoz Piniella (Science Officer).

The EMB Secretariat was reinforced during the summer period by 2 interns: Cláudia Viegas (25 June 2018 – 20 October 2018) and Christine Rundt (1 July 2018 – 30 September 2018).



Cláudia is a PhD student at University of the Azores, in Oceanography and Sea Sciences, where she is developing a biogeochemical and hydrodynamic model for the Azores Economic Exclusive Zone. She mainly supported the work of the EMB Working Group on Research Vessels and EOOS.

Christine, a Masters student in Marine and Lacustrine Science and Management at the Free University of Brussels, University of Gent and University of Antwerp in Belgium, mostly focused on EMB communication items such as the development and launch of the new website and the value of membership paper.





Plenary meetings 2018

European Marine Board plenary meetings, held twice a year in spring and autumn, gather EMB member organizations to reflect and agree on topical marine science and technology issues, and propose future strategic actions. During these meetings, EMB delegates also benefit from interactions with invited speakers and guests and with plenary observers from the European Commission and the UNESCO's Intergovernmental Oceanographic Commission.

SPRING PLENARY MEETING (18-19 APRIL, LISBON, PORTUGAL)

The Spring Plenary Meeting was hosted by the Portuguese Science and Technology Foundation (FCT) at their headquarters in Lisbon, Portugal (see attendance list in Annex 2).

Governance & science activities

At this meeting, the Board re-elected Mark James (MASTS, UK) and Jan-Stefan Fritz (KDM, Germany) as vice-Chairs on the EMB Executive Committee for a further two-year term; and elected Yves-Marie Paulet (UM, France) as ExCom vice-chair for an initial 3-year period, replacing Erlend Moksness (IMR, Norway) who resigned from his post in October 2017. Furthermore, the Board members received the first copies of EMB's Future Science Brief 2: "Training the 21st Century Marine Professional".

The open session, chaired by **Sofia Cordeiro** (FCT), focused on the valuation of marine ecosystem services. Four experts were invited to give a talk on the subject, followed by a panel discussion led by EMB Executive Director Sheila Heymans. The discussions focused on how the core marine sciences can interact with valuing marine ecosystem services, and if we have a handle on tipping points in marine socio-ecological systems. The programme included a welcome by **Paulo Ferrão**, President of the Board of Directors, FCT, followed by presentations by **Sebastian Villasante** (Univ. of Santiago de Compostela, Spain) on the role of non-natural capital in the co-production of marine ecosystem services. **Jasper Kenter** (SAMS, UK) picked up on the shared values, deliberation and participation in marine ecosystem services valuation and management; and **Cristina Pita** (Univ. of Aveiro) presented on the European attitudes towards the marine environment. **Jakub Wejchert** (DG Environment) closed by presenting the EU perspective on marine ecosystem services, the policy context of Sustainable Development Goals, the 7th Environmental Action Plan, the EU Biodiversity Strategy and Action Plan and the Marine Strategy Framework Directive.



After the discussions, **Sofia Cordeiro** (FCT) invited the members and guests to visit the exhibition 'Mar Mineral' in honour of Prof Mário Ruivo, and to attend the plenary dinner including an evening lecture: "Opportunities and challenges for deep-sea research in Europe under the Blue Growth and global change scenarios" by **Dr. Telmo Morato**, MAR Azores & the Marine and Environmental Research Center (MARE); Portugal.



AUTUMN PLENARY MEETING (24-25 OCTOBER TRIESTE, ITALY)

The Autumn Plenary Meeting was hosted by the Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS) at the Savoia Excelsior Palace Hotel in Trieste, Italy (participant list is available in Annex 2).

Governance and science activities

The Helmholtz Center for Marine Research (GEOMAR, Germany) represented by Peter Herzig (right) and the Centro Tecnológico del Mar (CETMAR, Spain), represented by Rosa Fernandez (left) joined EMB as new members and will help to further strengthen EMB's breadth and authority in the science policy landscape.



Furthermore, the Board elected Jeremy Gault (Irish Marine Universities Consortium) as vice-chair for the EMB Executive Committee, replacing Gilles Lericolais (Ifremer, France) who fulfilled his 5-year mandate. The Board members also received the latest 2 Future Science Briefs on Biological Observations and Marine Ecosystem Modelling, and decided to launch a new EMB activity on 'Big Data for Marine Science'.

At the Open Session on Marine Geohazards, expert guest speakers (from left to right), **Francesco Chiocci** (Univ. of Rome La Sapienza, Italy), **Angelo Camerlenghi** (OGS, Italy), **Silvia Ceramicola** (OGS, Italy) and **Nabil Sultan** (Ifremer, France) presented the latest developments in their field of research. Outgoing ExCom vice-chair, **Gilles Lericolais**, (Ifremer, France) highlighted the links with NfV's chapter on "Science of surprises". The presentations were followed by a panel discussion in which the experts interacted with the EMB Board members.



During the evening lecture, **Dr. Simone Libralato** (OGS, Italy) presented on 'Fisheries discards: To land or not to land', using Shakespeare's Hamlet as a metaphor for describing the impact of the fish discard ban on the efficacy of the management of the fisheries in the Mediterranean Sea.

At the plenary reception two early stage researchers from OGS provided flash presentations on their PhD research. **Maria del Mar Chaves Montero** presented the hydrological situation in the Mediterranean, including the reversal of the circulation in the Ionian Sea due to the changes in salinity; and **Jonathan Ford** highlighted the seismic reactions to submarine landslides.

EMB Flagship activities and events

NAVIGATING THE FUTURE V

The EMB Navigating the Future series provides regular pan-European summaries of the current status of marine research, priority recommendations and future scientific challenges in the context of European societal needs. Navigating the Future is a blueprint to guide both the research and the science policy agendas at European and national level. It has been widely recognized, both by researchers and science policymakers, as providing critical periodic foresight and recommendations on emerging marine science topics and needs, and associated societal challenges and opportunities.

After the initial expert workshop in Brussels in November 2017, the lead authors and co-authors started writing the different chapters of the fifth position paper in the Navigating the Future series, or NFV for short. The chapters are based on the outline that the initial experts had provided during the workshop. The first draft was finalized in December 2018, to be sent out for review in 2019.

NFV will focus on the following key areas:

- The changing role and relevance of the ocean in the past and future
- A vision for understanding the 4-Dimensional ocean (a volume that changes in the time dimension) and the need for a holistic approach to study it
- The non-linear dynamics of the ocean system and potential tipping points to estimate the full extent of cumulative human impacts on the ocean
- Ideas on how to better predict extreme events and climate induced impacts
- The importance of implementing the emerging field of sustainability science for the ocean
- Bringing forward the combination of data, technology and modelling for ocean science
- Future knowledge gaps



The final publication of NFV is expected in Spring 2019, to be released at the EurOCEAN 2019 conference. You can keep track of the latest NFV developments via the EMB website: <http://www.marineboard.eu/navigating-future>

PREPARATIONS FOR THE EUROCEAN 2019 CONFERENCE

EuroOCEAN conferences are major European marine science policy conferences providing a forum for policymakers and strategic planners, both at European and Member State level, to interface with the marine research community and marine and maritime stakeholders.

The European Marine Board has been instrumental in organizing the EuroOCEAN conferences since 2000. One of the key outputs from the previous EuroOCEAN conferences are the joint policy statements, or EuroOCEAN Declarations, that raise awareness of the marine research priorities and propose concrete actions. These statements have been critical drivers of research and policy developments in Europe since.

**Eur
2019**



CEAN

In the course of 2018, EMB initiated the next EuroOCEAN conference which will take place on 11-12 June 2019 at the IOC/UNESCO headquarters in Paris.

The conference is supported by DG Research and Innovation, and will be hosted by the Intergovernmental Oceanographic Commission of UNESCO. EuroOCEAN 2019 will discuss the contribution of European marine science to the United Nations Decade of Ocean Science for Sustainable Development (2021-2030). The conference will also highlight the contribution of marine science to other ongoing and future initiatives supported by Horizon 2020 and the forthcoming Horizon Europe, the European Union Framework Programme for Research and Innovation programme (2021-2027).

The following key themes will feature at the conference:

- Sustainable marine resources
- The land perspective for a healthy ocean
- Oceans and Human Health
- Bringing sea basin communities together
- National perspectives for marine science contribution to Sustainable Development Goals

More information can be found at EuroOCEAN 2019 website:

<http://www.euroceanconferences.eu/eurocean-2019>



EMB members discuss the EuroOCEAN 2019 conference at the EMB Spring Plenary Meeting in Lisbon

EMB DIRECTORS MEET WITH COMMISSIONER VELLA

On Tuesday 10 July 2018, research directors from European Marine Board Member organizations met with Karmenu Vella, EU Commissioner for Environment, Maritime Affairs and Fisheries, to discuss their perspectives on the future of marine research in Europe.

This meeting with Commissioner Vella marked the third in a series of round table discussions which provided an excellent platform for the ocean research community represented by EMB to communicate directly with policy makers on ocean research issues. Mr. Vella noted that the meeting was an important opportunity for the Commission to listen to what the research community has to say and to get scientific views on future priorities.

The meeting participants from EMB, DG Maritime Affairs and Fisheries, and DG Research and Innovation discussed progress in Ocean Observations (including the EOOS initiative), its economic benefits and how to move forward with applications from ocean observing in the future. Other topics included the different perspectives and potential scientific action points regarding Food from the Oceans, leading to an EMB organised Brown Bag Lunch discussion on this topic in September 2018.

Furthermore, ideas were discussed on the Horizon Europe programme and an Ocean Mission; and how this could be aligned with the United Nations Decade of Ocean Science for Sustainable Development. It was noted that there is broad support from the marine science community for the Decade of Ocean Science, and that the European Marine Board will make this a key topic at the EuroOCEAN 2019 Conference.



