JPI Oceans Knowledge Hub – Blue Carbon
Date: 2023

Lead country: Ireland
Co-lead country: France
Supporting/participating countries: Germany, Greece, Malta, Norway, Poland, Portugal, United Kingdom

This document sets out the implementation of the JPI Oceans Knowledge Hub on Blue Carbon starting in May 2023. The document presents the procedure for setting up this action.

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Disclaimer

This publication represents only the consolidated view of JPI Oceans and not necessarily the views of individual JPI Oceans member countries.

Background

The JPI Oceans initiative and rationale for a Knowledge Hub

Blue Carbon (BC) is defined by the Intergovernmental Panel on Climate Change (IPCC) as "all biologically driven carbon fluxes and storage in marine systems that are amenable to management". To date, much of our understanding of blue carbon dynamics comes from studies from vegetated coastal blue carbon ecosystems (CBCE) such as tidal marshes, mangrove forests, and seagrass meadows. These coastal habitats, through drawdown and storage of carbon, have the potential to mitigate climate change, while their deterioration and eventual loss can result in significant release of CO_2 into the atmosphere. CBCEs support a wealth of biodiversity, providing us with services such as coastal protection from storms and nursery grounds for fish. However, CBCEs are increasingly vulnerable to sea-level rise and human activities such as coastal development, pollution, and destructive fishing practices. Despite ongoing degradation of CBCEs, recent research has demonstrated that effective management (e.g., re-establishment, conservation) can deliver the full spectrum of climate mitigation, adaptation, and resilience benefits and contribute to the global 30% targets for management and restoration outlined in the UN Biodiversity Agreement.

The integration of CBCEs into policy and management frameworks is critically important and the blue carbon concept promises a low regret, Nature-based Solution (NbS) with co-benefits for climate, people and nature. NbS, including the conservation and re-establishment of CBCE, are integral to reaching the climate targets laid out by the Paris Agreement. In addition, a key element of the EU Biodiversity Strategy is the Nature Restoration law which calls for binding targets to re-establish degraded ecosystems, including those with the most potential to capture and store carbon and prevent the impact of extreme climate events on such habitats.

Other marine ecosystems (e.g., macroalgal beds, unvegetated mud flats, water column and others) are essential for capturing, fixing and transferring CO_2 to long-term storage in sediment and deep ocean water bodies. Measuring and accounting for this carbon has proved complex, with significant scientific uncertainties related to transfer routes, the quantities stored and the accumulation rates. Although macroalgae are included in the IPCC definition, these habitats are not formally included in national GHG inventory reporting, due to the lack of documentation that these ecosystems store and sequester carbon.

In Europe, gaps remain in our understanding of local and regional scale variations in carbon stocks and fluxes, the geographic distribution of CBCEs, and both CO_2 and non-CO_2 greenhouse gas (GHG) emissions. Key areas of research and action include future threats (e.g., climate change and associated sea-level rise), mitigation pathways (e.g., BC carbon removal mechanism, marine carbon accounting), optimum management interventions and their implementation, incorporation of BC into national GHG inventories (GHGi), building co-benefits into policies, the relevance of BC for coastal communities, enhanced blue carbon in aquaculture, national or European blue carbon standards, and socioeconomic impacts.

This Knowledge Hub will focus on efforts to gather carbon stock and sequestration rate data into an inventory. It will:

- Use currently available national environmental databases for each country involved in the Joint Action,

- Identify and utilise sources with datasets [propose a call to research community for provision of data],
- Collate and standardise existing data.

The scientific and managerial capacities to address this effort will be mobilised by:

a) Establishing a multidisciplinary network to enable knowledge sharing and best practice,
b) Enabling an information platform in collaboration with EMODnet that is accessible and usable for various stakeholders,
c) Summarising state-of-the-art in Blue Carbon science,
d) Developing a policy roadmap for carbon removal for Europe targeting Blue Carbon.

