

## LINKS TO OTHER JPIs

# Joint Programming Initiative Healthy and Productive Seas and Oceans

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# JPI Healthy and Productive Seas and Oceans

## LINKS TO OTHER JPIs

Strong synergies are expected to arise from the interaction between the JPI Oceans and several other JPIs from the first and the second wave, since some of the cross-cutting themes that will address in the SRIA of the JPI Oceans are tightly connected to the themes addressed by other JPIs.

### *Synergies with JPIs from the first wave.*

- The **JPI Agriculture, Food security and Climate Change** deals with the management of land and the effect of climate change on agriculture and soils. Land use, agricultural activities and climate change all have an impact on soils erosion. The extension and rate of the erosion together with other factors like river runoff affect the amount of sediments that are transported by rivers into the sea, which in turns affect sedimentation rates in coastal areas having an impact on benthic ecosystems. Likewise, the intensive and wide use of fertilizers and pesticides in agriculture activities are one of the main causes of eutrophication and pollution in coastal areas. Therefore, a close connection exists between the JPI Agriculture, Food security and Climate Change and the JPI Oceans. Particularly synergies are expected under the framework of support of policies and management measures aiming at preserving the good environmental status of seas, oceans and coastal areas.
- Likewise, the JPI Oceans is connected to one of the objectives of the **JPI Healthy Diet for a Healthy Life**, which is aimed at *stimulating the food industry to produce healthier foods in a sustainable way*. In fact, this objective is closely related to one of the cross-cutting research themes identified to be included in the SRIA of the JPI Oceans: research in support of the sustainable development of fisheries and aquaculture industries as sources of healthy seafood. As a result strong synergies between both JPIs are expected in the scope of sustainability of industries and also improving the health of European citizens.
- In addition, connections exist between the JPI Oceans and the **JPI Cultural Heritage and Global Change**, since most of the coastal areas and cities are characterized by having a rich cultural heritage that reflects in many cases a close link and historical dependence of coastal economies and societies on the sea. One of the objectives of the JPI Oceans is to deliver suitable infrastructures for improving the data quality and quantity for the long-term observation of the ocean and making more accurate and precise predictions of the effect of climate change on seas and oceans, including the impacts of sea level rise on coastal areas. A lower level of uncertainty would allow to devise more appropriate adaptation measures to preserve and protect the cultural heritage of these areas threaten by sea level rise. In fact, the impact of climate change is one of the challenges addressed by the JPI Cultural Heritage and Global Change. Therefore, in the framework of the JPI Oceans it would contribute to provide support to reach the objectives of the JPI Cultural Heritage. Synergies are also expected in the field of marine archaeology.

### ***Synergies with JPIs from the second wave.***

- Synergies are expected between the JPI Oceans and the **JPI Water Challenges for a Changing World**, since the later deals with the management of freshwaters bodies, including rivers. Thereby it is linked to the environmental status of seas and oceans. The fresh water inputs from rivers into the sea are key for maintaining the hydrologic and salt balance of seas (particularly in semi-enclosed basins like the Mediterranean, the Black Sea and the Baltic Sea), while the inputs of materials transported by rivers into the sea (sediments, nutrients, organic matter, chemicals, etc.) depends on the riverine flow and the load of these materials in the freshwater flows. Moreover the JPI Water Challenges for a Changing World will cover issues such as the management of urban and industrial wastewaters and the improvement of treatments for removal of pollutants. These will have a positive impact on the status of marine environment, as the improved treatments will reduce the load of pollutants carried out by the wastewaters discharged into the sea. The JPI Water Challenges will also address the issue of emerging pollutants in freshwater bodies which can provide new insights to further advance in this field of research within the scope of the marine environment. Synergies are expected particularly in relation to ICZM and in support of policies to achieve a good environmental status of coastal waters and ecosystems.
- On the other hand, the **JPI The Microbial challenge – An emerging threat to human health** is focussed on the fight against antibiotic resistant microorganisms through the development of new drugs and antibiotics. Currently one of the major problems in the search of new drugs is to find suitable sources for these products. The scarcity of sources has hampered the development new antibiotics over the last decades in comparison with the development experienced prior to the 70's leading to stagnation in the discovery of new drugs. In addition, partly due to a bad use of antibiotics, many bacteria strands have become antibiotics resistant, putting human health at serious risk at a global scale. It is acknowledged that products derived from marine organisms are an invaluable source of new chemicals for a wide range of medical applications, including drugs and antibiotics to combat antimicrobial resistance. Among different cross-cutting topics identified by the JPI Oceans, particular attention in the SRIA will be paid to further advance in the development of marine biotechnologies for the discovery of new products, including new drugs and antibiotics derived from marine organisms. Therefore, it is expected that the JPI Oceans will have a main role on the development of new medical products to combat antimicrobial resistance. In this sense strong synergies will be generated between the JPI Oceans and the JPI The microbial challenge.
- The oceans play a key role in the regulation of the Earth Climate System but at the same time, due to the feedback mechanisms and interaction between ocean and climate, this essential role is being altered by the impacts of climate change on marine ecosystems (sea level rise, ocean acidification, warming of sea water, melting of ice sheets, changes in surface circulation patterns and thermohaline circulation, water mass formation, changes in primary production and food webs, etc.). The JPI **Connecting Climate Knowledge for Europe** (JPI Clík'EU) will address four modules, which include i) the improvement of decadal climate predictions and ii) the improvement of models and scenarios tools for decision-making under climate change. In order to tackle these challenges the role of the ocean has to be take into account in the development of improved models for climate prediction and services. This will require not only better environmental data from oceans and seas but also better knowledge to fully understand the mechanisms and feed backs that rule the interactions between ocean and atmosphere. The ocean data and knowledge needed by the JPI Clík'EU to develop improved climatic models will be delivered by the JPI Oceans.

- The **JPI Urban Europe** will deal with research for better management of cities. In the case of coastal cities there would be a link between the JPI Urban Europe and the JPI Oceans. In particular, ecological sustainability is one of the four cornerstones of the JPI Urban Europe that will require addressing issues such as sewage treatments, urbanization and development of activities along the coastline, both tightly link to the ICZM and the environmental status of the marine and coastal environment, thereby synergies may rise.