From left to right: **Andras Inotai** (Commissioner Vella's private office); **Andreea Strachinescu** (DG RTD); **Bernhard Friess** (DG MARE); **Vasileios Lykousis** (HCMR, Greece); **Gilles Lericolais** (Ifremer, France); **Ferdinando Boero** (CoNISMa, Italy); **Sheila JJ Heymans** (EMB); **Peter Herzig** (GEOMAR, Germany); **Karmenu Vella** (EU Commissioner for Environment, Maritime Affairs and Fisheries); **Jan Mees** (FWO, Belgium); **Karin Kroon Boxaspen** (IMR, Norway); **Robert Precali** (IRB, Croatia); **Carlos Garcia-Soto** (IEO, Spain); **Mark James** (MASTS, UK); **Peter Heffernan** (Marine Institute, Ireland); **Yves-Marie Paulet** (Universités Marines, France); **Kate Larkin** (EMB); **Jan Marcin Weslawski** (IO-PAN, Poland). Not in picture: **John Bell** and **Sieglinde Gruber** from DG RTD

More information on the previous 2 meetings, which took place on 2 March 2016 and on 8 July 2016 can be found on the EMB and the Commission website:

<https://webgate.ec.europa.eu/maritimeforum/en/node/3938>

EMB BROWN BAG LUNCH ON FOOD FROM THE OCEANS

Following on from the meeting with Commissioner Vella in which “Food from the Ocean” was one of the main agenda items, the European Marine Board organised a ‘Brown Bag Lunch’ (BBL) on this topic. The objective of an EMB Brown Bag Lunch session is to stimulate an informal and informative discussion on a topic of strategic interest between scientists and policy makers. Everyone with an interest in the topic is welcome to attend the discussion.

EMB’s first Brown Bag Lunch session took place on Friday 28 September in Scotland Europa House in Brussels. EMB vice-chair Mark James (MASTS, UK) opened the discussion with an analysis of the “Food from the Oceans” Report of the Scientific Advice Mechanism (SAM). In his presentation, he highlighted the “Key drivers and challenges for the Food from the Oceans”. His talk was followed by an informal discussion. The BBL was attended by 22 persons from the European Commission, academia, NGOs and others.

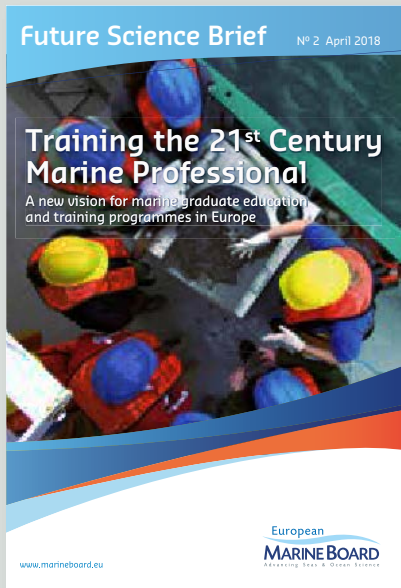
The European Marine Board will host other Brown Bag Lunch sessions in the future.

More information and the presentation by Mark James are available on the EMB website: <http://www.marineboard.eu/brown-bag-lunch-food-ocean>



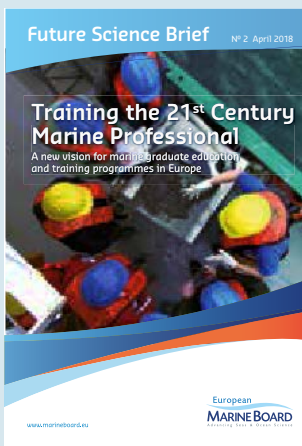
EMB PUBLICATIONS IN 2018

Download at:
www.marineboard.eu



Thematic science policy activities

MARINE GRADUATE TRAINING



Training the 21st century marine professional

In Europe, marine graduate programmes and career pathways sometimes lack the coordination and visibility that is crucial to inspire and recruit the next generation of marine and maritime professionals. In the context of Blue Growth and its need for people with the right skills able to establish a sustainable blue economy, the European Marine Board created a dedicated Working Group on Marine Graduate Training in 2014. The aim of the working group was to provide a strong vision for future marine science education and training, identifying ways in which to improve and broaden the skills and capabilities of the next generations of graduates.

In April 2018, a Future Science Brief titled “Training the 21st Century Marine Professional” was published. The document outlines high-level proposals towards improving the educational landscape of marine sciences in Europe and creating a coherent framework for the training of 21st century marine experts.

In September 2018, EMB and the SEARICA European Parliamentary Intergroup jointly organized a European Parliament event on “Young Talent and the Blue Economy - Towards a fit-for-purpose training for marine graduates”. The event was hosted by MEPs Gessine Meissner and Ricardo Serrão Santos and was attended by over 50 participants from a range of backgrounds. The programme included speakers from academia, industry, policy and most importantly, current students.



For more information see: <http://www.marineboard.eu/marine-graduate-training>



BIOLOGICAL OCEAN OBSERVING



Strengthening Europe's Biological Ocean Observing Capacity

In the summer 2018, the EMB Working Group members under the lead of Lisandro Benedetti-Cecchi (University of Pisa, Italy) and Tasman Crowe (University College Dublin, Ireland) finalised and published EMB Future Science Brief n°3: "Strengthening Europe's Capability in Biological Ocean Observations".

This publication calls for an increase in the relevance of current (and future) European biological ocean observation capacity to strengthen global efforts towards our understanding of the ocean and enhance marine biodiversity conservation, and for maintaining a healthy ocean for healthy societies. It assesses the gaps and priority actions to take for strengthening Europe's biological ocean observing capacity to achieve a multi-purpose integrated biological ocean observing capability. Such a system would underpin a move from science- to societal-driven observation needs that would eventually become a key component of the wider European Ocean

Observing System (EOOS).

The main conclusions of this Future Science Brief were advertised at the 4th GEO Blue Planet Symposium in July 2018 in Toulouse, France, at the 53rd European Marine Biology Symposium in September 2018 in Ostend, Belgium, and at the EOOS conference in November 2018.

For more information see: <http://marineboard.eu/strengthening-europes-capability-biological-ocean-observation>



Isabel Sousa Pinto (University of Porto, Portugal) and Kate Larkin (EMB Secretariat) present the poster of FSB3 on Biological Ocean Observations at the Geo Blue Planet Conference in Toulouse, July 2018



Lisandro Benedetti-Cecchi (University of Pisa, Italy) presents the main conclusions of the FSB3 on Biological Ocean Observations at the EOOS Conference in Brussels, November 2018

ECOSYSTEM MODELLING



Advanced Marine Ecosystem Modelling

In October 2018, the working group on Marine Ecosystem Modelling, chaired by Morten Skogen (IMR, Norway) and Sheila Heymans (EMB Executive Director), finalised EMB 's 4th Future Science Brief: *'Enhancing Europe's capability in marine ecosystem modelling for societal benefit'*.

This document assesses and recommends R&D needs for future Marine Ecosystem Modelling; how to improve the connection between scientific research and policy for marine ecosystem modelling; and to inform policy makers of the latest developments and potential applications, current limitations and emerging areas of marine ecosystem modelling. The publication includes recommendations from the more than 30 experts that attended the initial workshop held at the Advances in Marine Ecosystem Modelling Research (AMEMR) conference in July 2017 in Plymouth, UK.

This Future Science Brief was launched at the ICES Workshop on operational Ecopath with Ecosim models to inform Integrated Ecosystem Assessments (WKEWIEA), which took place from 26-30 November 2018 in Barcelona. The WKEWIEA working group aims to operationalize Ecopath with Ecosim models to inform Integrated Ecosystem Assessments from ICES, to explore the practicalities of integrating information from existing models and to explore how to incorporate model outputs as an integral part of ecosystem advice. The publication was well received by the participants as a useful way to increase the impact of their ecosystem models.

This Future Science Brief was also distributed to the participants of the Blue2 PartB workshop that took place on 6 December 2018 in Brussels. The workshop focussed on the overall results on future scenarios an assessment modelling of policies that affect the quality of the freshwater and marine environment.



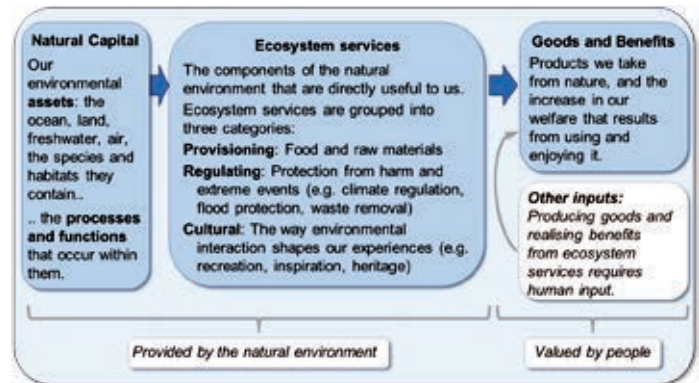
Participants of the WKEWIEA workshop from 26-30 November 2018 in Barcelona receiving their copy of the EMB FSB4 on Marine Ecosystem Modelling.

For more information see: <http://www.marineboard.eu/marine-ecosystem-modelling>

VALUING MARINE ECOSYSTEMS

The EMB Secretariat has been working with the members of the working group ‘Valuing Marine Ecosystems’ (VALMARE), under the leadership of Dr Melanie Austen (Plymouth Marine Laboratory, UK) to revamp the work in the field of the valuation of marine ecosystem services. The VALMARE working group will specifically target the development of methods and tools for the valuation of marine ecosystem services and their benefits to facilitate decision-making processes for sustainable environmental management.

Marine research has traditionally focused on physical, chemical and biological processes in the sea and its boundaries, whereas the socio-economic aspects related to marine research are often neglected. Understanding the mechanisms and ways by which humans utilize marine resources and space directly or indirectly is essential for an integrated assessment and management of the coasts, seas and ocean, and will require an innovative interdisciplinary research approach. It is also an intrinsic requirement for achieving a genuine ecosystem approach to the management of marine resources.



The outcome of the working group will be a Future Science Brief, to be published by April 2019.



The members of the EMB working group on Valuing Marine Ecosystems (WG VALMARE), 1 October 2013, Dublin. From left to right: Stephen Hynes, Melanie Austen, Harold Levrel, Claire Armstrong, Ralf Doring, Soile Kulmala, Peder Andersen, Adriana Resurreicao and Niall McDonough (former EMB Executive Director).