About Knowledge Hubs

Knowledge Hubs are temporary networks consisting of selected experts from JPI Oceans member countries with the goal of delivering a specific outcome or product, or several thereof. Each participating country is responsible for nomination and funding (in-kind and/or cash) of experts that join the network. The Knowledge Hub instrument aims at developing a well-balanced network of members providing all the expertise required to reach the defined goals. Each Knowledge Hub may have different goals, approaches and expected outcomes. However, in general a Knowledge Hub:

- is flexible and can address different aspects and needs of a range of stakeholders (from researchers to policymakers);
- can draw on existing national programs and ongoing European projects, and can concentrate on knowledge gaps;
- could leverage financial resources matching cash and in-kind contributions;
- conducts networking activities to define research gaps and challenges;
- is time-limited: it is created with specific terms of reference and ceases to exist when the parent body that created the Knowledge Hub considers that the work is completed or that continuation of the Knowledge Hub would no longer have sufficient purpose.

The Knowledge Hub builds a network of selected experts within a specified research area. It will establish a critical mass of research, integration and sharing of knowledge, infrastructures, data and modelling tools, training and capacity building, in addition to improved communication and networking between the scientific community and policy makers.

Expected Outcomes

As an outcome of this networking and information exchange, the JPI Oceans Knowledge Hub will:

- Establish a multidisciplinary network to enable knowledge sharing and best practices.
- Enable an inventory in collaboration with EMODnet, for various stakeholders, to include a repository of habitat extent, vulnerability, carbon stock, and sequestration rate data.
- Produce a report on the state-of-the-art in Blue Carbon science including gap identification to inform potential future research funding calls.
- Produce a policy roadmap for carbon removal in Europe that targets BC and aligns with legislative drivers.

Alignment

JPI Oceans can ensure engagement with the quadruple helix through cooperation of its members, and via cooperation with its ongoing Joint Action initiative on Ocean Carbon Capacities.

Added-Value

Through the scoping phase, a network of experts (policy makers, scientists) was formed, and the Knowledge Hub can build on this network to drive the work to be undertaken. The endorsing of the Knowledge Hub as a European Regional Hub aligned to the GO-BC programme also facilitates knowledge transfer and strengthens collaborative efforts from global to regional level. One of the coordinators from the Knowledge Hub will engage with the GO-BC programme leads and other initiatives and will be available to join the GO-BC scientific and technical working group to give updates on regional activities.

General Timeline

The Knowledge Hub is planned for an initial period of 24 months.

The key milestones are:

- Activities of the Knowledge Hub will formally begin with an online kick off meeting in **late 2023**. In person meeting TBC.
- Endorsement (**~November 2023**) of European Regional Hub (EURO-BC) by Ocean Decade Programme.
- Working groups set up for work on (i) repository, (ii) policy roadmap, (iii) state-of-the-art summary **(November 2023).**
- Implementation plan – including communication/dissemination **(March 2024)**.
- List of criteria/methodology to facilitate call for data to be included in repository **(May 2024)**.
- Call out to stakeholders for unpublished data sets to be included in database **(May 2024)**.
- Repository set up, hosted by EMODNet **(August 2024)**.
- Repository population initiated **(September 2024).**
- Policy roadmap produced.
- Draft report from the Knowledge Hub to be presented to the Steering Committee **(September 2025)**.
- Report from the Knowledge Hub to be presented at the JPI Oceans Management Board meeting **(October 2025)**.
- Recommendations for further work to be presented by the Steering Committee to the JPI Oceans Management Board meeting **(October 2025)**.
- Final report of the work of the Knowledge Hub is to be produced **(November 2025)**.

Governance and Participation from Funding Organisations

Governing structure

JPI Oceans members participating in the Knowledge Hub will compose the **Steering Committee** for the Knowledge Hub. The Knowledge Hub Steering Committee will oversee the activities of the Knowledge Hub and ensure their full integration in and complementarity with the overall JPI Oceans activities. The Steering Committee will be chaired by Management Board members (or someone they designate) of the lead country (Ireland) and supported by the co-lead country (France).

A **coordination unit** run by a Coordinator (lead country representative) and Co-coordinator (representative from JPI Oceans secretariat) will have day-to-day responsibility for the work of the Knowledge Hub.

An **expert group** will be selected (see below) to work towards the outcomes for the Knowledge Hub as outlined in these Terms of Reference. This group will be chaired by a scientific lead (Lead country scientific lead, Ireland) and co-lead (nominated by expert group).

