



The Joint Programming Initiative Healthy and Productive Seas and Oceans (JPI Oceans) is an intergovernmental initiative launched by the Council of the European Union in 2011¹ to provide a strategic policy platform for a long-term European approach to marine and maritime research and technology developments. JPI Oceans currently brings together 21 European countries (representatives from ministries and research funding agencies), who invest in marine and maritime research and covers all European sea basins.

JPI Oceans adds to the value and impact of national R&D and innovation investments by:

- aligning national policy priorities, strategies, policies, competences and programmes
- driving scientific excellence through mission oriented joint actions
- building trust and encouraging new forms of collaboration and partnership between local, regional, national and European policymakers, research funding agencies, research performing organizations, international initiatives and other stakeholders
- building critical mass based on national strategies, policies, competences and programmes
- benefiting from institutional alignment and partnering
- fostering and testing new cooperative tools and innovative approaches and science-policy cooperation with stakeholder involvement to translate science into policy
- strategic community building, disseminating and communicating research results to support their exploitation and facilitating mutual learning

- showcasing European marine and maritime science to the world
- contributing to international agenda setting
- assisting the European RD&I community in international cooperation.

JPI Oceans' strategy and actions contribute to the EU policies, such as the EU 2020 strategy, the Blue Growth agenda and Directives such as the MSFD as well as global commitments such as COP21 and the UN Sustainable Development Goals, particularly no. 14 (Conserve and sustainably use the oceans, seas and marine resources for sustainable development) in interaction with other relevant SDGs.

Due to the interconnected nature of the marine environment, climate change and the maritime economy, JPI Oceans is addressing complex regional, European and global issues requiring an integrated, cross-sectoral and multidisciplinary approach to research and monitoring and to scaling up innovative solutions.

With these activities, JPI Oceans intends to complement the EU's activities under the European Framework Programme for Research and Innovation.

Through JPI Oceans, its member countries build on multilateral principles to seek solutions to the world's societal challenges that relate to the oceans. A cornerstone is recognition of the value of engaging international organisations and third country, or partner country participants.

¹ (2011). Launching of five joint programming initiatives for research. Council of the European Union: Brussels. 12 pp.

In 2015, JPI Oceans members countries shared their national visions and adopted the JPI Oceans Strategic Research and Innovation Agenda (SRIA). This followed extensive consultation and a mapping and analysis of the marine and maritime research and innovation landscape. **The SRIA presents the challenges in terms of 10 strategic areas and three crosscutting themes under which actions are taken forward.**

The SRIA defines common ground for cooperation and setting targets for joint actions. It provides European countries with a shared voice in the global scene and gives direction to the scientific community, with substantial influence which extends beyond that of the individual activities undertaken by JPI Oceans. Alongside this agenda and the related implementation plan, JPI Oceans is creating and maintaining an environment for mission-oriented research and innovation. Joint calls for transnational research and innovation projects provide a solid basis for generating new knowledge, fostering transnational exchange and validating new solutions. However, ensu-

ring knowledge uptake by policy and exploitation of these results requires additional activities and instruments.

The JPI Oceans toolkit comprises a portfolio of instruments tailored to the specific topics and requirements. It currently includes:

- Joint calls for transnational R&I projects (with and without EC co-funding) and including activities funded with cash and in kind contributions
- Foresight studies
- Harmonization and standardization
- Joint monitoring and integrated data collection
- · Contributing to policy making and policy alignment
- Generating scientific evidence that support policy making
- Contributing to knowledge generation that can lead to new products and services
- Supporting Knowledge Hubs
- Sharing research infrastructures and resources
- Strategic seminars and workshops
- International outreach





Example activity

Action on Ecological aspects of micro plastics

Microplastics are persistent environmental contaminants whose great potential for physical harm and toxicity has been highlighted in various studies. However, knowledge about the origin, size, and range of microplastics in marine systems is still limited. In the interest of protecting marine habitats and ensuring the safety of marine resources and seafood, the JPI Oceans Management Board therefore decided an interdisciplinary European research

initiative was necessary. 10 member countries supported the idea and a first workshop between scientists from these countries and Management Board members produced the basis for actions. A bibliometric study, revealed that microplastics research was indeed limited, with emerging national research clusters connected in international and global networks. The report also provides a baseline for further monitoring of this expanding research field and for tracking JPI Oceans' potential impact. In addition, there was an exercise to clarify the potential contribution of research in addressing microplastics in the marine environment.

The sum of these preliminary efforts provided a roadmap for European microplastics research and identified

Governance

The Management Board is the decision making body, responsible for agreeing the SRIA, defining future priorities and implementing JPI Oceans actions. The Management Board comprises high level representatives of government ministries and funding agencies, enabling co-design of actions with science policy relevance from the outset.