For more information see: <http://www.marineboard.eu/valuing-marine-ecosystems>

EUROPEAN RESEARCH VESSELS



Following the EMB position paper n° 10 on “*European Ocean Research Fleets – Towards a Common Strategy and Enhanced Use*” of March 2007, the European Marine Board and the European Research Vessel Operators (ERVO) agreed to work together on a new joint publication on the status of the European Research Vessels. As was stated by IOC/UNESCO in 2017, ocean science is ‘big science’, involving sophisticated and costly equipment, such as satellites, research vessels, and autonomous in-water systems from remotely operated vehicles (ROV’s) to gliders and fixed platforms such as moorings. Research vessels are a key research infrastructure offering vital access to our seas and global Ocean for conducting marine science and ocean observing.

A working group of 17 members was set up in January 2018, with Per Nieuwejaar (IMR) and Valérie Mazauric (Ifremer) serving as Chair and co-Chair respectively. The working group met in Bergen, Norway for a kick-off meeting on 14 and 15 May 2018, hosted by IMR. The group worked on gathering research and information throughout 2018, including running a survey for research vessel operators and another for research vessel stakeholder groups. The group had a second meeting on 1 October 2018 in Barcelona, Spain, organized by EMSO-ERIC and hosted by CSIC.

A position paper is expected to be published in Summer 2019.

For more information see: <http://www.marineboard.eu/european-research-vessels>



Participants at the WG ERV kick-off, 14 - 15 May. Back row, left to right: Lieven Naudts (RBINS), Michael Klages (University of Gothenburg), Jose Ignacio Diaz (IEO), Erica Koning (NIOZ), André Cattrijsse (VLIZ), Øystein Mikelborg (NPI), Stefan Florescu (GeoEcoMar), Olivier Lefort (Ifremer), Giuseppe Magnifico (CNR), Juanjo Danobeitia (EMSO-ERIC). Front row, left to right: Aodhan Fitzgerald (MI), Mafalda Carapuço (IPMA), Valérie Mazauric (Ifremer), Per Nieuwejaar (IMR), Colin Day (NOC), Sheila Heymans (EMB). Not in the picture: Franco Coren (OGS)
EMB secretariat support: Paula Kellett (not in picture)

OCEAN OBSERVING



European
Ocean
Observing
System

Since 2015, EMB and EuroGOOS have been working together to promote and facilitate the establishment of EOOS (www.eoos-ocean.eu). In 2018 both networks co-chaired the EOOS Steering Committee which co-led

the strategic planning of EOOS. Membership includes the European Commission (across three DGs), JPI Oceans and national experts in ocean observation.

In 2018, EMB actively contributed to the European Ocean Observing System (EOOS) framework, with the launch of a stakeholder consultation providing feedback on EOOS strategy and implementation; analysis of stakeholder feedback; and finalisation of the EOOS Strategy (led by EMB) and Implementation Plan 2018-2022 (led by EuroGOOS). EMB was also a co-organizer of two major stakeholder events: the EOOS Forum in March 2018 and the EOOS Conference in November 2018. In January 2018, EMB supported the establishment of an events Advisory Committee (AC) which engaged a wider range of ocean observation and monitoring communities in the dialogue on EOOS, including co-development of the EOOS Conference programme and Call to Action, published in November 2018.

Since September 2017, EMB receives some external funding for EOOS development as a partner organization in EMODnet Phase III. This included supporting the EMODnet Secretariat to develop the content and organizational planning of the EOOS Conference 2018; and ongoing communication of the EOOS Call to Action to the marine scientific and wider marine observing and monitoring communities.

The EMB Secretariat has also directly contributed to EOOS Implementation pilot activities, specifically in foresight activities with the publication of EMB's Future Science Brief 3 "Strengthening Europe's contribution to biological ocean observation" and as a lead author of a review of the policy context for ocean observing, building on EMB's contribution to the H2020 AtlantOS project. EMB continues to provide expertise and high quality foresight reviews e.g. in areas of marine ecosystem modelling (2018) and Research Vessels (summer 2019) to inform future ocean observing system design and assess gaps and requirements.

Furthermore, EMB was active in the communication of EOOS at international events, including an oral and poster presentation and panel discussion at the 4th GEO Blue Planet Symposium in Toulouse in July 2018. EMB was also the lead author of an EOOS abstract for OceanObs'19, which provided a European case study to a community white paper on ocean observing stakeholder engagement in a special issue of the journal *Frontiers in Marine Science*, to be published in 2019.



From left to right: Jan-bart Callewaert (EMODnet Secretariat), Kate Larkin (EMB Secretariat), Isabel Sousa Pinto (University of Porto), Glenn Nolan (EuroGOOS) and Vicente Fernández (EuroGOOS) present the EOOS poster at the 4th Geo Blue Planet Meeting in Toulouse, July 2018

EOOS FORUM

The EOOS Forum took place on 8 March, 2018 in Brussels. The Forum was co-organized by EuroGOOS and EMB, and focused on the sustainability of ocean observations, bringing together more than 80 participants from the ocean observing community, the meteorological community and research funders. The participants were able to help shape the way forward for EOOS, and their guidance and recommendations have shaped the EOOS strategy and the 5-year implementation plan which had been further developed after the stakeholder consultation in 2016-2017. At the Forum, EMB Executive Director Sheila Heymans led discussions and presented next steps for EOOS. Kate Larkin and Ángel Muñoz Piniella acted as rapporteurs for breakout session discussions and led the identification of key messages to take forward for the EOOS Strategy development.

Following the EOOS Forum, the EOOS Steering Committee launched an online public stakeholder consultation in April 2018, seeking feedback on the draft Strategy and Implementation Plan 2018-2022. This stakeholder feedback was used to further update the EOOS Strategy and Implementation Plan, ready for launch at the EOOS Conference on 21-23 November 2018.

Both documents are available on the EOOS website: <http://www.eoos-ocean.eu/strategy-and-implementation/>



Participants at the EOOS Forum, 8 March 2018 – Brussels

EOOS CONFERENCE



WWW.EOOS-OCEAN.EU

#EOOS

WWW.EOOSCONFERENCE2018.EU

#EOOSCONFERENCE18

On 21-23 November 2018, ocean observing and monitoring communities from across Europe and beyond gathered at the EOOS Conference in Brussels to showcase existing efforts in ocean observation, connect across communities and make progress towards stronger coordination and sustainability in Europe. The EOOS Conference, co-organized by EMODnet, EMB and EuroGOOS and funded by the European Commission (DG MARE), brought together more than 250 participants from diverse ocean observing stakeholder communities, from marine research and infrastructure communities to hydrographic offices, environmental monitoring and ocean industry sectors including aquaculture, fisheries, renewable energy. International experts from Canada, the U.S.A. and China also provided key inputs on regional efforts worldwide.

The Conference took a 360° look at ocean observing and monitoring in Europe, showcasing capability, gathering perspectives and connecting communities in a variety of plenary presentations and panel discussions, interactive breakout sessions, more than 50 posters with pitch presentations, exhibition stands and other networking opportunities. Sessions ranged from the economic and societal value of marine observing and monitoring to European ocean observing gaps and requirements, sharing efforts across stakeholders, regional ecosystem monitoring and future trends in a global context. The final day looked forward towards implementation including priorities, next steps and how to achieve sustainability, launching a strong call to action (see: <https://eoosconference2018.eu/call-action>).



EMB was actively involved during the conference, with presentations by EMB Executive Director Sheila Heymans on the EOOS coordination framework; by Gilles Lericolais (Ifremer, France) on the contribution by the European marine science community across the ocean observing value chain; and by Lissandro Benedetti-Cecchi (U. Pisa, CoNISMa) on biological ocean observations. Both Jane Delany, co-author of EMB Position Paper 23 on Citizen Science, and André Cattrijsse, co-author of the research vessels working group, led breakout sessions on integrated ocean observing platforms and presented posters on their work. George Petihakis, EMB Delegate (HCMR, Greece) and Chair of EuroGOOS, moderated

a Panel on 'Sustainability, planning of activities, future priorities and next steps'; and EMB Delegate Slawomir Sagan (IOPAN, Poland) provided perspectives from the marine scientific community to the closing round table.

All information on the EOOS Conference can be found at: <https://eoosconference2018.eu/>





All pictures of EOOS conference ©Dirk Leemans

European projects



Sea Change is an EU Horizon 2020-funded project (Blue Growth Call 2013-2014) on the topic of Ocean Literacy. The overarching goal of Sea Change was to raise European citizens' awareness of the intrinsic links between the ocean and human health, and to empower the general public, as Ocean Literate citizens, to take direct and sustainable action towards a healthy ocean and seas, healthy communities and ultimately a healthy planet.

Coordinated by Jon Parr from the Marine Biological Association (MBA), United Kingdom, the Sea Change project ran from March 2015 until February 2018.

The Sea Change partnership designed various Ocean Literacy related activities and materials, focused on education, community and governance actors, and directly targeted at citizens.

EMB participated in the final Sea Change conference which took place on 15 February 2018 at the IOC/UNESCO Headquarters in Paris, France. This 'Sea Change Celebration Event' promoted the achievements of the project over the past 3 years discussed the project's legacy. A Key Achievements booklet was presented, highlighting examples of the work conducted by partners under the 6 goals of Sea Change: Empower; Promote; Engage; Collaborate; Ensure and Create.

In addition to the celebration event, the project launched the #LovetheOcean campaign, reaching over one million people on Facebook, over 100,000 on Twitter and 14,322 people via LinkedIn. The #LovetheOcean campaign will continue as part of the Sea Change Legacy Strategy.

The EMB deliverables are available on the Sea Change project website at <http://www.seachangeproject.eu/>.



Ángel Muñoz Piniella (EMB Secretariat) at the final Sea Change Conference, 15 February 2018, Paris



AtlantOS (*Developing in-situ Atlantic Ocean Observations for a better management and sustainable exploitation of the maritime resources*) is a €20.65m project funded under the EU Horizon 2020 programme. Coordinated by GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany (Prof Dr Martin Visbeck), the project involves 62 partners from 18 countries (13 EU & 5 non-EU).

