



# Annual Activities

2016





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## Annual Activities

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# Preface

**Caron Montgomery**, Chair JPI Oceans Management Board

2016 has been a year with several milestones for JPI Oceans and its members. At the last Management Board meeting in Berlin the member countries confirmed their commitment to set up a legal entity for JPI Oceans. The broad support we received to establish this new legal entity bodes well for the next year in which we will see this new entity come to light.

However, our efforts within JPI Oceans were not only focused on the future governance. After the launch of our Strategic Research and Innovation Agenda, important milestones were reached in implementing the JPI Oceans activities and projects. In the summer, we organised together with the MiningImpact project a side-event at the 22nd Session of the International Seabed Authority (ISA) allowing the scientists to present the latest research results on the environmental impacts of deep-sea mining and discuss with the delegates how the marine environment could be most effectively protected. The scientists involved in the project also published their findings in Nature's Scientific Reports, demonstrating that polymetallic nodule fields are hotspots of abundance and diversity for a highly vulnerable abyssal fauna.

It was our pleasure as well seeing the JPI Oceans microplastics projects having their kick-off meeting at the Spanish Ministry of Economy and Competitiveness in Madrid, agreeing on greater cooperation and coordination across the four projects. While conducting their scientific activities the projects also took the initiative to communicate their science to policy makers with presentations at the European Parliament and the UN headquarters in New-York. We proved this year as well that actions with a smaller budget can have a big impact and lasting effects. As a prime example, the action on intercalibration for the Water Framework Directive which is having an impact on the thresholds for environmental quality that the participating countries are legally bound to reach.

In the fall, the MarTERA ERA-NET Cofund was launched and together with the co-funding of the European Commission a joint call of 30 million Euro was opened. We would like to extend our gratitude to the European Commission for the support and good cooperation of the CSA Oceans 2 project which was started this year. This was all complemented by good progress on the different activities in the pipeline as well. We had the recent meeting with experts on the action on ecosystem goods and services and the marine sensors calibration network and our participation in the Portuguese navy trial exercise in the framework of the munition in the sea action.

These activities and others were referred to at the events organised this year. We co-organised a successful seminar on blue growth with the Norwegian Minister of Fisheries and the Research Council of Norway in the Royal Flemish Academy of Belgium for Science and the Arts. It was an honour to also welcome the presentations from the Portuguese Minister for Research and the Deputy Head of Cabinet of Commissioner for Research at the seminar. Together with the OECD we organised the Future of the Ocean economy seminar in Brussels. The latter on the occasion of the launch of the important study on the future of the ocean economy completed by the OECD in partnership with some of our participating countries. It was attended by many of our stakeholders but we in particular would like to thank the Management Board and Strategic Advisory Board members who actively moderated and participated in the different sessions.

## List of Acronyms

**CSA Oceans 2-** CSA Oceans 2 is an Horizon 2020 funded project which supports the implementation of JPI Oceans' Strategic Research and Innovation Agenda.

**ExCom-** Executive committee of JPI Oceans

**IPlan-** Implementation Plan

**JPI-** Joint Programming Initiative

**JPI Oceans-** Joint Programming Initiative for Healthy and Productive Seas and Oceans

**MB-** Management Board of JPI Oceans

**SRIA-** Strategic Research and Innovation Agenda

**StAB-** Strategic Advisory Board



## CHAPTER 1

# Our Activities

## Microplastics research projects underway

The JPI Oceans microplastics projects started their work and agreed on greater cooperation and coordination across the four projects at their joint kick-off meeting at the Spanish Ministry of Economy and Competitiveness in Madrid.

The four transnational research projects on microplastics in the marine environment funded under the framework of JPI Oceans – BASEMAN, EPHEMARE, PLASTOX and WEATHER-MIC – held their joint kick-off meeting at the Spanish Ministry of Economy and Competitiveness (MINECO) in Madrid. Following a welcome address from the Joaquin Serrano, Deputy Director of International Project Department, approximately 50 representatives from academia, national governments as well as stakeholders discussed how best to coordinate and cooperate between the four projects as well as how to feed the scientific results of the projects into European and international political processes.

Showing great willingness to exchange, work together and jointly tackle common challenges, the project partners pledged to cooperate particularly with respect to the harmonisation and standardisation of methods. Developing and agreeing on standardised protocols for identifying and analysing plastic particles in the marine environment will be essential, in order to generate comparative and verifiable data, which in turn will allow for a more comprehensive understanding of the extent of microplastics in the ocean and their effect on marine organisms, ecosystems, and the human food chain. In addition, project partners discussed the need for joint engagement with stakeholders and agreed to work together when communicating their results to stakeholders and feeding input to policy processes, such as the deliberations on marine litter under the EU's Marine Strategy Framework Directive.

Overall, the project partners decided to set up a number of working groups across projects in order to coordinate and align their activities in the following fields:

Communication – chaired by Andy Booth (PLASTOX project, SINTEF, Norway)

Trophic Transfer - chaired by Annika Batel (EPHEMARE Project, University of Heidelberg, Germany)

Field Sampling - chaired by Jesús Gago (BASEMAN project, IEO, Spain)

Weathering & Polymers - chaired by Hans Peter Arp (WEATHER-MIC Project, NGI, Norway)

Ecotoxicology - chaired by Xavier Cousin (EPHEMARE project, Ifremer, France)

### Microplastics projects discussed at ICES-ASC

A joint JPI Oceans-ICES open session on 'Microplastics in the Ocean' was held on the 21st of September and was chaired by Gunnar Gerdt from AWI (Germany). The other panel members were Annika Jahnke from UFZ (Germany), Sonja Oberbeckmann from IOW (Germany) and Andy Booth from SINTEF (Norway). Gunnar (BASEMAN project), Annika (Weather-MIC project) and Andy (PLASTOX project) gave a background and current status for 3 of the 4 JPI Oceans projects currently funded under the microplastics pilot action. Sonja presented results from the nationally funded project MikrOMIK (Microplastics as vector for microbial populations in the ecosystem of the Baltic Sea) in Germany. The final part of the session was allocated to a Q&A round between the audience and the panel members.

The session was in general well attended with an estimated 100-150 people in the audience. The presentations generated a number of scientific questions from the audience. Furthermore, the Q&A session highlighted a number of ongoing initiatives and activities related to microplastics by ICES members and within existing Working Groups (WGs). In particular, the existing WGs on zooplankton and marine chemistry appear to have ongoing activity. The session concluded that there was definite interest in exploring the need for an ICES WG on microplastics and that a good starting point would be to organise a dedicated ICES workshop on the topic. All agreed that the topic of microplastics is important and should have some specific focus within ICES, but that maybe a cross-cutting group or activity would be more appropriate, with the aim of establishing a stronger link the various related activities/initiatives which are ongoing already across existing ICES WGs.

## MarTERA ERA-NET Cofund on marine technologies launches call of 30 million Euro

MarTERA, resulting from the collaboration between JPI Oceans and former ERA-NET MARTEC, opened a joint call for transnational research and innovation projects on marine and maritime technologies.

