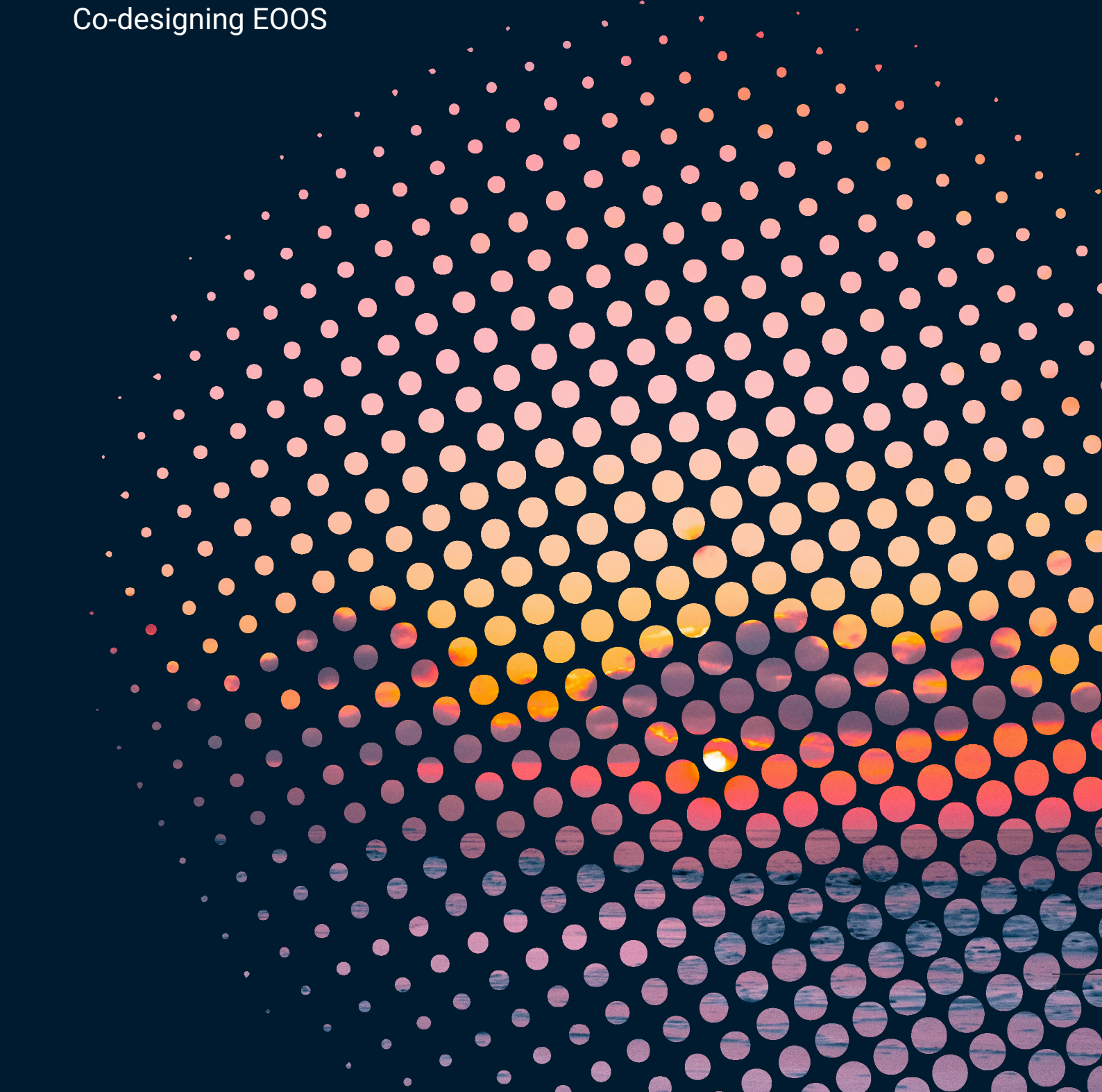




European
Ocean
Observing
System

E00S Roadmap for Implementation 2023-2027

Co-designing E00S





Co-designing E00S

The **E00S Strategy 2023-2027** defines the **vision** of 'A European Ocean Observing System that is sustained and meets the specific needs of users', achieved through the **mission to coordinate and integrate European communities and organisations operating, supporting and maintaining ocean observing infrastructures and activities, fostering collaboration and innovation**. This mission is divided into three interconnected objectives:

Objective 1

Unite the European ocean observing community through the E00S Framework, to collaboratively design and work towards a sustained multi-platform, multi-network and multi-thematic E00S that meets the specific needs of users.

Objective 2

Engage with European providers of services and products derived from ocean observations to improve collaboration across the marine knowledge value chain.

Objective 3

Advise governance, funding and policymaking to implement recommendations towards a sustained E00S.

In order to fulfil these objectives, implementation during the Strategy period will be divided into different activities, with the overarching task of co-designing E00S in collaboration with stakeholders supported by each subsequent activity. This will involve improved connection of existing components that contribute to E00S as well as the development of new activities, and identification of resources to realise and sustain E00S.

Implementation

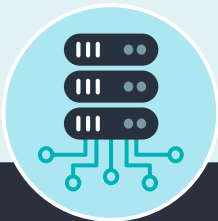
Activities of interconnected objectives



Understanding user
and stakeholder
needs and priorities



Improving the visibility
of ocean observing
activities



Promoting best
practices and open
data sharing



Co-designing EOOS in
collaboration with
stakeholders



Fostering innovation
in ocean observing



Advancing the transition
to a well-connected,
coordinated ocean
observing system



Communicating the
value of ocean
observing

Activity 1

Co-designing E00S in collaboration with stakeholders

Activity 1 is the overarching task for the E00S Strategy 2023-2027 period, with all subsequent activities contributing to it.