The overarching objective of AtlantOS is to achieve a sustainable, efficient, and fit-for-purpose Integrated Atlantic Ocean Observing System (IAOOS). The four year (2015-2019) project therefore defines requirements and systems design to improve the readiness of observing networks and data systems, and engages stakeholders around the Atlantic to leave a legacy and strengthened contribution to the Global Ocean Observing System (GOOS), the Global Earth Observation System of Systems (GEOSS), and the emerging European Ocean Observing System (EOOS). AtlantOS will fill existing in-situ observing system gaps and will ensure that data are readily accessible and useable.

In 2018, EMB served on the AtlantOS Steering Committee and on the AtlantOS Executive Board. EMB also completed its core Task 10.6 producing a strategic foresight paper on key marine and environmental policies shaping ocean observation and the development of ocean observing coordination in Europe (e.g. EOOS framework), in the context of future governance of ocean observing for the wider Atlantic Ocean. The paper has a European focus, presenting the latest developments of EOOS and proposed mechanisms and components for ocean coordination and governance in Europe and beyond. The report serves as a reference document for, and contribution to, the European Strategy on Atlantic Ocean Observing and international BluePrint for an integrated Atlantic Ocean Observing System.

Building on this Task, as a community-driven European contribution to the international BluePrint for Atlantic Ocean Observing, EMB, EuroGOOS, IOC and GEOMAR co-organised a workshop on 'Developing the European Strategy for Atlantic Ocean Observing' on 4-5 June 2018 in Brussels. From the inputs at this workshop, a writing team across the AtlantOS partnership and co-edited by EMB has produced a 'European Strategy for Atlantic Ocean Observing', to be published at the AtlantOS Final meeting in March 2019.

The year 2018 also marked the five-year anniversary of the signing of the Galway Declaration and events were held in Washington DC (USA), in June 2018, attended by EMB vice-Chair and AtlantOS WP10 leader Jan-Stefan Fritz. In addition, EMB actively promoted AtlantOS at the Bêlem All Atlantic Research Forum in July 2018 in Salvador, Brazil, at the EOOS Forum and Conference, and through input to the AtlantOS newsletters.



Participants at the AtlantOS Steering Committee and Executive Board meeting, 15 October 2018, Paris



Seas, Oceans & Public Health in Europe

In response to the Horizon 2020 framework call BG-06-2017: *Interaction between people, oceans and seas: a strategic approach towards healthcare and well-being*, the EMB Secretariat, together with

a consortium of 7 other partners from the UK, Ireland, The Netherlands, Spain and Belgium developed a Coordinated Support Action (CSA) proposal entitled “Seas, Oceans and Public Health in Europe (SOPHIE)”. SOPHIE is coordinated by Prof Lora Fleming, from the University of Exeter’s European Centre for Environmental and Human Health. The main aim of the project is to advance significantly the coordination of multidisciplinary research and training in Europe on Oceans and Human Health (OHH) to better manage the risks and opportunities presented by the complex interactions between the marine environment and human health and wellbeing. The project started in December 2017 with a kick-off meeting in April 2018 in Dublin, Ireland, and the project will run until May 2020.

EMB are the work package leaders for WP6: “Building a Future Policy-Relevant Oceans and Human Health Research Effort in Europe”. The main tasks include building a community of marine and health experts and practitioners, developing a strategic research agenda (SRA) for Oceans and Human Health research in Europe, and organizing a dedicated conference on OHH.

During 2018, the focus of EMB’s activities was on developing the SRA. To support this, a group of 20 experts from both marine and public health and medical backgrounds was established. This Expert Group participated in a 2-day workshop in Dublin, Ireland in April 2018 and discussions focussed on understanding the two communities being brought together as well as the content of the SRA. Following the workshop, the focus was on mapping the full range of topics falling under the wide OHH banner, to help identify needs, gaps and opportunities for the SRA to address. A second workshop will be held in January 2019, with the SRA to be published in March 2020.



As the SOPHIE project is also aiming to establish a community of practitioners in the field of OHH, EMB also set up a community platform via an open group on the LinkedIn platform.



EMB panels

UNIVERSITY CONSORTIUM PANEL

Due to the growing membership within EMB of Higher Education Institution (HEIs) consortia, the University Consortium Panel was created to explore areas of mutual interest with regards to both research and education in the broadest sense. Key objectives of the Panel include: establishing a forum for HEI consortia; identifying and sharing best practice with respect to the governance and operation of these consortia and opportunities for HEI consortia to collaborate across the EU or internationally; actively seeking to secure resources and funding to support graduate and PhD student training; promoting the consortia both nationally and internationally, and adding value to existing and future EMB activities.

In 2018, the UCP met several times online, and in person on 23 October in Trieste, Italy. The group discussed opportunities for funding of activities relevant to the UCP members such as joint degrees, student and researcher exchanges, and collaboration. They also continued to discuss and share best practice, and highlight relevant institutional- or national-level updates. The UCP members also provided input to the Marine Graduate Training Future Science Brief.

EUROPEAN MARINE BOARD COMMUNICATION PANEL

The European Marine Board Communications Panel (EMBCP) provides a pan-European platform for marine science communicators to promote European Marine Board activities, to synergize outreach activities and to advocate Ocean Literacy. Following the conclusions of the external Review Committee in 2016, the EMBCP became a permanent EMB panel and elected 6 members to form a Steering Group. The Steering Group has the mandate to strengthen the relations with EMB and aims to increase the commitment of EMBCP members. The EMBCP met on several occasions online and had physical meetings on 15-16 May 2018 in Matosinhos (Porto), hosted by CIIMAR, and on 6 December 2018 in Southampton, hosted by NOC.

One of the biggest achievements of the EMBCP in 2018 was the organisation of the 3rd International Marine Science Communication Conference (CommOCEAN 2018) on 4-5 December 2018. The conference, hosted by NOC in Southampton, UK, brought together 150 participants from 25 countries to discuss the latest issues facing the ocean and best practice with regards to communicating with the public, peers and governments about ocean science.





Communication and Outreach

The European Marine Board uses a variety of channels to reach its stakeholders, including disseminating publications at conferences, media campaigns for EMB events, and online outlets including a twitter feed, a Facebook page, a LinkedIn account, an online newsletter and the EMB website. The most popular

Twitter

In 2018, the European Marine Board twitter account gained 1,492 new followers, adding up to a total number of 4,396 followers. The twitter feed is used to announce and promote EMB activities, as well as to highlight updates from the marine science community.

The twitter feed was also successfully used to communicate with other networks and individual stakeholders. The feed allowed EMB to instantly update member organizations and stakeholders on the events the Secretariat were attending.

Twitter in 2018: 4,396 followers

EMB website

The EMB website is regularly updated with information on the expert working groups, the strategic areas, and the EU projects that EMB is involved in. All of EMB's publications are also available to download from the website free of charge.

In September 2018, the website was revamped with the help of the intern Christine Rundt. As the updated website uses another analysis system, the following numbers are only for the last four months of the year 2018. Since September 2018 the website was visited 12,000 times, with over 4,300 unique visitors from 115 countries. The top three documents downloaded were the most recent Future Science Briefs on 'Training the 21st Century Marine Professional', 'Strengthening Europe's Capability in Biological Ocean Observations' and 'Enhancing Europe's Capability in Marine Ecosystem Modelling for Societal Benefit' with almost 500 downloads combined.

EMB Newsletter

In October 2018, the Board decided to open up the EMB newsletter (Message to the Board) to a wider audience. By the end of 2018, 1,270 people were subscribed to receive updates on EMB events and publications.



Finances

The EMB annual budget is based on member organization contributions and external contracts, e.g. EU framework projects. The Flemish Government of Belgium provides an in-kind contribution to the Board through the provision of office space and running costs and equipment at the InnovOcean site in Ostend, as well as the employment cost of one Secretariat staff member. Member organizations also provide in-kind contribution through support for participation of national experts in EMB activities, i.e. travel and subsistence to attend meetings.

AVAILABLE FUNDS 2018

	EUR
Member Contributions	394,000
FP drawdown on employment costs Staff time related to the external projects	148,041
Other income	32,101
Total available funds	574,143

EXPENDITURE 2018

	EUR
Secretariat employment costs	317,535
Meetings & Travel	47,804
Publications & dissemination	26,098
Running expenses and other costs	18,738
Total	410,175

RESERVE FUND

	EUR
Available funds 2018	574,143
Expenditure 2018	410,175
Total 2018 balance	163,968
2017 carry over	84,236
Total	248,204

Annexes

ANNEX 1:

Marine Board member organizations, delegates and alternates

BELGIUM

Belgian Science Policy Office (BELSPO)
David Cox

Fonds National de la Recherche Scientifique (FNRS)
National Fund for Scientific Research
Jean-Marie Beckers

Fonds voor Wetenschappelijk Onderzoek -
Vlaanderen (FWO)
The Research Foundation - Flanders
Jan Mees (Chair)
Tina Mertens

CROATIA

Institut za oceanografiju i ribarstvo (IZOR)
Institute of Oceanography and Fisheries
Ivica Vilibic

Institut Ruđer Bošković (IRB)
Ruđer Bošković Institute
Robert Precali

DENMARK

Institut for Akvatiske Ressourcer (DTU Aqua)
National Institute for Aquatic Resources
Patrizio Mariani
Kirsten Thomsen

ESTONIA

Eesti Teaduste Akadeemia
Estonian Academy of Sciences
Tarmo Soomere

FRANCE

Centre National de la Recherche Scientifique
(CNRS)
National Centre for Scientific Research
Jean-Marie Flaud

Institut Français de Recherche pour l'Exploitation
de la Mer (IFREMER)
French Research Institute for Exploitation of the Sea
Gilles Lericolais (vice-Chair)

Universités Marines
Marine Universities of France
Yves-Marie Paulet
Jean-Alain Pocard
Dominique Simon