The overall goal of the MarTERA Cofund is to strengthen the European Research Area (ERA) in maritime and marine technologies and Blue Growth. The consortium launched the first cofunded call in December 2016 with a budget of 30 million Euro, where the participating countries (Argentina, Belarus, Belgium, France, Germany, Ireland, Italy, Malta; Netherlands, Norway, Poland, Portugal, Spain, South Africa and Turkey) contribute with 20 million Euro and the European Commission allocates 10 million Euro. MarTERA will implement the Call 2017 as a two-step procedure (a pre-proposal and a full-proposal step).

Furthermore, additional joint activities that go beyond this co-funded call are planned, in order to contribute to the national priorities as well as to the strategic research agenda of JPI Oceans and WATERBORNE.

JPI Oceans and MarTERA collaborated to organise a brokerage event for the MarTERA call on maritime and marine technologies. The event allowed participants to network and identify partners to apply for the call.

The main objective of MarTERA is to address a number of actual challenges that can be identified as follows:

- National and European research in several marine and maritime sectors is often poorly coordinated. Synergies towards implementing common goals could only be achieved through better coordination and harmonizing the foci of funding programmes;
- While collaborative projects funded by the EC are often quite large and complex to attract participation especially of SMEs, national funding schemes offer limited opportunities to collaborate with foreign partners, especially if cross-border funding is impossible;
- The participation in trans-national projects offers advantages by using respective national funding, to tackle complex projects which cannot be accomplished by one nation alone;
- Transnational projects provide a better chance for innovation to enter into new markets;
- The cross-cutting perspective in technology development can lead to innovations capable of benefiting more than one sector, hence increasing the impact of the funded trans-national projects.
- Bringing industry and research actors across borders together will strengthen Europe's economic position underpinning Blue Growth.
- Through trans-national cooperation it is feasible to create critical mass and focus excellence on precompetitive breakthroughs, which can benefit marine and maritime industries in general and make them more competitive in the longer term, thereby maintaining Europe's competitive edge.
- To create critical mass and address the needs for technologies in maritime operations.

# Ecological Aspects of Deep Sea Mining

The JPI Oceans project 'MiningImpact' aims at assessing the long-term impacts of polymetallic nodule mining on the deep-sea environment.

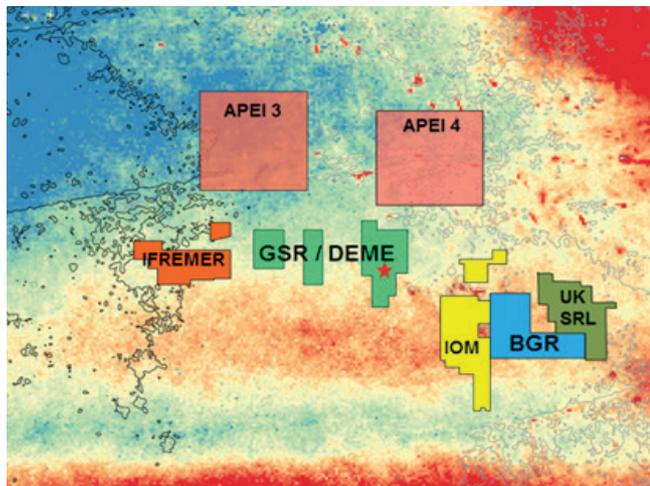
Core of the project are three marine research campaigns conducted in 2015 visiting several license areas and two Areas of Particular Environmental Interest (APEIs) in the Clarion-Clipperton Zone (CCZ) as well as the DISCOL benthic impact experiment in the Peru Basin

The main research questions addressed by 'MiningImpact' are:

- How did the deep-sea ecosystem (species biodiversity, community structure, biogeochemical functioning) in various disturbed areas in the CCZ and DISCOL evolve several decades after the impact?
- Can APEIs and seamounts fulfill their anticipated role as conservation areas for nodule-associated species?
- How large is the expected spatial and temporal footprint of deep-sea mining operations?
- What is the long-range connectivity of species in the CCZ and how is it affected by mining?

## CCZ license areas & APEIs

In the CCZ the project studies ecosystem biodiversity across productivity gradients and species connectivity by comparing different license areas and the APEIs 3 &



STUDY AREAS IN THE CCZ: APEIs 3 & 4, CONTRACT AREAS OF GERMANY, FRANCE, BELGIUM, UK, AND IOM.

4. In each study area, the abundance and composition of faunal communities, biogeochemical functions, and oceanographic conditions inside and outside nodule fields, at seamounts, and at decade-old disturbance tracks are analyzed.

## DISCOL experimental area

In the Peru Basin the DISCOL experimental area was revisited, where scientist have conducted a "Disturbance and reCOLonization" experiment in 1989 by ploughing approximately 20 % of the seafloor within a 11-km<sup>2</sup> large nodule field.



Sponge covered with sediment next to disturbance track

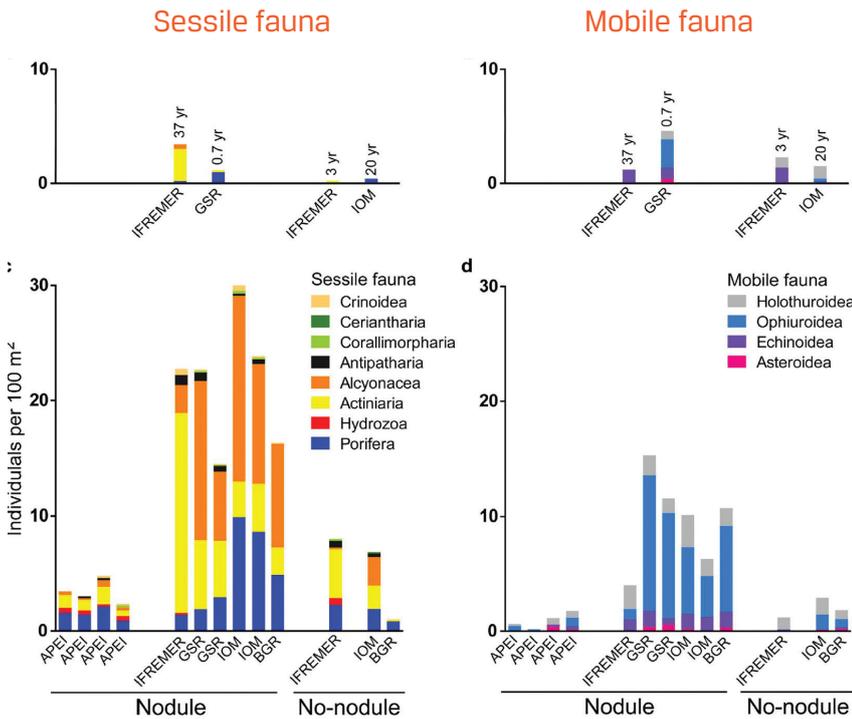
AUV-based habitat mapping was complemented by video surveys and box-core sampling to compare abundances of sessile and mobile fauna in the impacted area with those at reference sites. ROV-based in situ investigations aim at assessing the induced changes in biogeochemical functions of the ecosystem.



