Synergies and Clustering between Maritime Projects (EASME/EMFF/2020/3.1.12) – SI2.850620

Workshop Report:

"Ocean health & observation"

SYNERGIES AND CLUSTERING BETWEEN MARITIME PROJECTS
NEW IDEAS FOR A SUSTAINABLE BLUE ECONOMY

Contents

1. Executive Summary

CINEA, the European Climate, Infrastructure and Environment Executive Agency is implementing an initiative titled **"Synergies and clustering between maritime projects"** with the aim to provide a platform for exchange of information, best practices and synergies between EMFF funded projects as well as with other funding programmes in support of the Integrated Maritime Policy's goals. Running from June 2021 for two years and supported via a consortium of consultants through a tender contract, a key component of the initiative is to run a series of workshops to facilitate and foster networking, cooperation, sharing of experiences and to maximise the impact of relevant thematic clusters of EMFF-funded projects.

The eighth workshop, on **"Ocean health & observation"** took place on Monday, 17 April 2023 (10:00-13:00 CET). The workshop sought to explore exchange of information, synergies and clustering between projects dealing with ocean health and observation, funded by both the EMFF/EMFAF and other funding programmes. It presented success stories, information and funding options for project coordinators to consider with the objective of establishing synergies and stimulate potential cooperation in the field of ocean health and observation.

The EMFF funded 15 projects dealing with ocean health & observation:

Project name	Start date	End date	Total budget in €	EU contribution in €
Strategic Environmental Assessment of Wave energy technologies (SEA Wave)	01/11/2018	31/12/2021	956,763	764,646
Wave Energy in Southern Europe(WESE)	01/11/2018	31/10/2021	929,606	743,687
Streamlining the Assessment of environmental efFEcts of WAVE energy (SafeWAVE)	01/10/2020	30/09/2023	1,893,370	1,514,696
Creating new life for discarded fishing and aquaculture gears to prevent marine litter generation (BLUENET)	01/01/2019	30/06/2021	688,364	550,691
Tagging fishing gears and enhancing on board best-practices to promote waste free fisheries (NetTag)	01/01/2019	30/06/2021	493.061	394.450
Technological approaches for circular economy solutions in terms of prevention, recover, re-use and recycle of fishing gears to obtain added-value products in the textile industry (OCEANETS)	01/01/2019	30/06/2021	532,575	426,090
Mapping and recycling of marine litter and Ghost nets on the sea-floor (MarGnet)	01/01/2019	31/12/2020	611,792	489,434
Preventive Measures for Averting the Discarding of Litter in the Marine Environment from the Aquaculture Industry (AQUA-LIT)	01/01/2019	31/12/2020	587,250	469,800
Boost Applied munition detection through Smart data inTegration and AI workflows (BASTA)	01/12/2019	30/11/2022	1,247,046	997,637
Ex-situ, near-real-time exPlosive compound deTection in seawater (ExPloTect)	01/12/2019	30/11/2022	1,098,914	879,130
First line response to oil spills based on native microorganisms cooperation (SpilLESS)	01/02/2017	31/01/2019	368,175	294,540
MERcury CLean-Up system based on Bioremediation by marine bacteria (MER-CLUB)	01/11/2019	30/04/2023	1,044,889	851,058

Project name	Start date	End date	Total budget in €	EU contribution in €
Algal Forest Restoration In the MEDiterranean Sea (AFRIMED)	01/01/2019	31/12/2022	1,858,354	1,486,111
Cost-Efficient Oceano-Meteorological Data Service For Reliable Real-Time Information And Marine Forecast (OCEANMET)	01/12/2018	31/03/2021	962,048	625,332
Future of the Ocean Data Collection Market: Commercialisation of the novel Low-cost, Efficient, High-performing Autonomous Unmanned Surface Vessel (FLEETUSV)	01/09/2020	31/08/2022	2,442,061	1,709,443

Based on the experience gained thus far, it seems that not all EMFF-project beneficiaries are determined to seek cooperation with other projects. In fact, carrying out projects in silos is far from being ideal to advance the blue economy and to achieve the sea-basin strategies objectives. However, previous experience shows that there is ample room for cooperation between project beneficiaries.

A total of 37 attendees participated in the workshop. A mixed methodological approach was used to drive engagement and participation in the virtual setting.