Budget and funding mechanisms

Costs associated with the Steering Committee's own activities (i.e., attendance at meetings, time, etc.) will be covered by the participating JPI Oceans member countries. The participating JPI Oceans member countries will cover the costs of their national expert(s) in the Knowledge Hub over the project period. Agreement on coverage of the expert costs (hours, travel costs, etc.) shall be undertaken on national level.

The coverage of costs of expert(s) that are specially invited, i.e., not nominated by a JPI Oceans member country, shall be agreed upon by the Steering Committee **prior** to the invitation of the expert(s).

The financial support envisioned for this Knowledge Hub on Blue Carbon is outlined in the two tables (different options) below:

OPTION A: To be most impactful

Cost	Description	Total amount
Travel	Knowledge Hub: 1 in-person meeting each year with expert group WG: 1-2 in-person meetings per year to facilitate work	Travel costs undertaken at national level
Hosting meetings	1 in person meeting each year, will require catering and venue larger than JPI Oceans office space to facilitate expert group (policy makers and scientists) as well as coordinators and MB members	€10k per meeting X 2 years = €20k total
Policy event	Parliamentary event to advocate for policy roadmap developed. Morning information session and panel discussion.	€5k
Database Resources	0.25FTE for quality checking data received for repository	3 months salary (dependant on location/grade) ~€25-30k?

OPTION B: Lowest cost, no quality checking on data (potentially affecting impact of repository), no policy event (impact of policy roadmap affected), hosting meetings in JPI Oceans office instead of externally (impacts number of experts that can attend).

Cost	Description	Total amount
Travel	Knowledge Hub: 1 in-person meeting each year with expert group WG: 1-2 in-person meetings per year to facilitate work	Travel costs undertaken at national level
Hosting meetings	Catering and incidental costs for meetings	Covered by JPI Oceans from global budget

Setting up the Knowledge Hub

JPI Oceans will have the overall responsibility of ensuring that the work of the Knowledge Hub is carried out while the Knowledge Hub experts will provide the necessary competence to ensure the quality of each phase in the process. The Knowledge Hub experts will be the main body for executing the work set out and agreed for the Knowledge Hub and should consist of the competence and knowledge necessary to be able to deliver the expected outputs as laid out in the Terms of Reference.

Selection of experts

The relevant competencies necessary to execute the work of the Knowledge Hub include policy makers, blue carbon scientists, social scientists, coastal community groups, and regional development agencies.

The Knowledge Hub Steering Committee members will agree on a process and criteria for expert selection, thereby also considering the expected activities and outputs sections in this document.

The Knowledge Hub Steering Committee will review the proposed list of experts to be invited to join the Knowledge Hub. The review will among others take into consideration the following criteria to decide whether additional experts are needed for a well-balanced Knowledge Hub:

- Researchers' collaboration with stakeholders
- Representation of stakeholders and their areas of interest
- Disciplines covered
- Geographical balance
- Gender balance
- National infrastructure in place to support the group
- Organisations and initiatives working on integrated assessments

Participating funding organisations will send a confirmation to the selected experts, confirming their participation in the Knowledge Hub and the associated financial contribution they will receive for Knowledge Hub activities.

Knowledge Hub Kick-Off

The Knowledge Hub Kick-Off meeting will take place in late 2023. Expected attendees include experts invited to participate in the Knowledge Hub and the Knowledge Hub Steering Committee members.

The objectives of the meeting are to:

- ensure that participants get to know each other.
- review the scope and objectives of the Knowledge Hub.
- determine the (most useful form of) outcome(s) of the Knowledge Hub.
- provide clarification on the processes involved, etc.
- discuss and work on implementation milestones.
- potentially nominate a scientific co-lead.

Participating funding organisations will send a confirmation to the selected experts, confirming their participation in the Knowledge Hub and the associated financial contribution they will receive for knowledge hub activities.

Implementation Phase

Within 4 months after the kick-off meeting, the experts involved in the Knowledge Hub will be requested to develop implementation milestones with an indicative timeframe and tasks, outlining how they will address the expected Knowledge Hub outputs. During this 4-month time frame, working groups will be established.

Monitoring

The Steering Committee together with the coordinator(s) will monitor the progress of the Knowledge Hub to ensure that it achieves its objectives. This will be done through regular meetings to discuss the status of each of the expected outputs laid out in the Terms of Reference.