POLYMETALLIC NODULE



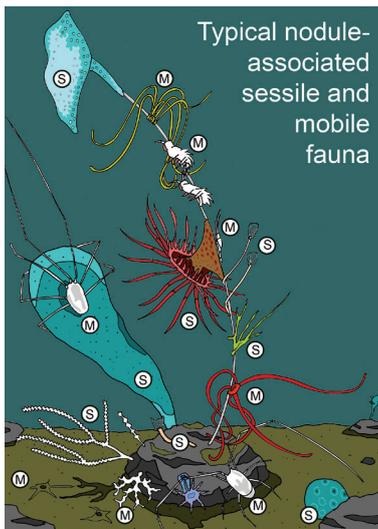
26-YEAR OLD PLOUGH MARKS (DISCOL)



VANREUSEL ET AL. (2016) SCIENTIFIC REPORTS 6

COMPARISON BETWEEN OLD DISTURBANCE TRACKS (1979 OMCO TRACK, 1995 IOM-BIE, 2013 IFREMER EBS, 2015 GSR EBS) AND NORMAL DEEP-SEA FLOOR IN CCZ AREAS WITHOUT NODULES:

- Anthropogenic disturbances have left prominent marks on the seafloor, clearly visible many decades later
- Poor recolonization rates of epifaunal communities in the tracks: low diversity of macro- and meiofaunal communities, sessile & mobile fauna associated to nodules (e.g. sponges, ophiuroids) are basically absent
- Microbial metabolic activity is strongly reduced in the surface sediments.



### Main findings

- Nodule ecosystems consist of a highly diverse fauna of sessile and mobile species
- Faunal communities show high variability on small spatial scales
- Benthic fauna differs widely between seamounts and nodule habitats
- Disturbance impacts on nodule ecosystems last for many decades and include all ecosystem compartments and functions
- Nodule mining leads to a persistent reduction in biogeochemical remineralization processes and production potentials of seafloor communities
- Polymetallic nodules are required to preserve abyssal biodiversity

### Conclusions MiningImpact project

- Conservation areas need to match habitat characteristics of mined areas (e.g. productivity, nodule coverage) to preserve abyssal biodiversity in the CCZ
- Seamounts and APEIs may not provide the anticipated services: additional MPAs are needed
- Appropriate monitoring technologies to assess mining impacts are available, but knowledge transfer from the scientific community to contractors / operators is required
- Minimizing large-scale impacts requires careful spatial planning of mining operations, establishment of marine protected areas, and the development of low-impact mining equipment

## European marine sensors calibration network

This new action launched led by Greece aims to establish a permanent working group for calibration activities and will propose a future strategic plan towards a permanent, pan-European calibration grid to support the activities of marine observatories.

The action involves the research community, the National Metrology Institutes (NMIs) and industry from the participating countries. The group had its first major meeting in Brest, France, on 13 October 2016 and developed factsheets (on pH, salinity, and fluorescence) and one white paper summarizing the challenges and justifying the need for this action. The documents will help identify the next concrete steps for this action.

### Objectives

Calibration, unlike validation, which can be performed with various ways and methods, requires standardised techniques and specialised equipment. As it was revealed through the JERICO project activities and in particular Deliverable 4.1 "Report on existing calibration facilities", very few observatory operators actually maintain dedicated calibration facilities with trained personnel. Thus very often sensors are shipped to manufacturers on a regular basis which is neither convenient nor cost efficient. Moreover maintenance intervals have to be planned according to the requirements of each sensor (need for double sets of sensors). Thus transport and calibration costs often have a major contribution on total running costs. Partners operating calibration facilities often face difficulties in maintaining dedicated personnel positions as funding is variable and rather insecure. Although there is significant experience among European research institutes on calibration methods, at present each lab works independently with no or very little connection with other labs.

Therefore, the development of a pan-European calibration grid is proposed. The grid will be open to the whole marine community and in close connection with the national metrological institutes while in order to maximise benefits and minimise costs it can have a 2 level approach separating calibration procedures into primary and secondary. In the first level, labs capable of handling reference calibration procedures will be identified and appointed as Primary Reference Nodes

(PRN) where secondary calibration instruments can be calibrated. Level 2 or Secondary Reference Nodes (SRN) will use the secondary reference instruments calibrated at PRN and will be responsible for the calibration of the day-to-day operational sensors around European Waters.

### Impact

#### Short term:

- The homogenisation of practices within the oceanographic community,
- The dissemination of metrology know-how and practices in institutes and firms,
- The control of the efficiency for the participants of Inter Laboratory Comparisons,
- The improvement of the quality system and the metrology practices of participants (eg. thanks to audits)
- The technological directions to follow for the development of new sensors
- Relevance to the EU's IMP, MSFD, WFD, etc.
- Relevance and support to a large number of initiatives, such as GOOS, GMES, JCOMM, CLIVAR, MyOcean, SeaDataNet, EuroGOOS, JERICO, JERICO-NEXT, Fix03, EURAMET

#### Long Term:

Long-term impacts will be the assessment of strategies in terms of exchanges, collaborations, valorization and dissemination:

- the development of plans to encourage the transition from research to operational support,
- the consolidation of quality guarantees to help authorities to implement appropriate strategies (standards, recommendations, policies, regulations,..)
- set up of a permanent calibration board in charge of the follow-up of this European Calibration network and of the management and sustainability of its impacts.

## Intercalibration for the EU Water Framework Directive

The JPI Oceans pilot action 'Joint funding of the Scientific Intercalibration exercise for the EU Water Framework Directive (WFD) coastal and transitional waters in the North-East Atlantic' brings together scientific experts to perform required analyses in the most cost-efficient way.

The JPI Oceans action adds value by

- finding experienced scientific expert leads to perform required analyses in the most cost-efficient way for phytoplankton and benthic invertebrate fauna (as there are constraints in the availability of experts of national environmental authorities)
- reducing fragmentation (of comparison calculation efforts) and increase efficiency in relation to the Water (and Marine Strategy) Framework Directive;
- increasing experience with joint data collection and analysis;
- testing a mechanism for joint funding from environmental authorities of nine member countries, surpassing the traditional model of joint calls, to obtain the performance improvements.

Ten environmental authorities of nine countries (BE, DE, DK, FR, IE, NL, NO, SE, UK) have signed a Memorandum of Understanding and committed budgets to the pilot action. The Portuguese environmental authority will contribute in-kind with 2 expert leads from Portuguese universities.

The JPI Oceans pilot action enables a long-term dialogue between environmental authorities and the scientific community of member countries to solve remaining scientific challenges jointly.

### Results

A real common pot was created and governed by a research funding body that contracted the different expert leads after a specifically designed selection process.

All of the scientific intercalibration exercises are having an impact on the thresholds for environmental quality that they are legally bound to reach. Changes to the thresholds were needed for 7 out of 11 participating countries (+ for several cases). The in-depth scientific analyses showed that countries were mostly wrong about their initial assessments about comparability or incomparability between each-other. Even where countries were previously considered to be consistent with each-other, some scientific analysis showed that this was not entirely the case, because of biogeographical differences not taken into account correctly before. These analyses, also by adopting a consistent procedure for all, made it easier to demonstrate the scientific basis of the assessments, thus allowing better setting of thresholds.

## Munition in the Sea

The JPI Oceans action on munition in the sea was first proposed by the Strategic Advisory Board in April 2014, and approved by the JPI Oceans Management Board in November 2015. The aim of the action is to assess risks, define priorities and suggest intervention options with regards to munition in the marine environment. The outcomes of the action will be used to support identification, monitoring and elimination of threats through a more systematic approach.

Twelve European countries, under the lead of Italy, expressed their interest to participate in an action on the issue of munition in the sea.