2. Introduction

This was the eighth in a series of thematic workshops being held under the "Synergies and Clustering between Maritime Projects" initiative. The "Ocean Health & Observation" workshop took place on Monday, 17 April 2023, and aimed to explore options and opportunities for cooperation between projects dealing with ocean health and observation, funded by both the EMFF/EMFAF and other funding programmes.

A comprehensive agenda included an overview of the policy context and landscape, as well as a series of successful stories (ExPloTect and BASTA, MarGnet, SeaDataNet) presented by beneficiaries. Further, the workshop was supported by an interactive session to enable participants to share their own experiences on whether and to what extent cooperation between project beneficiaries is possible.

3. Workshop Objectives

The objective of the workshop was to utilise a co-creation and participatory approach to achieve a common understanding as well as gain insights and knowledge on the following elements:

- **Clarity**: Understanding of the direction of EU policies going forward and how future projects should be orientated to support this.
- **Foresight**: Insights to help inform the work of the policy.
- **Knowledge Sharing:** Sharing between beneficiaries on experiences and insights focused on legacy/impact.
- **Synergies:** Identify opportunities for collaboration among beneficiaries for future collaboration.

4. Target Participants

For this thematic workshop the following groups were the primary targets:

a) **EMFF project beneficiaries**
b) **Other funding programmes project beneficiaries**
c) **EMODnet and CMEMS**
d) **Coherence panel**

A total of 37 participants attended the workshop. Attendance consisted of members of the coherence panel and beneficiaries from both EMFF funded projects and other funding mechanisms.

5. Workshop Methodology

The three-hour workshop took place online via Zoom. Participation was free and open to all relevant stakeholders.

In order to engage all participants and encourage participation, the methodology included a mix of presentations and plenary discussions.

The workshop began with an introduction on the purposes of the workshop, an overview of policy context and landscape and an overview of the funding opportunities. Subsequently, three presentations were given by successful project beneficiaries.

The second session was entirely dedicated for the discussion.

The agenda for this workshop can be found in **Annex 1 –** .

6. Workshop Execution

The workshop took place as scheduled on Monday, 17 April from 10:00-13:00 CET. The workshop had two parts – Part 1 focused on policy context, landscape and example of success stories, while Part 2 facilitated discussion with project beneficiaries.

A short narration of the presentations and case studies delivered during Part 1 of the workshop are provided below. A copy of each presentation is available on the **Maritime Forum**.

Part 1: Policy context, funding options, and synergies & cooperation success stories

Title	Name and Affiliation of speaker
Policy context and landscape	**Iain Shepherd, DG MARE**

Mr Iain Shepherd discussed ocean observation and the initiatives brought by the Green Deal to improve the health of the oceans. These initiatives include the Biodiversity Action Plan, Zero Pollution Action Plan, Offshore Energy Strategy, Farm to Fork, Circular Economy Action, EU Strategy on Climate Change, and a proposed nature restoration law. They all require appropriate monitoring.

Mr Shepherd highlighted the value chain of ocean observation, starting with measurement observation, followed by data synthesis modelling, and involving public and private intermediaries and organizations that create v alue-added information products for end users.

Mr Shepherd noted that the American ocean observation market is larger than the EU market.

He presented technology priorities identified during a EuroGOOS workshop, including solar power for instruments in the deep sea, small-scale plug and play autonomous instruments, new techniques for measuring marine life, platforms with multiple sensors, standards and technologies for verifying carbon removals, and reducing carbon footprint.

He shared Xocean as a success story, citing its drone-based seabed mapping with lower emissions, costs, and increased safety.

Mr Shepherd pointed out that some sensor suppliers for the European market are only available from the USA, indicating that the EU lags behind in ocean observation.

Another success story he mentioned was WSense, a deep-tech company spinoff of La Sapienza University in Rome, and their work with the Internet of Underwater Things. They receive financing from the EMFF (European Maritime and Fisheries Fund) and defence bodies.

He compared the research programs' funding, noting that the European Defence Fund has 8 billion euros compared to Horizon Europe's 100 billion euros.

Regarding dual-use EU policies, Mr. Shepherd explained the objectives of avoiding use by enemies and supporting new technologies. He emphasized the need to shift laboratory research to the market, particularly in the underwater drone market where the EU has fewer companies compared to the dominant presence of the USA. Grants alone are insufficient, and support is required to facilitate the transition from laboratory to market.