GERMANY

Konsortium Deutsche Meeresforschung (KDM)
German Marine Research Institute
Jan-Stefan Fritz (vice-Chair)
Ralph Schneider

Helmholtz-Zentrum für Ozeanforschung Kiel
(GEOMAR)
Helmholtz Centre for Ocean Research Kiel
Peter Herzig
Katja Matthes

GREECE

Ελληνικό Κέντρο Θαλάσσιων Ερευνών (HCMR)
Hellenic Centre for Marine Research
Vasilios Lykousis
George Petihakis

IRELAND

Marine Institute
Fiona Grant
Niall McDonough

Irish Marine Universities Consortium
Jeremy Gault
Anthony Grehan
Colin Brown

ITALY

Consiglio Nazionale delle Ricerche (CNR)
National Research Council
Fabio Trincardi
Katrin Schroeder

Istituto Nazionale di Oceanografia e di Geofisica
Sperimentale (OGS)
National Institute of Oceanography and Experimental
Geophysics
Alessandro Crise
Cosimo Solidoro

Consorzio Nazionale Interuniversitario per le
Scienze del Mare (CoNISMa)
National Inter-University Consortium for Marine
Sciences
Ferdinando Boero (vice-chair)
Lisandro Benedetti-Cecchi

THE NETHERLANDS

Nederlandse Organisatie voor
Wetenschappelijk Onderzoek (NWO)
Netherlands Organisation for Scientific Research
Josef F. Stuefer

Koninklijk Nederlands Instituut voor Onderzoek
der Zee
Royal Netherlands Institute for Sea Research (NIOZ)
Henk Brinkhuis
Gert-Jan Reichart

NORWAY

Havforskningsinstituttet
Institute of Marine Research (IMR)
Geir Huse
Karin Kroon Boxaspen

Norges forskningsrad
The Research Council of Norway (RCN)
Christina Abildgaard

Norsk Marint Universitetskonsortium
Norwegian Marine University Consortium
Beatriz Balino
Jarl Giske

POLAND

Instytut Oceanologii Polskiej Akademii Nauk
(IO-PAN)
Institute of Oceanology of the Polish Academy of
Sciences
Slawomir Sagan
Monika Kedra

PORTUGAL

Centro de Investigação Marinha e Ambiental
(CIMAR)
Centre of Marine and Environmental Research
Vitor Vasconcelos
Adelino Canario

Fundação para a Ciência e a Tecnologia (FCT)
Foundation for Science and Technology
Sofia Cordeiro
Raquel Ribeiro

ROMANIA

Romanian Black Sea Research Cluster
Vasile Patrascu
Elena Stoica

SPAIN

Instituto Espanol de Oceanografia (IEO)
Spanish Institute of Oceanography
Carlos Garcia Soto (vice-chair)

Centro Tecnológico del Mar (CETMAR)
Rosa Fernández

SWEDEN

Göteborgs universitet
University of Gothenburg (UGOT)
Per Hall
Katarina Abrahamson

TURKEY

Türkiye Bilimsel ve Teknik Arastirma Kurumu
TÜBİTAK
Scientific and Technological Research Council of
Turkey
Leyla Tolun

UNITED KINGDOM

Marine Alliance for Science and Technology
Scotland (MASTS)
Mark James (vice Chair)
David Paterson

National Oceanography Centre (NOC)
Edward Hill
Alan Evans

Natural Environment Research Council (NERC)
Mike Webb

ANNEX 2: Participants of EMB plenary meetings 2018

Spring 2018 Plenary Meeting, 18-19 April 2018, Lisbon, Portugal

EMB DELEGATES

Representative	Member Organization
JAN MEES – CHAIR	Research Foundation Flanders (FWO)
ALAN EVANS	National Oceanography Centre (NOC)
ALESSANDRO CRISE	National Institute of Oceanography and Applied Geophysics (OGS)
BEATRIZ BALINO	Norwegian Marine University Consortium (NMUC)
CARLOS GARCIA SOTO	Instituto Español de Oceanografía (IEO)
DAVID COX	Belgian Science Policy Office (BELSPO)
DOMINIQUE SIMON	Universités Marines (UM)
ELENA STOICA	Romanian Black Sea Research Cluster (RBSR)
FERDINANDO BOERO	National Inter-University Consortium for Marine Sciences (CoNISMa)
FIONA GRANT	Marine Institute (MI)
GEORGE PETIHAKIS	Hellenic Centre for Marine Research (HCMR)
GERT-JAN REICHART	Royal Netherlands Institute for Sea Research (NIOZ)
GILLES LERICOLAIS	Institut Français de Recherche Pour L'exploitation de la Mer (Ifremer)
ISABEL SOUSA PINTO	Centre for Marine and Environmental Research (CIIMAR)
IVICA VILIBI	Institute of Oceanography and Fisheries (IZOR)
JAN-STEFAN FRITZ	Konsortium Deutsche Meeresforschung (KDM)
JARL GISKE	Norwegian Marine University Consortium (NMUC)
JEAN-MARIE FLAUD	National Center for Scientific Research (CNRS)
JEREMY GAULT	Irish Marine University Consortium (IMUC)
KATRIN SCHROEDER	National Research Council Italy (CNR)
LISANDRO BENEDETTI-CECCHI	National Inter-University Consortium for Marine Sciences (CoNISMa)
MARK JAMES	Marine Alliance for Science & Technology for Scotland (MASTS)
MONIKA KĘDRA	Institute of Oceanology Polish Academy of Sciences (IO-PAN)
PATRIZIO MARIANI	Technical University of Denmark (DTU Aqua)
RAQUEL RIBEIRO	Science and Technology Foundation (FCT)
ROBERT PRECALI	Ruder Boskovic Institute (IRB)
SLAWOMIR SAGAN	Institute of Oceanology Polish Academy of Sciences (IO-PAN)
SOFIA CORDEIRO	Science and Technology Foundation (FCT)
YVES-MARIE PAULET	Universités Marines (UM)

OBSERVERS, SPEAKERS AND GUESTS

Representative	Organization
SEBASTIAN VILLASANTE	University of Santiago de Compostella
JASPER KENTER	The Scottish Association for Marine Science (Sams)
CRISTINA PITA	University of Aveiro - Centre for Environmental and Marine Studies (CESAM)
JAKUB WEJCHERT	Biodiversity Unit, DG Environment
TELMO MORATO	Imar Azores & Marine and Environmental Research Centre (MARE)
FIONA BECKMAN	Pogo
JACKY WOOD	JPI Oceans
NED DWYER	EurOcean
ROSA FERNANDEZ	Technological Centre for the Sea (CETMAR)

EMB SECRETARIAT

Name
SHEILA HEYMANS
KATE LARKIN
PAULA KELLETT
ÁNGEL MUÑIZ PINIELLA
JOKE COOPMAN

Autumn 2018 Plenary Meeting, 24-25 October 2018, Trieste, Italy

EMB DELEGATES

Representative	Member Organization
JAN MEES – CHAIR	Research Foundation Flanders (FWO)
ALAN EVANS	National Oceanography Centre (Noc-Nerc)
ALESSANDRO CRISE	National Institute of Oceanography and Applied Geophysics (OGS)
ELENA STOICA	Romanian Black Sea Research Cluster (RBSR)
Ferdinando BOERO	National Inter-University Consortium for Marine Sciences (CoNISMa)
FIONA GRANT	Marine Institute (MI)
GERT-JAN REICHART	Royal Netherlands Institute for Sea Research (NIOZ)
GILLES LERICOLAIS	Institut Français de Recherche Pour L'exploitation de la Mer (Ifremer)
JEREMY GAULT	Irish Marine University Consortium (IMUC)
KATRIN SCHROEDER	National Research Council Italy (CNR)
LENA GIPPERTH	University of Gothenburg (UGOT)
LISANDRO BENEDETTI-CECCHI	National Inter-University Consortium for Marine Sciences (CoNISMa)
MARK JAMES	Marine Alliance for Science & Technology for Scotland (MASTS)
PATRIZIO MARIANI	Technical University of Denmark (DTU Aqua)
PETER HERZIG	Helmholtz Centre for Ocean Research Kiel (GEOMAR)
RALF SCHNEIDER	German Marine Research Consortium (KDM)
ROBERT PRECALI	Ruder Boskovic Institute (IRB)
ROSA FERNANDEZ	Technological Centre for the Sea (CETMAR)
TARMO SOOMERE	Estonian Academy of Sciences (ETA)
VASILE PATRASCU	Romanian Black Sea Research Cluster (RBSR)
YVES-MARIE PAULET	Universités Marines (UM)

OBSERVERS, SPEAKERS AND GUESTS

Representative	Member Organization
MARIA CRISTINA PEDICCHIO	OGS
SILVIA CERAMICOLA	OGS
FRANCESCO CHIOCCI	OGS
NABIL SULTAN	Ifremer
ANGELO CAMERLENGHI	OGS
SIMONE LIBRALATO	OGS
THORKILD AARUP	IOC-UNESCO

EMB SECRETARIAT

Name
SHEILA HEYMANS
KATE LARKIN
PAULA KELLETT
ÁNGEL MUÑIZ PINIELLA
JOKE COOPMAN

ANNEX 3: WORKING GROUP MEMBERS 2018

Working Group Marine Graduate Training

Working Group Members:

- Magda Vincx, Marine Biology Section, University Ghent, Belgium - WG Chair
- Øyvind Fiksen, University of Bergen, Norway
- Guillaume Rouillet, Université de Bretagne Occidentale - IUEM, France
- Avan Antia, University of Kiel, Germany
- Marja Koski, Technical University of Denmark, Denmark
- Pauhla McGrane, Galway-Mayo Institute of Technology, Ireland
- Bev Mackenzie, Institute of Marine Engineering, Science & Technology, UK
- Luís Menezes Pinheiro, University of Aveiro, Portugal
- Maurizio Ribera d'Alcalà, Stazione Zoologica Anton Dohrn, Italy
- Jeanine Olsen, University of Groningen, Netherlands
- Tim Deprez, Marine Biology Section, University Ghent, Belgium

EMB Secretariat Support:

Kate Larkin, Paula Kellett

Working Group Ecosystem Modelling

Working Group Members:

- Morten Skogen, Institute of Marine Research (IMR), Norway
- Sheila Heymans, EMB Executive Director, formerly Scottish Association for Marine Science (SAMS), UK
- Corinna Schrum, Helmholtz Association (HZG), Germany
- Cosimo Solidoro, National Institute of Oceanography and Experimental Geophysics (OGS), Italy

EMB Secretariat Support:

Kate Larkin

Working Group Biological Ocean Observing Capacity

Working Group Members:

- Lisandro Benedetti-Cecchi, University of Pisa, Italy – WG Chair
- Tasman Crowe, University College Dublin, Ireland – WG Co-Chair
- Jacco Kromkamp, (NIOZ), The Netherlands
- Ferdinando Boero, University of Salento, CNR, CoNISMa, Italy
- Antoine Grémare, University of Bordeaux, France
- Asbjørn Christensen, (DTU Aqua), Denmark
- Isabel Sousa Pinto (CIIMAR), Portugal
- Adriana Zingone, Stazione Zoologica Anton Dohrn, Italy
- Francisco Hernandez (VLIZ), Belgium
- Lars Boehme, University of St Andrews, UK
- George Petihakis (HCMR), Greece
- Enrique Nogueira García (IEO), Spain

EMB Secretariat Support:

Ángel Muñoz Piniella

Working Group Valuing Marine Ecosystem Services

Working Group Members:

- Melanie Austen, Plymouth Marine Laboratory, UK – WG Chair
- Peder Andersen, University of Copenhagen, Denmark
- Claire Armstrong, University of Tromsø, Norway
- Ralf Döring, TI-Institute of Sea Fisheries, Germany
- Stephen Hynes, National University of Ireland, Galway, Ireland
- Harold Levrel, French Research Institute for Exploitation of the Sea (Ifremer), France
- Adriana Resurreição, MARE – Marine and Environmental Sciences Centre, Portugal
- Soile Oinonen, Finish Environment Institute (SYKE), Finland

EMB Secretariat Support:

Joke Coopman

Working Group European Research Vessels

Working Group Members:

- Per Nieuwejaar, Institute of Marine Research (IMR), Norway - WG Chair
- Valérie Mazauric, Ifremer, France - WG co-Chair
- Christian Betzler, University of Hamburg, Germany
- Mafalda Carapuço, Instituto Português do Mar e da Atmosfera (IMPA), Portugal
- André Cattrijsse, Flanders Marine Institute (VLIZ), Belgium
- Franco Coren, Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS), Italy
- Juanjo Danobeitia, European Multidisciplinary Seafloor and Water-Column Observatory (EMSO), Italy
- Colin Day, National Oceanographic Centre (NOC), UK
- Aodhan Fitzgerald, Marine Institute, Ireland
- Stefan Florescu, GeoEcoMar, Romania
- Jose Ignacio Diaz, Spanish Institute of Oceanography (IEO), Spain
- Michael Klages, University of Gothenburg, Sweden
- Erica Koning, Netherlands Institute for the Sea (NIOZ-NMF), Netherlands
- Olivier Lefort, Ifremer, France
- Giuseppe Magnifico, Italian National Research Council (CNR), Italy
- Øystein Mikelborg, Norwegian Polar Institute, Norway
- Lieven Naudts, Royal Belgian Institute of Natural Sciences (RBINS - OD Nature), Belgium

EMB Secretariat Support:

Paula Kellett

ANNEX 4: Panel members 2018

European Marine Board Communications Panel (EMBCP)

Panel Members:

- Lucy Calvert, National Oceanography Centre (NOC), United Kingdom – Panel Chair
- Ferdinando Boero, National Inter-University Consortium for Marine Sciences (CoNISMa), Italy
- Anne Ditlefsen, Research Council of Norway, Norway
- Daria Ezgeta Balic - Institute of Oceanography and Fisheries (IZOR), Croatia
- Marco Faimali, National Research Council, Institute of Marine Sciences (ISMAR, CNR), Italy
- Carmen García Martínez - Spanish Institute of Oceanography (IEO), Spain
- Muriel Keromnes, French Research Institute for Exploitation of the Sea (Ifremer), France
- Kelle Moreau, Royal Belgian Institute of Natural Sciences (RBINS), Belgium
- Kjartan Mæstad, Institute of Marine Research (IMR), Norway
- Máirín O'Reilly, Marine Institute, Ireland
- Martha Papathanassiou, Hellenic Centre for Marine Research (HCMR), Greece
- Francesca Petrera, National Institute of Oceanography and Experimental Geophysics (OGS), Italy
- Joanna Piwowarczyk & Tymon Zielinski, Institute of Oceanology of the Polish Academy of Sciences (IO-PAN), Poland
- Line Reeh, National Institute of Aquatic Resources (DTU Aqua), Denmark
- José Teixeira, Centre of Marine and Environmental Research (CIIMAR), Portugal
- Kim Sauter, Royal Netherlands Institute for Sea Research (NIOZ), The Netherlands
- Jan Seys, Flanders Marine Institute (VLIZ), Belgium
- Dominique Simon, Réseau des Universités Marines Françaises (Marine Universities of France), France
- Andreas Villwock, German Marine Research Consortium (KDM), Germany

EMB Secretariat Support:

Ángel Muñoz Piniella

University Consortiums Panel

Panel Members:

- Mark James, Marine Alliance for Science and Technology for Scotland (MASTS), United Kingdom - Panel Chair
- Yves-Marie Paulet, Universités Marines, France
- Dominique Simon, Universités Marines, France
- Lisandro Benedetti-Cecchi, CoNISMa, Italy
- Jeremy Gault, Irish Marine Universities Consortium, Ireland
- Anthony Grehan, Irish Marine Universities Consortium, Ireland
- Beatriz Balino, Norwegian Marine Universities Consortium (NMUC), Norway

EMB Secretariat Support:

Paula Kellett

ANNEX 5: Meetings and events organized in 2018 (including jointly)

Date	Event and Venue
6 Feb 2018	EMB ExCom meeting, Brussels
8 Feb 2018	Introduction meeting of new EMB Executive Director with DG MARE, Brussels
8 Feb 2018	EOOS Advisory Committee Kick-Off meeting, Brussels
20 Feb 2018	Introduction meeting of new EMB Executive Director with DG RTD, Brussels
21 Feb 2018	EOOS Webinar
8 March 2018	EOOS Forum, Brussels
9 March 2018	EOOS Advisory Committee and Steering Group, Brussels
6 April 2018	EOOS Conference Work Plan management meeting, Ostend
17 April 2018	EMB ExCom meeting, Lisbon
18-19 April 2018	EMB Spring Plenary meeting, Lisbon
22-23 April 2018	SOPHIE project kick-off meeting, Dublin
24-25 April 2018	SOPHIE project expert group meeting, Dublin
15-16 May 2018	WG European Research Vessels kick-off meeting, Bergen
16 May 2018	Meeting with the Norwegian Marine Universities Consortium, Bergen
19 June 2018	Meeting with DG RTD on the EuroOCEAN 2019 Conference, Brussels
10 July 2018	Meeting of the EMB Directors with Commissioner Vella, Brussels
18 Sept 2018	EOOS 7 th Steering Group and 3 rd Advisory Committee meetings, Brussels
25 Sept 2018	European Parliament event: Young Talent and the Blue Economy, Brussels
28 Sept 2018	EMB Brown Bag Lunch on "Food from the ocean", Brussels
1-2 Oct 2018	EMB 2 nd WG meeting on European Research Vessels, Barcelona
23 Oct 2018	EMB ExCom meeting, Trieste
24-25 Oct 2018	EMB Autumn Plenary meeting, Trieste
21-23 Nov 2018	EOOS Conference, Brussels
6 Dec 2018	EMB Communication Panel meeting, Southampton

ANNEX 6:

Presentations to meetings by EMB Secretariat and ExCom members in 2018

Date	Event and Venue	Speaker(s)
24 January 2018	COLUMBUS Annual Conference: Making Marine and Maritime Science count, Brussels	Sheila Heymans
8 February 2018	EOOS Advisory Committee Kick-Off meeting, Brussels	Sheila Heymans, Kate Larkin
15 February 2018	Sea Change Final Conference, Paris	Ángel Muñoz Piniella
22 February 2018	COLUMBUS Final Event: Accelerating Blue Growth through Marine and Maritime Knowledge Transfer, Brussels	Sheila Heymans
6 March 2018	JPI Oceans Visit - InnovOcean Site Ostend	Sheila Heymans
8 March 2018	EOOS Forum, Brussels	Sheila Heymans, Kate Larkin
9 March 2018	EOOS Steering Group & Advisory Committee, Brussels	Sheila Heymans, Kate Larkin
20 March 2018	European Parliament event: Europe, the Ocean and Feeding the World, Brussels	Sheila Heymans
21 March 2018	VLIZ Marine Science Day, Ostend	Ángel Muñoz Piniella
4 April 2018	Visit from EFARO to EMB, Ostend	Jan Mees, Sheila Heymans
9 April 2018	EP event: High-level Roundtable Discussion on Mission: Plastic Free Ocean, Brussels	Kate Larkin
13 April 2018	AtlantOS project review, Brussels	Kate Larkin
22-23 April 2018	SOPHIE project kick-off meeting, Dublin	Sheila Heymans, Paula Kellett
23-25 April 2018	SOPHIE project expert group meeting, Dublin	Sheila Heymans, Paula Kellett
26 April 2018	MERP meeting, London	Sheila Heymans
26 April 2018	EuroMarine Workshop: Ocean Frontiers for Sustainable Development, Brussels	Kate Larkin
3 May 2018	Meeting with MEP Ricardo S. Santos and the Monaco Blue Initiative, Brussels	Sheila Heymans
15-16 May 2018	EMB WG European Research Vessels Kick-Off Meeting, Bergen	Sheila Heymans, Paula Kellett
16 May 2018	Meeting with the Norwegian Universities Research Consortium, Bergen	Sheila Heymans, Paula Kellett
4-5 June 2018	AtlantOS EU Vision Workshop, Brussels	Kate Larkin
19 June 2018	EurOCEAN 2019 Conference planning meeting with DG RTD, Brussels	Sheila Heymans, Ángel Muñoz Piniella
26 June 2018	VLIZ Research Seminar on Marine Ecosystem Modelling, Ostend	Sheila Heymans