### Observer Navy trial exercise

In the framework of this action, JPI Oceans was invited to join a Portuguese Navy exercise as observer. The Navy, in cooperation with the Laboratório de Sistemas e Tecnologias Subaquáticas (LSTS) from Faculdade Engenharia da Universidade do Porto (FEUP), and the Center for Maritime Research and Environmental (CMRE), organized the REPAntlantic16 exercise, which took place on July 11-22 in the areas of Setúbal and Sesimbra, in order to perform tests and experiments for the development of Unmanned Vehicle technologies. The exercises, involving navies, research groups and some companies, aim to enhance the skills on different areas of expertise, increasing the experience of operators, establishing new tactics and procedures, and identifying future developments of unmanned vehicles' technologies.

New opportunities for JPI Oceans have been identified, with the aim of creating synergies and enabling a higher degree of coordination and interactions among teams from different countries, to share knowledge, best practices and technologies. These trials are fundamental to jointly test equipment and procedures, as well as for selecting, directly with the operators, some of the relevant aspects to be addressed in future activities.

### Expected Impact

This JPI Oceans action is being coordinated by Italy and an action plan is being developed in collaboration with other interested countries.

By addressing the aspects of research and innovation, JPI Oceans can provide knowledge based support to operators and policy makers.

The aim is to assess risks and describe case studies, define priorities and suggest intervention options. These outcomes will be used to support decision making related to identification, monitoring and elimination of threats through a more systematic approach.

A number of related initiatives have been identified and analysed to find where JPI Oceans can add value. As a result of discussions between the most relevant stakeholders, it has been decided that JPI Oceans will conduct activities along three lines:

**Science Support-** By combining different scientific disciplines, JPI Oceans intends to support the development of a service to forecast changes in the sea state in relation to munitions. Simulating the impact of removal, dispersion and detonation on human health, on the environment, and on economic activities will also be investigated.

**Technology Transfer-** JPI Oceans will analyse different technologies and procedures for intervention to support decisions by operators and policy makers. The development demonstration of technologies and procedures can be used to increase safety, improve the efficacy and reduce the environmental impacts of interventions. JPI Oceans will provide support to exchange findings between different disciplines, projects and initiatives.

**Exchange of Knowledge-** Panels of experts will support transfer of knowledge and experiences of dealing with munitions in the sea.

## CSA Oceans 2

CSA Oceans 2 is a Horizon 2020 project which helps support the implementation of JPI Oceans' Strategic Research and Innovation Agenda.

The project facilitates the implementation of joint transnational actions and guides the Member Countries towards the best fit for purpose tools to implement the joint actions. In this process CSA Oceans 2 organised a scoping workshops of the proposed joint actions "Ecosystem goods and services" which was conducted on 24 and 25 November 2016 in Brussels. This first expert meeting presented and discussed different uses of the ecosystem approach and shared best practice on what is available to meet policy needs and to define current knowledge gaps. The workshop was chaired by representatives of the lead countries France and Sweden and was attended by 30 participants.

### Engagement and outreach

CSA Oceans 2 partners worked with the JPI Oceans Management Board and ExCom to develop a prioritised strategic approach to funders, focusing in first instance on ministries from countries who are already members of JPI Oceans in order to improve understanding of JPI Oceans and help mobilise in-country support at national levels. Hence a meeting was held with representatives of the French Ministry of Research. In addition, several interactions took place with some other Public-Public partnerships such as BONUS art. 185, the ERA-NET MarTERA and other JPI's such as JPI Climate, JPI FACCE and JPI HDHL.

Representatives of CSA Oceans 2 and JPI Oceans have also participated in a wide range of meetings with representative bodies of the research performing community to raise awareness of JPI Oceans and to explore areas of mutual interest. This included invited presence at the European Marine Board plenary meeting in Glasgow in October 2016 and engagement with EuroGOOS. Direct engagements took place with international partners in bilateral context with US, Canada, India and in multilateral context with organisations such as G7, IOC (UNESCO), Belmont forum and BlueMed.

CSA Oceans 2 further organised a side-event at the 22nd Session of the International Seabed Authority (ISA) allowing the scientists of the JPI Oceans Mining Impact project to present the latest research results on the environmental impacts of deep-sea mining and discuss with the delegates how the marine environment could be most effectively protected.

To keep the general public up to date on the JPI Oceans actions and projects, CSA Oceans 2 developed a new database giving the latest information on the JPI activities. The newly developed database does so by categorizing the actions and projects according to the areas of the Strategic Research Agenda and participating countries. Most importantly, a new search tool allows users to refine the list of actions based on their required criteria.



## CHAPTER 2

# Strategic role

## Blue growth seminar

The seminar was co-organised by the Norwegian Minister of Fisheries, JPI Oceans and the Research Council of Norway in the Royal Flemish Academy of Belgium for Science and the Arts.

Opening the event, Norwegian Minister of Fisheries Per Sandberg, stressed that research and innovation are key driver for responsible blue growth. This was complemented by the Portuguese Minister of Science, Technology and Higher Education, Manuel Heitor who added that we have to create institutions at the right scale to address the challenges. Giulia Del Brenna, Deputy Head of Cabinet of Commissioner for Research Carlos Moedas stressed that knowledge underpins the EU's global maritime leadership.



**PER SANDBERG, NORWEGIAN MINISTER OF FISHERIES**

The opening statements were followed by a panel session moderated by Peter Heffernan, CEO of the Marine Institute Ireland and member of the JPI Oceans Management Board. In the panel discussion Norwegian State Secretary for the Ministry of Education and Research Bjørn Haugstad highlighted the interest of Norway to participate fully in the European research and innovation programmes. The challenges that are addressed are often global, with regional commonalities in the seas that surround us. Joining forces at the level of Europe is therefore crucial in many cases. Especially looking at the resources required it is clear that very few states can advance much just on their own. Ricardo Serrão Santos, Member of the European Parliament further stated that not only applied research is important but also basic research as so much of the

workings of the oceans are not yet fully understood. The



**MANUEL HEITOR, PORTUGUESE MINISTER OF SCIENCE, TECHNOLOGY AND HIGHER EDUCATION**

opening session was concluded by John Bell, Director at the European Commission DG Research and Innovation who called for Europe to enter an era of sustainability and blue enlightenment.

The second part of the seminar was dedicated to identifying what type of knowledge and technology is required to have sustainable blue growth. The topics discussed ranged from blue technology to the Arctic and the impact of climate change on the ocean. Each speaker provided a short presentations of the scientific state of the art for the various topics and stressed the key opportunities and challenges at the European level. The seminar was concluded by Gert Verreet of the Flanders Department of Economy, Science and Innovation and Management Board member of JPI Oceans who highlighted the need for a stronger alliance and political visibility of blue growth. He added that it is mainly the responsibility of the authorities to make the right connections between research and innovation and the regulations that form the conditions for expansion and new activities in such a way that the policies become truly holistic and integrated.

## Workshop European Maritime Day

The key question at the workshop organised by JPI Oceans at this year's edition of the European Maritime Day in Turku was: "How is science contributing to the governance of deep-sea resources?"