Mr Shepherd then presented initiatives supporting this transition, including the European Innovation Council (providing support for early-stage, validation, and commercialization), the Hub for European Defence Innovation, and BlueInvest (offering equity on slightly better terms than the market and attracting private investors).

Title	Name and Affiliation of speaker
Synergies & cooperation success stories	**Aaron Beck (ExPloTect and BASTA) Fantina MADRICARDO (MarGnet, MAELSTROM, Life DREAM), Dick SCHAAP (SeaDataNet)**

Mr Aaron Beck presented the synergies between two projects, **ExPloTect and BASTA**, which were funded by the European Maritime and Fisheries Fund (EMFF). Both projects focused on addressing the issue of munitions in the seas, which is a global and EU-wide problem. The North Sea and Baltic Sea were specifically targeted as they are heavily affected by munitions. The presence of munitions poses challenges for the blue economy, including the need for clearance of dump munitions before

offshore development can take place, resulting in a costly process. Additionally, munitions negatively impact tourism and pose risks to aquatic ecosystems through the release of toxic chemicals. ExPloTect and BASTA aimed to improve and streamline the process of finding and clearing munitions. ExPloTect focused on the chemical perspective, developing technology that can detect dissolved explosives in seawater in near real time. Recommendations for integrating chemical sensing into munition detection protocols were also developed. On the other hand, BASTA was a knowledge-driven project that worked on advancing data acquisition, high-resolution 3D seabed profiling, intelligent autonomous underwater vehicle (AUV) magnetic mapping, sustainable data utilization in a multi-sensor database, defining quality parameters for unexploded ordnance (UXO) surveys, analyzing big data with artificial intelligence, and formalizing recommendations for munition detection.

ExPloTect provided chemical data to feed the BASTA database. Both projects heavily relied on field testing and collecting new data. They coordinated joint research cruises where members from both projects collaborated, improving access to ship time, enhancing productivity, and reducing individual effort. The projects shared data throughout their duration and maintained ongoing synergies in the field.

Furthermore, they collaborated on stakeholder engagement, organizing outreach events for various audiences and conducting joint workshops involving public media representatives. Mr Beck highlighted that the main challenges they encountered included ad-hoc planning, which worked in their case due to close proximity, but could be challenging in different circumstances. He emphasized the importance of planning as close to the proposal development as possible. Future challenges involve promoting collaboration among other projects that may not be directly connected.

The results of ExPloTect and BASTA have led to subsequent activities such as AMMOTRACe, ProBaNNt, and CONMAR. In the future, they aim to further develop and apply the tools developed in ExPloTect and BASTA to address other non-munitions topics.

Ms Fantina Madricardo presented three projects: **MarGnet, MAELSTROM, and Life DREAM**, emphasizing their synergies. MarGnet focused on monitoring and managing marine litter (ML) from sea-based sources on the sea-floor and generated by the fisheries and aquaculture activities. This includes not only abandoned, lost and otherwise discarded fishing gears (ALDFG), but also all the litter that is generated by fishing and sea food product management, including ropes, mooring points, degraded nets and their components. MarGnet objectives included implementing solutions to prevent, remove, and recycle ML from the sea floor. A significant achievement of MarGnet was the development of a prototype that used low-temperature pyrolysis to convert marine litter into second-generation marine fuel, reducing CO_2 emissions.

Building upon MarGnet's results, the ongoing MAELSTROM project aims to identify marine litter accumulation hotspots and assess their impact on ecosystems. It utilizes the MarGnet prototype for fuel production and incorporates technologies for litter removal. In addition to what was done during the MarGnet project, MAELSTROM developed specific technologies to remove litter from the environment: (i) a robotic seabed cleaning platform tested in the Venice Lagoon, which selectively removes marine litter while minimizing harm to ecosystems; (ii) The Bubble Barrier, tested in the Ave River in Portugal, which employs bubbles to trap plastic pollution before it reaches the ocean.

In contrast to the MAELSTROM project dedicated to the coastal areas , the Life DREAM project focuses on deep-sea habitats and aims to support the extension of Natura 2000 protection to these areas. It involves deploying artificial structures to promote the growth of deep reef-forming species and remove marine litter. The project will operate in pilot sites by deploying artificial structures aimed at facilitating the growth of deep reef-forming species and removing marine litter.