Date	Event and Venue	Speaker(s)
4-6 July 2018	4 th GEO Blue Planet Symposium, Toulouse	Kate Larkin
10 July 2018	EU Directors meeting with Commissioner Vella, Brussels	Sheila Heymans, Kate Larkin + ExCom
23-25 July 2018	Belem implementation meeting: A new era of Blue Enlightenment, Brazil	Sheila Heymans
10-11 Sept 2018	High Level Scientific Conference "From COP21 towards the United Nations Decade of Ocean Science for Sustainable Development (2021-2030)", Paris	Sheila Heymans
17-21 Sept 2018	53 rd European Marine Biology Symposium, Ostend	Kate Larkin
18 Sept 2018	Ghent University Blue Growth Summer School 2018, Ostend	Paula Kellett
18 Sept 2018	EOOS 7 th Steering Group and 3 rd Advisory Committee meetings, Brussels	Sheila Heymans, Kate Larkin
25 Sept 2018	European Parliament Event: Young Talent and the Blue Economy, Brussels	Sheila Heymans, Paula Kellett
28 Sept 2018	EMB Brown Bag Lunch on Food from the Ocean, Brussels	Sheila Heymans
1-2 Oct 2018	EMB 2 nd WG meeting on European Research Vessels, Barcelona	Paula Kellett, Claudia Viegas
12 Oct 2018	InnovOcean Seminar, Ostend	Claudia Viegas
15 Oct 2018	AtlantOS Steering Group and EU Strategy meeting, Paris	Kate Larkin
15-16 Nov 2018	Business2Sea Forum, Porto	Sheila Heymans
21-23 Nov 2018	EOOS Forum, Brussels	Sheila Heymans, Kate Larkin
26-30 Nov 2018	ICES WKEIEA workshop, Barcelona	Sheila Heymans
28-29 Nov 2018	UN Conference: Transforming for Sustainability, Copenhagen	Paula Kellett
4-5 Dec 2018	CommOcean Conference, Southampton	Ángel Muñoz Piniella
9 December 2018	Ocean Obs Research Coordination Network meeting, Washington DC	Ferdinando Boero

ANNEX 7: Member contributions 2018

Marine Board Member	Country	Contribution 2018 / €
Research Foundation Flanders, FWO	Belgium	€ 12.000
National Fund for Scientific Research, FNRS	Belgium	€ 12.000
Belgian Science Policy Office, BELSPO	Belgium	€ 12.000
Institute of Oceanography and Fisheries, IZOR	Croatia	€ 3.000
Institute Ruđer Bošković, IRB	Croatia	€ 3.000
National Institute for Aquatic Resources, DTU Aqua	Denmark	€ 12.000
Estonian Academy of Sciences, ETA	Estonia	€ 8.000
Universités Marines, UM	France	€ 17.000
French Research Institute for Exploitation of the Sea, IFREMER	France	€ 17.000
National Centre for Scientific Research, CNRS	France	€ 17.000
German Marine Research Consortium, KDM	Germany	€ 17.000
Hellenic Centre for Marine Research, HCMR	Greece	€ 8.000
Marine Institute, MI	Ireland	€ 12.000
Irish Marine Universities Consortium, IMUC	Ireland	€ 12.000
National Institute of Oceanography and Experimental Geophysics, OGS	Italy	€ 17.000
National Research Council, CNR	Italy	€ 17.000
National Inter-University Consortium for Marine Sciences, CoNISMa	Italy	€ 17.000
Netherlands Organisation for Scientific Research, NWO ¹	Netherlands	€ 18.000
Royal Netherlands Institute for Sea Research, NIOZ	Netherlands	€ 12.000
Norwegian Marine University Consortium, NMU	Norway	€ 12.000
Research Council of Norway, RCN	Norway	€ 12.000
Institute of Marine Research, IMR ²	Norway	€ 12.000
Institute of Oceanology - Polish Academy of Sciences, IO-PAN	Poland	€ 8.000
Science and Technology Foundation, FCT	Portugal	€ 8.000
Centre of Marine and Environmental Research, CIIMAR	Portugal	€ 8.000
Romanian Black Sea Research Cluster, RBSR	Romania	€ 8.000
Spanish Institute of Oceanography, IEO	Spain	€ 12.000
University of Gothenburg, UGOT	Sweden	€ 6.000
Scientific and Technological Research Council of Turkey, TÜBITAK	Turkey	€ 8.000
Natural Environment Research Council, NERC	UK	€ 17.000
National Oceanography Centre, NOC ³	UK	€ 17.000
Marine Alliance of Science and Technology Scotland, MASTS	UK	€ 17.000
Total	33	394.000

¹ NWO withdrew its membership in 2018 and paid 50% of the 2019 membership contribution.

² Paid by Research Council of Norway

³ Paid by NERC

ANNEX 8:

Full list of EMB publications

PUBLICATIONS IN 2018:

- Heymans, J.J., Skogen, M., Schrum, C., Solidoro, C. (2018) **Enhancing Europe's capability in marine ecosystem modelling for societal benefit.** Larkin, K.E., Coopman, J., Muñiz Piniella, A., Kellett, P., Simon, C., Rundt, C., Viegas, C., Heymans, J.J. [Eds.] Future Science Brief 4 of the European Marine Board, Ostend, Belgium. 32 pp. ISBN: 9789492043580 ISSN: 2593-5232
- Benedetti-Cecchi, L., Crowe, T., Boehme, L., Boero, F., Christensen, A., Grémare, A., Hernandez, F., Kromkamp, J. C., Nogueira García, E., Petihakis, G., Robidart, J., Sousa Pinto, I. & Zingone, A. (2018) **Strengthening Europe's Capability in Biological Ocean Observations.** Muñiz Piniella, Á., Kellett, P., Larkin, K., Heymans, J. J. [Eds.] Future Science Brief 3 of the European Marine Board, Ostend, Belgium. 76 pp. ISBN: 9789492043559 ISSN: 2593-5
- Vincx, M., Antia, A., Deprez, T., Fiksen, Ø., Koski, M., Mackenzie, B., McGrane, P., O'Carroll, C., Olsen, J., Menezes Pinheiro, L., Ribera d'Alcalà, M., Rouillet, G. (2018) **Training the 21st Century Marine Professional: A new vision for marine graduate education and training programmes in Europe.** Kellett, P., Larkin, K., Heymans, J. J., McDonough, N., Wouters, N., Chu, N-C. [Eds.] Future Science Brief 2 of the European Marine Board, Ostend, Belgium. 47pp. ISBN: 9879492043511. ISSN: 2593-523
- Heymans, J., Coopman, J., Kellett, P., Muñiz Piniella, A., Larkin, K. **European Marine Board Annual Report 2017.** European Marine Board, Ostend, Belgium. 2017. ISSN 2565-7402. 60pp
- Kellett, P., Heymans, J.J., Larkin, K., Coopman, J., Muñiz Piniella, Á. (Eds) (2018). **6th European Marine Board Forum: Implementing The Un 2030 Agenda: What role for marine science?** (6 December 2017, Brussels). Forum Proceedings. European Marine Board, Ostend, Belgium
Forum rapporteurs: Gilles Lericolais, Jan-Stefan Fritz, Mark James

POSITION PAPERS:

- Garcia Soto, C., *et al.* (2017) **Advancing Citizen Science for Coastal and Ocean Research.** French, V., Kellett, P., Delany, J., McDonough, N. [Eds.] Position Paper 23 of the European Marine Board, Ostend, Belgium. 112pp. ISBN: 978-94-92043-30-6
Contribution Autors: Gro Van Der Meeren, Julia A. Busch, Jane Delany, Christine Domegan, Karin Dubsky, Géraldine Fauville, Gabriel Gorsky, Karen von Juterzenka, Francesca Malfatti, Gérald Mannaerts, Patricia McHugh, Pascal Monestiez, Jan Seys, Jan Marcin Węślawski, Oliver Zielinski
- Rogers A.D. *et al.* (2015) **Delving Deeper: Critical challenges for 21st century deep-sea research.** European Marine Board Position Paper 22. Larkin, KE, Donaldson K, McDonough, N (Eds). European Marine Board, Ostend, Belgium, 2014.
Coordinating author: Alex D. Rogers; Contributing authors: Andy Brierley, Peter Croot, Marina Cunha, Roberto Danovaro, Colin Devey, Alf Haakon Hoel, Henry Ruhl, Pierre-Marie Sarradin, Seline Trevisnaut, Helena Viera, Martin Visbeck
- Flemming N.C. *et al.* (2014) **Land beneath the waves: State of the art, key opportunities and recommendations to advance the European Continental Shelf Prehistoric Research.** European Marine Board Position Paper 21. McDonough N, Chu, NC (Eds). European Marine Board, Ostend, Belgium, 2014.
Coordinating author: Nicholas C. Flemming; Contributing authors: M. Namık Ça atay, Francesco Latino Chiocci, Nena Galanidou, Gilles Lericolais, Hauke Jöns, Tine Missiaen, Fionnbarr Moore, Alar Rosentau, Dimitris Sakellariou, Birgitte Skar, Alan Stevenson, and Henk Weerts. Special Contributions: Geoff Bailey and Deukalion Planning Group (Annex 2), Anders Fischer, Sunhild Kleingärtner and Ian Oxley
- European Marine Board (2013). **Navigating the Future IV.** Position Paper 20 of the European Marine Board, Ostend, Belgium. ISBN: 9789082093100