The workshop, moderated by French Management Board member Gilles Lericolais, was held against the backdrop of increased international interest to explore and exploit resources from the deep sea. At the same time, the international governance framework for regulating these activities is being developed with key negotiations about the exploitation of mineral resources taking place at the International Seabed Authority (ISA) and preparations underway for a new Implementing Agreement of the United Nations Convention on the Law of the Sea (UNCLOS) to govern the conservation and use of marine biological diversity beyond areas of national jurisdiction.

Prof. Anna-Katharina Hornidge from the Leibniz Center for Tropical Marine Ecology (ZMT) Bremen and recent proposer of a COST Network on Ocean Governance for Sustainability highlighted how science can inform and shape these ongoing negotiations. As ocean governance is challenged by the growth paradigm resulting from growing demand for more resources in finite world, she pointed to the necessity of institutional change and transformative research in order to develop concepts and concrete restructuring plans for societal transformation towards a circular economic system.

First research results from the JPI Oceans Pilot Action to study the ecological impacts of deep-sea mining were presented by coordinator Dr Matthias Haeckel (GEOMAR Helmholtz Centre for Ocean Research Kiel) and Prof Ann Vanreusel (Ghent University). Following four cruises to the Pacific over the course of 2015 revealed amongst other that effects of disturbances from polymetallic mining activities on deep-sea ecosystems will likely last for many decades and impact all levels of fauna (from bacteria to megafauna). Given these irreversible impacts for generations to come and the fact that mining activities seek to exploit non-renewable resources, deep-sea mining cannot conceivably be considered to be "sustainable" in an environmental sense.

Both scientists called on the ISA to take these research results into account and, furthermore, urged that the

criteria used for designating marine protected areas need to be based on robust scientific knowledge about the availability of habitats, the present biodiversity and population connectivity. Only if these are considered can the deep sea ecosystems be effectively protected and conserved.

Despite these ongoing research activities, it became evident that the deep sea remains understudied, as Dr Henry Ruhl (National Oceanography Centre Southampton) pointed out. In the recent European Marine Board Position Paper Delving Deeper: Critical challenges for 21st century deep-sea research, Dr Ruhl and his colleagues argued that further research issues around deep-sea mining included



**FROM LEFT TO RIGHT: DR LERICOLAIS, PROF. VANREUSEL, DR RUHL, PROF. HORNIDGE, DR HAECKEL**

population biology, biodiversity and ecosystem functioning and ecological resilience and response. In particular, it still remained unclear what impact sediment plumes from mining activities will have on the deep-sea.

Following lively debate with the audience, it thus became clear that science is already delivering fundamental knowledge about deep sea resources and ecosystems and is generating new ideas and concepts that help to inform and shape the future global ocean governance framework. However, continued research will be necessary to ensure that this framework will be based on the best available knowledge.

## Deep-sea mining briefing at International Seabed Authority

On 14 July, JPI Oceans and its MiningImpact project organised a side-event at the 22nd Session of the International Seabed Authority (ISA) allowing the scientists to present the latest research results on the environmental impacts of deep-sea mining and discuss with the delegates how the marine environment could be most effectively protected.

The briefing provided input to the ongoing ISA deliberations regarding the exploitation code and aimed to ensure that the deep-sea governance regime is based on the best available scientific knowledge. At the side-event, attended by approximately 90 delegates, contractors and observers to the ISA, project coordinator Dr Matthias Haeckel (GEOMAR – Helmholtz Centre for Ocean Research Kiel), and work package leaders Dr Daniel Jones (National Oceanography Centre), Prof. Ann Vanreusel (Ghent University) and Prof. Antje Boetius (Max-Planck Institute for Marine Microbiology & Alfred-Wegener-Institute – Helmholtz Centre for Polar and Ocean Research) presented first results and made recommendations to the ISA. In particular, they outlined



**FROM LEFT TO RIGHT: KRISTIN HAMANN, PROF ANN VANREUSEL, DR MATTHIAS HAECKEL, PROF ANTJE BOETIUS, DR DANIEL JONES, DR DAVID BILLETT**

that their recent cruises to the Clarion Clipperton Zone and DISCOL Area had revealed that nodule ecosystems consist of a highly diverse fauna, whose communities vary considerably across areas with different nodule coverage, as well as more broadly with habitat (e.g. seamounts and nodule habitats). They thus concluded that polymetallic nodules are important to preserve abyssal biodiversity in the region. Furthermore, they confirmed that disturbances of nodule ecosystems from mining operations last for many decades and impact all ecosystem compartments and functions.

In light of these findings, the scientists recommended that in order to preserve biodiversity in the CCZ, conservation areas designated by the ISA needed to match habitat characteristics of mined areas (e.g. productivity, nodule coverage) and assessed that the currently assigned Areas of Particular Environmental Interest (APEIs) in the CCZ alone may not provide all the anticipated services. Thus, they suggested, additional Marine Protected Areas would be necessary. The team also highlighted that appropriate monitoring technologies to assess mining impacts were available; however, further knowledge exchange between industry and science as well as standardisation was necessary to ensure the best approaches are ready for industry use. Moreover, they argued that the current ISA recommendations on methods, parameters for baseline studies, and monitoring need to be revised to reflect the current state-of-the-art science.

These recommendations sparked lively debate between the country delegates, contractors and observers present in the audience. In a discussion, moderated by Dr David Billett (Legal and Technical Commission, ISA), the audience was particularly interested in impact of mining activities on the fauna and their wider relevance in the ecosystem and the services it provides. The usefulness of the APEIs was also debated as well as the necessity of having additional protected areas. Finally, the audience enquired about the differences in impacts from different mining technologies.

The side-event was held in the context of the annual session of the ISA convened in Kingston, Jamaica. Among the priority issues debated by the Authority were the extension of the first set of exploration contracts, new applications for approval of plans of work for exploration and the development of draft regulations for exploitation of polymetallic nodules in the deep seabed beyond the limits of national jurisdiction. Another important agenda item were legal questions concerning potential conflicts between the right of all States to carry out marine scientific research in the Area and the rights of contractors.

## JPI Oceans - OECD | The future of the Ocean Economy seminar

The seminar held in Brussels brought-together the JPI Oceans Management Board, Advisory Board and key stakeholders and representatives from the OECD to discuss the recommendations of its Future of the Ocean Economy report

The report, which explores the growth prospects for the ocean economy, was made with the support of several JPI Oceans member countries, (Flanders – Belgium, France, Norway, Portugal, Scotland – UK) who contributed financially or in kind. The event was an opportunity for the members of JPI Oceans to consider the report's findings, reflect together with stakeholders upon its recommendations, and discuss what efforts could be made in JPI Oceans to further boost, through research and innovation, the sustainable development of the ocean economy.



### BARRIE STEVENS (OECD)

The seminar kicked off with the presentation by Barrie Stevens (OECD) of the main findings of the report: by 2030, many ocean-based industries have the potential to outperform the growth of the global economy as a whole, both in terms of value added and employment. The projections of the OECD suggest that the ocean economy will double its global value added, reaching over USD 3 trillion and providing approximately 40 million full-time equivalent jobs. This economic expansion is driven primarily by developments in global population, economic growth, trade and rising income levels, climate and environment, and technology. However, it is increasingly being constrained by a deteriorating health of the ocean.