Mr Dick Schaap presented SeaDataNet, a pan-European infrastructure and network of National Oceanographic Data Centers (NODCs) and other data centers from 34 countries. The main purpose of SeaDataNet is to provide access to standards, tools, and services for metadata, data, and products related to marine and ocean data for both data centers and users.

SeaDataNet was initiated in the 1990s through EU RTD programs and became an AISBL since 2019, giving it a legal basis for its network.

The main goals of SeaDataNet include: (i) developing and maintaining standards, tools, and services for metadata and data formats, controlled vocabularies, and adhering to the FAIR and INSPIRE principles; (ii) providing training and support to data centers to adopt and implement the standards, tools, and services in their operations; (iii) developing technological skills for adopting emerging technologies and principles; (iv) publishing European directories and integrated data products, such as T&S (Temperature and Salinity) climatologies; (v) being a significant player in the European ocean and marine data management landscape, supporting various EU initiatives like EMODnet, CMEMS, EOSC, and collaborating with Research Infrastructures (RIs).

Cooperation with different partners was emphasized as crucial for successful work. SeaDataNet collaborates with numerous research projects, adopting its standards and services and working together with various ocean monitoring systems such as EuroGOOS and GEOSS-EuroGEOSS.

A significant part of the presentation was dedicated to the cooperation between SeaDataNet and EMODnet. EMODnet focuses on European data products and services to support the Blue Economy, Blue Environment, and Marine Knowledge agendas. SeaDataNet plays a leading role in the data management component of EMODnet, resulting in more data centers adopting SeaDataNet standards and contributing to its directory services, which in turn aids EMODnet in generating and updating its data products.

Furthermore, Mr Schaap highlighted the European landscape of marine and ocean data management, identifying SeaDataNet, EMODnet, and Copernicus as the three major players. To enhance integration, SeaDataNet actively drives the Blue-Cloud initiative, which aims to develop a Federated European Ecosystem to deliver FAIR and Open data and analytical services for research in oceans, EU seas, coastal and inland waters.

In conclusion, Mr Schaap highlighted that SeaDataNet's standards and services for marine data management have a significant impact on the marine data landscape in Europe and beyond. The network has a vast network of data centres, working directly with in-situ data collectors, providing validation, long-term stewardship, and dissemination of data sets. SeaDataNet's data collections serve as crucial inputs for various derived products, including those produced by EMODnet and CMEMS. The network continues to innovate its standards and services by participating in EU-funded projects and contributing to major EU initiatives and directives.

Part 2: Knowledge sharing and networking

Below is a list of probing questions posed to participants during this session. Participants were asked to share their experiences and advice on the specific topics. Responses to these questions have been collated in Section 7 on workshop outputs.

1. **How to secure funding? What is the best "business model" for a research/policy project?**
2. **How to facilitate cooperation & synergies between project beneficiaries?**
3. **What ocean health and observation research/policy priorities should the EC address over the coming years?**

7. Workshop Outputs

This section summarises the key points captured during the discussion.

Question 1: How to secure funding? What is the best "business model" for a research/policy project

- It is very important to create an exploitation/business plan by identifying your strengths and finding a niche where those strengths can be utilized. By developing skills and showcasing them, you can attract partners who possess complementary skills, creating a competitive and valuable network. Networking is crucial and requires social skills.
- The focus should be on seeking opportunities not only within calls and grants but also beyond them. One should look into different programmes and see how they can make their project useful in reaching the objectives of the programme. It is important to find out where a project results can be used by others.
- The post-grant strategy should be planned from the beginning. It is very important to adopt an entrepreneurial mindset, even for research projects.
- If one applies for a new grant, they need to expand their project scope, increase the size and build on the results of pasts projects.
- Outreach activities are very important to ensure that ideas are spread within the community. They also increase the chances of finding new partners, expanding partnerships, and securing new funds.
- There is an inherent limitation for some projects to break free from the grant trap, and this limitation stems from the fact that the market for ocean observation projects tends to be smaller in the EU compared to, for instance, the US.

Question 2: How to facilitate cooperation & synergies between project beneficiaries?

- Networking involves staying well-informed about current and potential market by reading extensively and engaging in conversations. Building good relationships with individuals involved in various initiatives and movements is crucial. Networking enables to promote a product or services to the right people, ensuring they are aware of one's skills and offerings. It also provides an opportunity for receiving feedback, allowing to improve a product/service to better fit the market needs.