The Management Board is assisted by its Executive Committee – an independent Strategic Advisory Board comprising experts from science, industry and civil society – and the JPI Oceans Secretariat based in Brussels.

SHARED USE OF INFRASTRUCTURE

Observing, Modelling and Predicting Oceans State and Processes Climate Change Impact on Physical and Biological Ocean Processes Effects of Ocean Acidification on Marine Ecosystems



Food Security and Safety Driving Innovation in a Changing World Use of Marine Biological Resources through Development and Application of Biotechnology

4 research areas. Subsequently, 10 member countries launched a joint call of €7.7M. They selected 4 transnational research projects for funding from January 2016 to January 2019, based on evaluation by an international expert panel:

BASEMAN: Defining Baselines and standards for Microplastics analyses in European Waters.

WEATHER-MIC: How microplastics weathering changes its transport, fate and toxicity in the marine environment. **PLASTOX**: Direct and Indirect ecotoxicological impacts of microplastics and POPs on marine organisms.

EPHEMARE: Ecotoxocological effects of microplastics on marine ecosystems.

Overall the action aims to take stock of, evaluate and improve current methods for microplastic research. Given the relatively recent emergence of microplastic research, there is a lack of harmonised and validated research methodologies for the quantification and qualification of plastic particles from selected matrices (sediment, biota and water column). The action seeks to assure and control the quality of current assessment methods with the aim of developing robust and cost-effective research methods and protocols, and ultimately, comparable and validated microplastics data. The G7 Science Ministers acknowledged this work in a statement published in October 2015.

Key achievments

JPI Oceans has launched a number of actions, above and beyond joint calls for proposals, testing different approaches and new collaborative tools that are fit for purpose and working towards the alignment of national programmes. In each action, one or two countries take the lead, driving the process in partnership with the other participating countries. The planning and execution of these actions has involved scientists, policymakers and stakeholders. These actions are expected to have impacts on innovation, on the ocean economy, on decision-making processes across the EU and on the well-being of society.

Current actions include:

- Ecological aspects of microplastics: JPI Oceans has mobilized funding of €7.7M from 10 countries for a joint call to address this emerging issue (see the focus on this action)
- Technology and Sensor Developments MarTERA ERA-Net Cofund: JPI Oceans has supported a new ERA-Net Cofund on maritime and marine technologies and Blue Growth. In December 2016, MarTERA launched its first call (€30M) to finance research and innovation on environmentally friendly maritime technologies, development of novel materials and structures, sensors, automation, monitoring and observations, advanced manufacturing and production, safety and security
- Blue Bioeconomy: through JPI Oceans, and in collaboration with ERA-Nets COFASP and MarineBiotech, 22 funding agencies from 17 member countries have announced the ambition to commit around €30M in partnership with the European Commission's Horizon 2020 programme by 2019 to fund research and innovation that will support the development of a sustainable and climate-friendly blue bioeconomy, targeting zero waste, production, harvest and exploitation of aquatic biomass for use in food and other bio-based value chains

- Ecological aspects of Deep Sea Mining: analysing the long-term ecological impacts of deep-sea mining. The impact of the action is now also visible at global level, providing input to the ongoing deliberations of the International Seabed Authority. For the second phase of the action, 5 JPI Oceans member countries launched on 1st August 2017, a joint call (€6M) on Impacts of Deep-Sea Nodule Mining with possible in-kind contributions from other countries
- **Munitions in the Sea:** providing scientific support to agencies addressing these risks, assessing available and new detection technologies and exchanging knowledge and practices
- Intercalibration for the EU Water Framework Directive:
 proving comparability of assessment methods in different countries, by pooling funding from environmental
 authorities to engage experts, increase experience
 with joint data collection and analyses and providing
 cost-efficient scientific support to policy
- European Marine Sensor Calibration: forming a network for pursuing metrologically sound ocean measurements and instruments capable of continuous operation within known parameters during prolonged deployment in harsh conditions
- Food and Nutrition Security: Cooperation with JPI FACCE² and JPI HDHL³ towards the launch of a Knowledge Hub

Further actions are in development, including areas such as: Marine Spatial Planning, the Cumulative Effects of Anthropogenic Disturbances, the Next Generation of Climate Science in Europe for Oceans (Partnership with JPI Climate), the Integrated Assessment of effect of New Pollutants (Partnership with JPI Water), Ecosystem Goods and Services and the European Ocean Observation System.

JPI Oceans actions are open on a case by case basis to wider international collaboration where this can add value.



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