The report makes a number of recommendations in order to boost the long-term development prospects of the

ocean economy, while managing the ocean in responsible, sustainable ways. In particular, it highlights two key issues, (i) fostering greater international cooperation in maritime science and technology to stimulate innovation and (ii) strengthening integrated ocean management, making it more effective, efficient and inclusive.

In the first panel session "Lessons learnt for cross-sectoral cooperation - Perspectives from ocean based industries" Karl Almås (SINTEF) highlighted the role of technology as a driver in ocean innovation. In particular, he argued the need to harness the strong cross-over potential in ocean industries as well as to focus on both enabling technologies and disruptive changes in order to drive economic development. Under the moderation of Strategic Advisory Board member Yvonne Shields (Commissioners of Irish Lights), panellists argued that to achieve such cross-sectoral fertilisation, a focus should be on skills and training as people are the best means of transferring knowledge and technology. Clusters could in particular play a role in facilitating this knowledge exchange, as does the design of research programmes to this end.



### SEBASTIAN UNGER (IASS POTSDAM)

The second session on integrated ocean management was kicked-off by Sebastian Unger (IASS Potsdam). In his keynote presentation he highlighted the great political momentum in moving towards integrated ocean

governance, which could be even further advanced through (a) innovating instruments, (b) complementary strategies at national, regional and global scale, and (c) capacity-building and sustainable finance. In particular, he argued that the regional level could act as a broker for integration, as there are well-established institutions at regional level, where agreement can be reached more easily than at global level and which allows for a meaningful implementation of the ecosystem approach. In the discussion moderated by Management Board member Gert Verreet, participants pointed out that in Europe, many of the institutions (e.g. at sea-basin level), instruments (e.g. Marine Spatial Planning) and commitments to integrated ocean management were already in place; however, a better implementation was necessary.

Discussing how research and innovation can support such further integration, panellists argued that scientists, industry, and policymakers should be involved in all steps of the governance process from identifying research questions to writing of legislation as this was essential for promoting the sustainable coexistence of ocean-based activities. Moreover, it was suggested that JPI Oceans could provide a forum for such cross-sectoral dialogue for instance on issues such as increased knowledge and data accessibility.

In the last session, JPI Oceans Members discussed the recommendations of the OECD report and the main messages of the two panel sessions and what public research could do in support. Many potential fields of action, for instance around data and knowledge sharing, support to coastal tourism, and a focus on supporting



**JOHN EVANS, MAURICE HERAL (JPI OCEANS MANAGEMENT BOARD), NIALL MCDONOUGH (JPI OCEANS STRATEGIC ADVISORY BOARD)**

governance process were raised. However, participants pointed to the need and difficulty of prioritising research areas on an evidence-basis, rather than opinion-based, research priorities. JPI Oceans should thus act as a hub of bringing the different Member States and stakeholders to the table to discuss and set priorities for research funding in an iterative manner, as had been done in the process of developing the JPI Oceans Strategic Research and Innovation Agenda.

To close the seminar, Claire Jolly (OECD) outlined that in the next phase of the project 2017-18, the OECD would launch a programme that would focus on fostering innovation in the maritime economy. In particular the analysis will focus on new enabling technologies, new patterns of collaboration, new uses of economic valuation and tools and new policy mix in boosting innovation for greening marine and maritime activities.

## JPIs launch brochure highlighting key activities

At the fifth anniversary of the launch of the second wave of Joint Programming Initiatives (JPI) by the Council of the European Union the ten initiatives presented a new brochure and factsheets on all JPIs.

In 2011 the Council invited the Member States to develop a common vision and research agenda to address the challenges presented in the second wave JPIs. Taken together, by Dec 2015 all ten JPIs had committed around €262 million to a total of 32 Joint Calls involving 37 countries. 16 of these calls were implemented though JPI-initiated ERA-NET Cofunds with a total call budget of €252 million.

The new JPI folder explains the benefits of participating in a Joint Programming Initiative, provides an overview of the governance model and highlights the implementation actions for transnational cooperation. In addition to the general introduction to Joint Programming all JPIs developed a factsheet with an overview of member countries, objectives and key achievements.

The brochure was presented at the Annual Joint Programming Conference on 22-23 November 2016 in Brussels.



JOINT PROGRAMMING INITIATIVES BROCHURE

## Events & conferences

Next to the events organised by JPI Oceans, representatives from the Management Board and secretariat represented JPI Oceans at several conferences.

Kathrine Angell-Hansen, Director at the JPI Oceans secretariat participated in the World Ocean Council (WOC)'s Sustainable Ocean Summit presenting European priorities and opportunities for collaboration with the ocean business community.

Jacky Wood presented JPI Oceans at the annual meeting of the Partnership for Observation of the Global Oceans in Yokohama, Japan.

At the first European Ocean Observing System conference taking place at the European Parliament, Jacky Wood moderated a panel discussion on the needs and ambitions for a strong and integrated European ocean observing capacity. A complete overview of external presentations can be found in Annex II.



GESINE MEISSNER, MEP AND JACKY WOOD, JPI OCEANS



## CHAPTER 3

# Our Governance

## Towards a Legal Entity for JPI Oceans

At its meetings the Management Board has discussed the future sustainability of JPI Oceans. The international secretariat and offices are currently funded predominantly by Norway and Belgium (Flanders), with staff secondments from France, Germany and Italy. The Management Board therefore supported the proposal that the costs should be shared more equitably by the Member Countries of JPI Oceans. It was concluded that JPI Oceans should aim to become a legal entity with members on a contribution basis.

After an analysis of different options and the experience of among others COST, EuroGOOS and the European Marine Board it was agreed to establish an international non-profit association under Belgian law (AISBL). At the Management Board meeting in 2016 member countries discussed the structure and financing of this legal entity. It is expected that the legal entity will be established by the end of the 2017.

# ANNEXES

## Annex I: Website - Social Media Statistics

### Website analytics

Year	Visits	Unique visitors	Pageviews	Avg. Visit Duration
2012	11,848	6,560	37,468	03:16
2013	16,882	9,615	55,914	03:07
2014*	36,139	18,076	155,318	03:01
2015	79,829	48,669	350,926	04:25
2016	88,718	60,009	374,294	05:11

### Website Content & Newsletter

Year	News articles published	Newsletters sent	Newsletter subscribers
2012	31	4	/
2013	32	5	545
2014	37	7	641
2015	25	6	955
2016	26	4	1204

### Social Media & Newsletter analytics

Year	LinkedIn group members	Twitter followers	Facebook likes	Slideshare views (cumulated)	Klout Score
2012	126	/	/	/	/
2013	356	457	54	2,589	41
2014	478	707	74	3,357	41
2015	624	1,102	200	6,283	44
2016	787	1,733	408	9,742	49

\* 2014 figures are partly based on Google Analytics in combination with an in-house analytics programme from September 2014 onwards.