- Being part of a network enables to influence calls and contribute ideas. Networking is viewed as a means of being part of the influential network, engaging in transparent lobbying, and introducing new ideas that may ultimately shape future calls.
- Example of Blue-Cloud that wouldn't exist if not for collaboration with other projects, programmes and initiatives. Now Blue-Cloud is evolving into an infrastructure. Over the last few years, they have initiated discussions with several projects working in marine fields individually to understand how Blue-Cloud's services can be beneficial to them in terms of data. Many projects have been interviewed to contribute to the development of the roadmap released by Blue-Cloud.
- Intermediate meetings among beneficiaries are considered valuable as they provide an opportunity for cross-thinking and collaboration with other projects. With the convenience of virtual meetings, such interactions have become easier to organize. The desire for more networking events (also in-person) was expressed to further facilitate connections and collaborations among project beneficiaries.
- The key is to understand how each project can contribute to the bigger picture and the higher objectives we aim to achieve. By doing so, we can create the most effective synergies.
- Example of EU4OceanObs: the EU4OceanObs aims to foster international synergies and pursue overarching objectives by examining the alignment of various programs. Offline activities, such as mapping initiatives and projects in Europe and exploring their potential contributions to one another, are being undertaken. The initial step involved compiling a list of Horizon 2020 and Horizon Europe projects categorized by different topics. They are now working on including projects beyond these two frameworks.
- There is a need to establish a common portal or database where all projects can be organized by topic.
- Live events are also considered important.
- Working together, even in expert groups unrelated to the project, can be highly beneficial as it provides an opportunity for individuals to collaborate and potentially generate new ideas. It is important to identify the common overarching goal that everyone is striving to achieve.

Question 3: What ocean health and observation research/policy priorities should the EC address over the coming years?

- There are knowledge gaps in the areas such as marine litter and noise. Although progress has been made in addressing these issues, they still require significant attention. To make effective efforts in restoring our seas and oceans, it is crucial to have a better understanding of their current state. It is important to develop new technologies to collect relevant observations and data.
- The need for more coordination was emphasized, as there are numerous initiatives happening simultaneously, leading to a sense that everyone is working independently. There is currently a significant amount of overlap among these initiatives.
- Bringing together the research and public sector in terms of use is very important, as monitoring the ocean is key to everything else
- Increased funding should be allocated to measuring a select few essential parameters, namely CO_2, pH, chlorophyll, and oxygen.
- To address the magnitude of the problems we face, it is necessary to invest in solutions rather than solely focusing on observations. For instance, regarding marine litter, it is crucial to not only reduce plastic production and litter but also take action to address the existing litter. This involves investing in successful solutions and providing subsidies for technologies that are already proven

to be effective, with the aim of improving them and facilitating their expansion to other regions and sea basins.

- To effectively address urgent oceanic challenges such as climate change, biodiversity loss, and marine litter, there is a need for greater integration between social and ecological data in ocean projects. It is crucial to tackle social and ecological systems collectively, and this integration can be facilitated by the European Commission through funding calls.

8. Follow Up Actions

A PDF copy of all presentations delivered on the day is available on the Maritime Forum.

Annex 1 – Event Agenda

Chair: Alessandro PITITTO, Cogea

Part 1: Policy context and best practices

09:30-09:35   **Welcome and introduction**
Charlotte JAGOT, CINEA

09:35-09:45   **Policy context and landscape**
Felix LEINEMANN, DG MARE

09:45-09:55   **SEAFILM:** Development of biodegradable edible films for frozen fish to replace plastics – Ana AUGUSTO, *Politécnico de Leiria*

09:55-10:05   **CIRCALGAE**: Valorising algae industrial waste streams – Amparo JIMÉNEZ, *KTH Royal Institute of Technology*

10:05-10:15   **SEAFOOD ALGTERNATIVE**: Fish substitute from algae to preserve marine wildlife and develop algaculture - Maxime PECQUET, *ALGAMA*

10:15-10:30   **Coffee break**

Part 2: Knowledge sharing and networking

10:30-10:35   **Introduction to Part 2**
Alessandro PITITTO, Cogea

10:35-11:05   **Tour de table**

11:05-12:15   **Breakout discussion**

12:15-12:30   **Summary of discussions and formal meeting close**

12:30-13:30   **Networking lunch**