- Moore M., *et al.* (2013). **Linking Oceans and Human Health: A Strategic Research Priority for Europe**. Position Paper 19. McDonough N., Evrard M., Calewaert J.B., French V. (Eds). European Marine Board, Ostend, Belgium. 2013. Contributing authors: Michael N. Moore, Craig Baker-Austin, Michael H. Depledge, Iora Fleming, Philipp Hess, David Lees, Paul Leonard, Lise Madsen, Richard Owen, Hans Pirlet, Mathew White, Vitor Vasconcelos, Nicholas Boase, Nicholas Osborne, Aldo Viarengo
- Olsen E. M., *et al.* (2013). **Achieving Ecologically Coherent MPA Networks in Europe: Science Needs and Priorities**. Marine Board Position Paper 18. Larkin, K. E. and McDonough N. (Eds.). European Marine Board, Ostend, Belgium. ISBN 978-9-079528-19-6. 84pp. Contributing authors: Luciano Fonseca, Raquel Goñi, David Johnson, Stelios Katsanevakis, Enrique Macpherson, Esben Moland Olsen, Dominique Pelletier, Marijn Rabaut, Marta Chantal Ribeiro, Phil Weaver, Tania Zaharia
- Haugan, P. (2013). **Getting ready for an ice-free Arctic**. McDonough, N. & Larkin, K. E. (Eds.) Marine Board Science Commentary 1, European Marine Board, Ostend, Belgium.
- Heip, C., & McDonough, N. (2012). **Marine Biodiversity: A Science Roadmap for Europe**. Marine Board Future Science Brief 1, European Marine Board, Ostend, Belgium. ISBN: 978-2-918428-75-6.
- Glöckner, F. O. *et al.* (2012). **Marine Microbial Diversity and its role in Ecosystem Functioning and Environmental Change. Marine Board Position Paper 17**. McDonough N., Calewaert J-B. (Eds.). Marine Board-ESF, Ostend, Belgium. Contributing authors: Lucas J. Stal, Ruth-Anne Sandaa, Josep Maria Gasol, Fergal O’Gara, Francisco Hernandez, Matthias M. Labrenz, Elena Stoica, Marta Varela Rozados, Adriano Bordalo, Paraskevi Pitta.
- Roose, P. *et al.* (2011). **Monitoring chemical pollution in Europe’s Seas - programmes, practices and priorities for research**. McDonough N., Calewaert J-B. (Eds.). Marine Board-ESF, Ostend, Belgium. Contributing authors: Joan Albaigés, Maria João Bebianno, Kees Camphuysen, Margot Cronin, Jan de Leeuw, Geir Wing Gabrielsen, Thomas Hutchinson, Ketil Hylland, Colin Janssen, Bo Jansson, Bjørn Munro Jenssen, Patrick Roose, Detlef Schulz-Bull, Piotr Szefer.
- Querellou J. *et al.* (2010). **Marine Biotechnology: A Vision and New Strategy for Europe. Marine Board Position Paper 15**. McDonough N., Calewaert J-B. (Eds.). Marine Board-ESF, Ostend, Belgium. ISBN 978-2-918428-26-8, 94pp. Contributing authors: Torger Borresen, Catherine Boyen, Alan Dobson, Manfred Hofle, Adrianna Ianora, Marcel Jaspars, Anake Kijjoo, Jan Olafsen, Joel Querellou, George Rigos, Rene Wijffels. Special contributions: Chantal Compere, Michel Magot, Jeanine Olsen, Philippe Potin, Filip Volckaert.
- Rice J. *et al.* (2010). **Science Dimensions of an Ecosystem Approach to Management of Biotic Ocean Resources, SEAMBOR. Marine Board Position Paper 14**. McDonough N., Carbonnière A. (Eds). Marine Board-ESF, Ostend, Belgium. ISBN 978-2-918428-10-7, 90pp. Contributing authors: Maria de Fátima Borges, Anthony Grehan, Andrew Kenny, Harald Loeng, Francesc Maynou, Jake Rice, Ricardo Serrão Santos, Hein Rune, Skjoldal, Olivier Thébaud, Vassiliki Vassilopoulou, Filip Volckaert. External contributions: Olivier Curtil, Harold Level.
- Boyd I. *et al.* (2008). **The Effects of Anthropogenic Sounds on Marine Mammals. Marine Board Position Paper 13**. Connolly N., Calewaert J-B. (Eds). Marine Board-ESF, Ostend, Belgium. ISBN 2-912049-85-7, 94pp. Coordinating authors: Ian Boyd, Bob Brownell, Doug Cato, Chris Clark, Dan Costa, Peter Evans, Jason Gedamke, Roger Gentry, Bob Gisiner, Jonathan Gordon, Paul Jepson, Patrick Miller, Luke Rendell, Mark Tasker, Peter Tyack, Erin Vos, Hal Whitehead, Doug Wartzok, Walter Zimmer.
- Robinson I.S. *et al.* (2008). **Remote Sensing of Shelf Sea Ecosystems. Marine Board Position Paper 12**. Connolly N., Walter N., Calewaert J-B. (Eds). Marine Board-ESF, Strasbourg, France. ISBN 2-912049-77-6, 62pp. Contributing authors: David Antoine, Mirosław Darecki, Patrick Gorryng, Lasse Pettersson, Ian S. Robinson, Kevin Ruddick, Rosalia Santoleri, Herbert Siegel, Patrick Vincent, Marcel R. Wernand, Guy Westbrook, Giuseppe Zibordi.
- Connolly N. *et al.* (Eds) (2007). **Marine Board Responses to the European Commission’s Green Papers: (i) Towards a future Maritime Policy for the Union: A European vision for the oceans and seas and (ii) The European Research Area: New Perspectives EC’s Green Papers on: Maritime Policy, and the ERA. Marine**

Board Position Paper 11. Marine Board-ESF, Strasbourg, France. ISBN 2-912049-73-3, 46pp.

Developed from existing Marine Board-ESF publications and discussions with Marine Board Delegates and Executive Committee.

- Binot J. *et al.* (2007). **European Ocean Research Fleets – Towards a Common Strategy and Enhanced Use.** Marine Board Position Paper 10. Connolly N., Carbonnière A. (Eds). Marine Board-ESF, Strasbourg, France. ISBN 2-912049-62-8, 62pp.
Contributing authors: Jacques Binot, Juanjo Dañobeitia, Thomas Muller, Per Wilhelm Nieuwejaar, Marieke J. Rietveld, Paul Stone. Special contributions: Massimiliano di Bitteto, John Breslin, Klaus von Broeckel, Joao Coimbra, Dimitris Georgopoulos, Mick Gillooly, Hannu Gronvall, Jan Piechura, Frans Veenstra.
- Philippart C.J.M. *et al.* (2007). **Impacts of Climate Change on the European Marine and Coastal Environment – Ecosystems Approach. Marine Board Position Paper 9.** Connolly N., Walter N. (Eds). Marine Board-ESF, Strasbourg, France. ISBN 2-912049-63-6, 84pp.
Contributing authors: Ricardo Anadón, Roberto Danovaro, Joachim W. Dippner, Kenneth F. Drinkwater, Stephen J. Hawkins, Geoffrey O’Sullivan, Temel Oguz, Catharina J.M. Philippart, Philip C. Reid.
- Minster J-F., Connolly N. *et al.* (Eds) (2006). **Navigating the Future III. Marine Board Position Paper 8.** Marine Board-ESF, Strasbourg, France. ISBN 2-912049-59-8, 69pp.
Contributing editors: Aurélien Carbonnière, Niamh Connolly, Jan de Leeuw, Maud Evrard, Jan Mees, Jean-François Minster, Kostas Nittis, Geoffrey O’Sullivan, Nicolas Walter.
- Prandle D. *et al.* (2005). **Modelling in Coastal and Shelf Seas – European Challenges. Marine Board Position Paper 7.** Connolly N., Walter N. (Eds). Marine Board-ESF, Strasbourg, France. 30pp.
Contributing authors: João Gomes Ferreira, Wolfgang Fennel, Michael Hartnett, Peter Herman, Michiel Knaapen, Hans Los, Morten Pejrup, Thomas Pohlmann, David Prandle, Roger Proctor, Yann-Hervé de Roeck, Karlina Soetaert, Takvor Soukissian, Tapani Stipa, Georg Umgieser, Waldemar Walczowski.
- Mantoura F., Boissonnas J., d’Ozouville L., Connolly N. (2003). **Navigating the Future II - Summary of Integrating Marine Science in Europe. Marine Board Position Paper 6.** Minster J-F. *et al.* (Eds). Marine Board-ESF, Strasbourg, France. 24pp.
Editors: John Marks, Jean-François Minster, Mario Ruivo, Silvana Vallerga; Other Contributors: Avan Antia, Laura Castellucci, Juanjo Dañobeitia, Jens Degett, Bob Dickson, Graham Edgar, Paul Galvin, David Griffith, Gwyn Griffiths, Harlyn Halvorson, Carlo Heip, Jean-Pierre Henriët, Catherine Jeandel, Frank Lamy, Jacques Legrand, Han Lindeboom, Karin Lochte, Jens Meincke, Geoffrey O’Sullivan, Nadia Pinardi, Gérard Riou, Douglas Wallace, Gerold Wefer, John Woods.
- Mantoura F., Boissonnas J., d’Ozouville L., Connolly N. (2002). **Integrating Marine Science in Europe. Marine Board Position Paper 5.** Minster J-F. *et al.* (Eds). Marine Board-ESF, Strasbourg, France. 148pp.
Editors: John Marks, Jean-François Minster, Mario Ruivo, Silvana Vallerga; Other Contributors: Avan Antia, Laura Castellucci, Juanjo Dañobeitia, Jens Degett, Bob Dickson, Graham Edgar, Paul Galvin, David Griffith, Gwyn Griffiths, Harlyn Halvorson, Carlo Heip, Jean-Pierre Henriët, Catherine Jeandel, Frank Lamy, Jacques Legrand, Han Lindeboom, Karin Lochte, Jens Meincke, Geoffrey O’Sullivan, Nadia Pinardi, Gérard Riou, Douglas Wallace, Gerold Wefer, John Woods.
- Halvorson H. *et al.* (2001). **Marine Biotechnology – A European Strategy for Marine Biotechnology. Marine Board Position Paper 4.** Mantoura F. (Ed). Marine Board-ESF, Strasbourg, France. ISBN 2-912049-29-6, 30pp.
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