## Annex II: JPI Oceans presentations at external events

Event & place	Date	Representative
Partnership for Observation of the Global Oceans, annual plenary meeting, Yokohama	28/01/2016	Jacky Wood
VLIZ Marine Scientist Day, Bruges	12/02/2016	Willem De Moor
NOC Association Annual meeting	05/04/2016	Jacky Wood
Euromarine meeting, Lisbon	28-29/01/2016	Kathrine Angell-Hansen
Meeting Norwegian Ministry of Fisheries, Brussels	08/02/2016	Kathrine Angell-Hansen
New pollutants and meeting with Spanish Ministry, Madrid	15-17/02/2016	Kathrine Angell-Hansen
HELCOM - Marine Litter Stakeholder Event, Helsinki	09/03/2016	John Hanus
SCAR meeting, Brussels	10/03/2016	Kathrine Angell-Hansen
Seminar on munition in the sea, Oslo	13/04/2016	Kathrine Angell-Hansen
High level seminar, Blue Growth, Brussels	27/04/2016	Kathrine Angell-Hansen
Flanders Marine Institute seminar, Ostend	28/04/2016	Willem De Moor
Meeting with the Norwegian Minister of Fisheries Per Sandberg, Brussels	28/04/2016	Kathrine Angell-Hansen, John Hanus
NTNU Ocean Week, Trondheim	09-10/05/2016	Kathrine Angell-Hansen
13th SCAR-Fish meeting, Brussels	23/05/2016	Tom Redd
European Maritime Day, Turku, Finland	19/05/2016	Pier Francesco Moretti
Havkonferansen, Bergen	30/05/2016	Kathrine Angell-Hansen
Galway Statement Implementation Committee meeting, Brussels	13/06/2016	Kathrine Angell-Hansen and Jacky Wood
IBF-concept note for information of JPI's, Brussels	15/06/2016	Kathrine Angell-Hansen
Visit EASME at Innovocean site, Ostend	29/06/2016	Willem De Moor
CommBeBiz, webinar	12/07/2016	Tom Redd
Interchange of dialogue, NASA and NATO, Lisbon	18-20/07/2016	Kathrine Angell Hansen
Ministerial dialogue with France and Germany, Paris	29/08/2016	Kathrine Angell-Hansen
Building a European Ocean Observing System' European Parliament Event, Brussels	08/09/2016	Jacky Wood
14th SCAR-Fish meeting, Brussels	13/09/2016	Tom Redd
Ny-Ålesund Symposium, Svalbard	19-21/09/2016	Kathrine Angell-Hansen
NTNU Alumni Event, Brussels	03/10/2016	Kathrine Angell-Hansen
BioMarine Oslo, Interministerial dialogue with Argentina, Canada and others, Oslo	19-21/10/2016	Kathrine Angell-Hansen
15th SCAR-Fish meeting, Brussels	24/11/2016	Tom Redd
Sustainable Ocean Summit 2016, Rotterdam	29/11-02/12/2016	Kathrine Angell-Hansen
OECD workshop, Paris	08-09/12/2016	Kathrine Angell-Hansen

## Annex III: Management Board (December 2016)

Country	Organisation	Representatives
	Belgian Federal Science Policy Office (BELSPO)	<i>CONTACT: FRANK MONTENY</i> <i>CONTACT: DAVID COX</i>
<i>BELGIUM</i>	Flemish Government, Department Economy Science and Innovation (EWI) Fonds National de la Recherche Scientifique (FNRS)	<i>CONTACT: JOHAN HANSSSENS</i> <i>CONTACT: GERT VERREET</i> <i>CONTACT: FREIA VAN HEE</i>
<i>CROATIA</i>	Institute of Oceanography and Fisheries Ruder Bošković Institute	<i>CONTACT: IVICA VILIBIĆ</i> <i>CONTACT: SANDI ORLIĆ</i>
<i>DENMARK</i>	Innovation Fund Denmark Technical University of Denmark	<i>CONTACT: ANITHA SHARMA</i> <i>CONTACT: MICHAEL ST. JOHN</i>
<i>ESTONIA</i>	Ministry of the Environment of the Estonian Republic University of Tartu; Estonian Marine Institute (EMI) Ministry of Agriculture University of Tartu; Institute of Ecology and Earth Sciences	<i>CONTACT: RENE REISNER</i> <i>CONTACT: HENN OJAVEER</i> <i>CONTACT: EVE KÜLMALLIK</i> <i>CONTACT: KALLE OLLI</i>
<i>FINLAND</i>	Academy of Finland, Research Council for Biosciences and Environment	<i>CONTACT: JAANA LEHTIMÄKI</i>
<i>FRANCE</i>	French Research Institute for Exploitation of the Sea (IFREMER) French National Research Agency (ANR)	<i>CONTACT: FRANÇOIS JACO</i> <i>CONTACT: GILLES LERICOLAIS</i> <i>CONTACT: MAURICE HERAL</i> <i>CONTACT: PATRICK MONFRAY</i>
<i>GERMANY</i>	German Federal Ministry of Education and Research (BMBF) German Federal Ministry of Food, Agriculture and Consumer Protection Research Centre Jülich (JÜLICH)	<i>CONTACT: TIM EDER</i> <i>CONTACT: URSULA POSSELT</i> <i>CONTACT: HARTMUT STALB</i> <i>CONTACT: JOACHIM HARMS</i>
<i>GREECE</i>	Hellenic Centre for Marine Research (HCMR) Hellenic Centre for Marine Research (HCMR)	<i>CONTACT: EVANGELOS PAPATHANASSIOU</i> <i>CONTACT: GEORGE PETIHAKIS</i>
<i>ICELAND</i>	Marine Research Institute Iceland (MRI) Icelandic Centre for Research (RANNIS)	<i>CONTACT: JOHANN SIGURJONSSON</i> <i>CONTACT: SIGURDUR BJÖRNSSON</i>
<i>IRELAND</i>	Marine Institute Ireland (MI)	<i>CONTACT: JOHN EVANS</i> <i>CONTACT: PETER HEFFERNAN</i> <i>CONTACT: CIARAN KELLY</i> <i>CONTACT: CAROLINE BOCQUEL</i>
<i>ITALY</i>	National Institute of Oceanography and Experimental Geophysics (OGS) Italian Ministry of Infrastructure and Transport, Directorate of Maritime Transport and Inland Waterways Italian Consortium for Managing research Activities Venice Lagoon (CORILA) National Research Council of Italy, Marine Technology Research Institute (INSEAN-CNR)	<i>CONTACT: ANGELO CAMERLENGHI</i> <i>CONTACT: ENRICO MARIA PUJIA</i> <i>CONTACT: PIERPAOLO CAMPOSTRINI</i> <i>CONTACT: EMILIO FORTUNATO CAMPANA</i>

Country	Organisation	Representatives
LITHUANIA	Ministry of the Environment of the Republic of Lithuania (AM)	CONTACT: DALIUS KRINICKAS CONTACT: VIKTORIJA VAŠKEVICIENE
	Research Council of Lithuania	CONTACT: ALBERTAS BITINAS CONTACT: KORNELIJA JANAVICIUTE
MALTA	University of Malta, Physical Oceanography Unit (UM)	CONTACT: CORINNE MUSCAT CONTACT: CLAIRE BELLIA
NETHERLANDS	Ministry of Economic Affairs, Agriculture and Innovation (EL&I)	CONTACT: THAMAR KOK CONTACT: NANCY MEIJERS
	Netherlands Organisation for Scientific Research (NWO) on behalf of the Ministry of Education, Culture and Science	CONTACT: JOSEF F. STUEFER CONTACT: BERNARD WESTEROP
NORWAY	Research Council of Norway (RCN)	CONTACT: CHRISTINA ABILDGAARD CONTACT: KRISTIN ELISABETH THORUD
	Norwegian Ministry of Fisheries and Coastal Affairs	CONTACT: ARNE BENJAMINSEN CONTACT: JARTRUD STEINSLI
POLAND	Polish Academy of Sciences; Institute of Hydroengineering (IBW PAN)	CONTACT: GRZEGORZ RÓŻYŃSKI
PORTUGAL	Portuguese National Funding Agency for Science, Research and Technology (FCT)	CONTACT: SOFIA CORDEIRO
	Portuguese Institute of Ocean and Atmosphere (IPMA)	CONTACT: NUNO LOURENÇO
ROMANIA	National Authority for Scientific Research, Directorate for European Integration and International Cooperation	CONTACT: VIOREL VULTURESCU
	University of Bucharest, Faculty of Geology and Geophysics	CONTACT: VIOREL GH. UNGUREANU
SPAIN	Spanish Ministry of Economy and Competiveness (MINECO)	CONTACT: LOURDES ARMESTO
SWEDEN	Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (FORMAS)	CONTACT: LISA ALMESJÖ
	Swedish Agency for Marine and Water Management (HaV)	CONTACT: ANNA JÖBORN
TURKEY	Tübitak Marmara Research Center	CONTACT: CINAR ONER
UNITED KINGDOM	Department for Environment, Food and Rural Affairs (DEFRA)	CONTACT: CARON MONTGOMERY
	National Oceanography Centre (SOTON-NOCS)	CONTACT: ED HILL
	Natural Environment Research Council (NERC) Department for Environment, Food and Rural Affairs (DEFRA)	CONTACT: MIKE WEBB CONTACT: TARQUIN DORRINGTON

The European Commission (DG Research and Innovation) has a status of non-voting member. The two appointed members are Jacques Fuchs and Sieglinde Gruber.

Meeting	Date	Place
10th Management Board meeting	21 April 2016	Brussels, Belgium
11th Management Board meeting	16 June 2016	Brussels, Belgium
12th Management Board meeting	5 October 2016	Brussels, Belgium
13th Management Board meeting	12-13 December 2016	Berlin, Germany

## Annex IV: Strategic Advisory Board (December 2016)

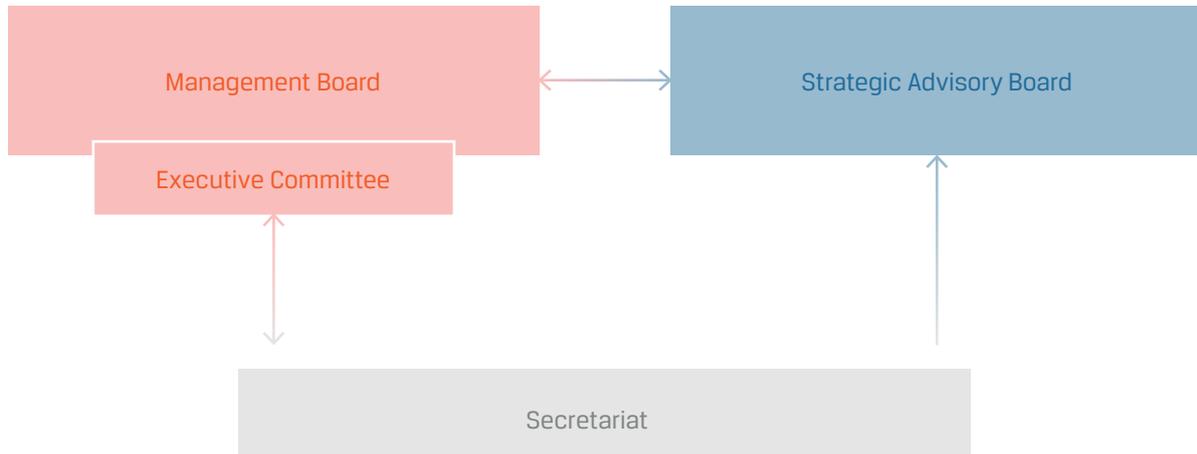
Name	Organisation
<i>CATHERINE BOYEN</i>	Centre National de la Recherche Scientifique; Station Biologique de Roscoff (CNRS-SBR)
<i>RENÉ P.A. DEKELING</i>	Ministry of Infrastructure and the Environment - Directorate-general for Spatial Development and Water Affairs
<i>LAURA GIULIANO</i>	Italian National Research Council - Institute for Coastal Marine Environment
<i>KARIN LOCHTE</i>	Alfred Wegener Institute for Polar- and Marine Research (AWI)
<i>NIALL MCDONOUGH</i>	European Marine Board (ESF-EMB)
<i>SIGVE NORDRUM</i>	Aker BioMarine Antarctic
<i>FRANK ROLAND</i>	Centre of Maritime Technologies e.V. (CMT)
<i>NILS CHRISTIAN STENSETH</i>	University of Oslo, Centre for Ecological and Evolutionary Synthesis (UiO-CEES)

\* Strategic Advisory Board members were invited to attend all Management Board meetings.

## Annex V: Secretariat (December 2016)

Name	Position	Seconded by
<i>KATHRINE ANGELL-HANSEN</i>	Fulltime	Research Council of Norway
<i>WENDY BONNE - PHD</i>	Fulltime	Flanders Marine Institute on behalf of the Government of Flanders
<i>ANDERS BRUDEVOLL</i>	Fulltime	Research Council of Norway
<i>WILLEM DE MOOR</i>	Fulltime	Flanders Marine Institute on behalf of the Government of Flanders
<i>JOHN HANUS</i>	Part-time	German Marine Research Consortium
<i>ANASTASIOS LEKKAS - PHD</i>	Fulltime	Norwegian University of Science and Technology
<i>PIER FRANCESCO MORETTI - PHD</i>	Part-time	National Research Council (CNR), Italy
<i>ÁNGEL E. MUÑIZ PINIELLA</i>	Fulltime	Research Council of Norway
<i>GUNNHILD NEDBERG GRØNLID</i>	Part-time	Research Council of Norway
<i>TOM REDD</i>	Fulltime	Flanders Marine Institute on behalf of the Government of Flanders
<i>JACKY WOOD</i>	Fulltime	Research Council of Norway

## Annex VI: JPI Oceans Governance Structure



### Management Board

The Management Board (MB), the decision-making body of JPI Oceans, has the overall responsibility for the implementation of JPI Oceans. All member countries participating in JPI Oceans are represented in the Management Board (MB). The representatives from each country have sufficient authority to agree on joint action plans and potential funding initiatives across Europe.

### Executive Committee

The Executive Committee (ExCom) is an executive body, providing support and assistance to the Management Board during the development and implementation of the JPI Oceans governance, plans, actions and activities.

### Strategic Advisory Board

The Strategic Advisory Board (StAB) provides independent advice to the JPI Oceans Management Board. The StAB is made up of selected independent experts from the three key groups of stakeholders targeted by JPI Oceans, namely science, industry and civil society, but each of the StAB members are appointed in their own capacity as independent experts in marine/maritime issues and not as representative of any stakeholder group.

### Secretariat

The Secretariat is committed to facilitating and supporting the work conducted under the JPI Oceans process by Member states and stakeholders through efficient and effective processes.

## JPI Oceans

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This publication has been created with input of CSA Oceans 2. The CSA Oceans 2 project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 696324