To realise an E00S that meets the needs of users, a design process is needed. This must go beyond improving the current state of ocean observing activities and connecting existing components. It is necessary to ambitiously design an observing system at a European scale guided by identified user needs across stakeholder groups. A long-term roadmap to realising the designed E00S, which realistically considers sustainability and feasibility will complement the design, with components that can be manageably contributed at national and European levels according to capacities and priorities.

Actions under Activity 1 will co-design an optimal, fit-for-purpose E00S through a collaborative process with stakeholders.

A gap analysis between the current state of European ocean observing and the E00S design will be carried out, with a resourcing plan to achieve and sustain E00S developed in conjunction with implementing partners across Europe. Activity 1 will define the desired state of E00S and enable understanding of existing European ocean observing in this context. It will provide practical clarity to the E00S Vision, towards which all activities in the Roadmap for Implementation lead.

Activity 2

Understanding user and stakeholder needs and priorities

The connections between ocean observing implementers with marine data services and users facilitated by the E00S Framework, enable and nurture collaboration across the marine knowledge value chain. As a major piece in the wider ocean observing system, E00S is key to the essential holistic approach to marine knowledge.

Improved coordination through the E00S Framework allows gaps and weaknesses in European ocean observing to be addressed, optimising the design and implementation of E00S.

Closer collaboration between ocean observers and product/service providers enables a more holistic ocean observation and marine data integration, leading to easier identification of user and stakeholders needs of E00S.

Actions under Activity 2 will ensure active dialogue through the E00S Framework between the ocean observing community and all other components of the ocean knowledge value chain, including remote sensing, modelling, forecasting, data management and marine services communities. Through such dialogues and the utilisation of existing identification processes, the needs and priorities of different user and stakeholder groups will be centrally considered in the development of E00S. Engagement in this way will allow a symbiotic development of the entire value chain to ensure needs and capabilities are understood throughout.

Activity 2 will give the E00S Framework clear focus on the needs and priorities, identified from existing efforts by partner initiatives, that are most relevant to E00S. By understanding the specific needs and priorities of relevance, the co-design of E00S can be more efficiently implemented, ensuring the developed E00S is most useful and effective for different users and stakeholders.

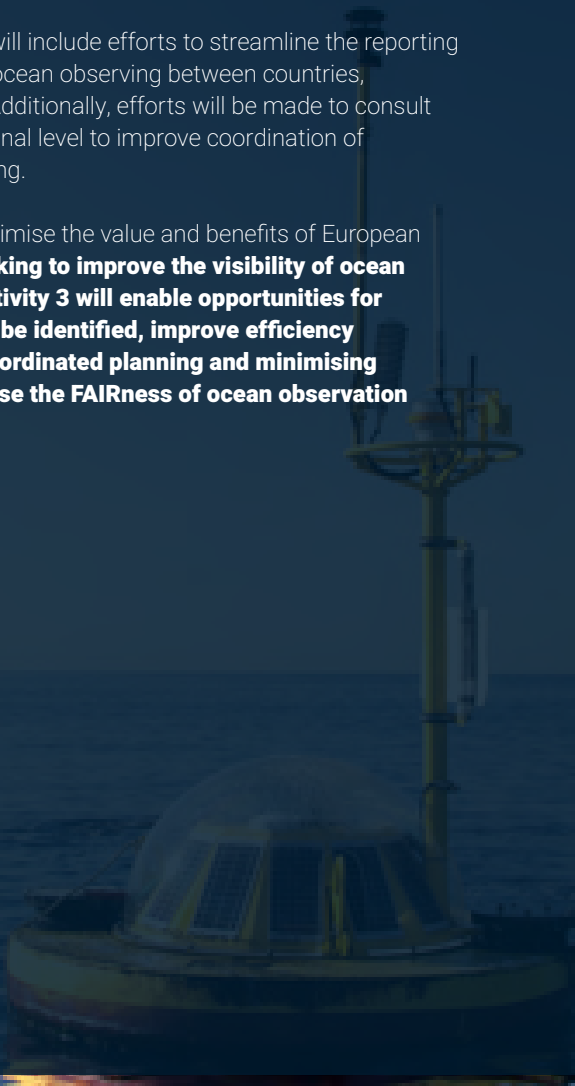
Activity 3

Improving the visibility of ocean observing activities

EOS Framework provides a platform to improve the coordination and integration of ocean observations. To enable the planning or implementation of multi-platform, multi-network, and multi-thematic observation programmes, understanding the timing, location and focus of observing activities by others is essential. It is also critical to develop a focal point to monitor the performance of European ocean observing and marine monitoring capability, and to assess existing gaps and requirements. This can be accomplished through collaboration and further development of existing activities, such as OceanOPS, to serve European needs more effectively.

Actions under Activity 3 will include efforts to streamline the reporting and sharing of plans for ocean observing between countries, disciplines and sectors. Additionally, efforts will be made to consult with authorities at a national level to improve coordination of observing and data sharing.

Activity 3 will help to maximise the value and benefits of European ocean observing. **By working to improve the visibility of ocean observing activities, Activity 3 will enable opportunities for greater collaboration to be identified, improve efficiency of observing through coordinated planning and minimising duplications, and increase the FAIRness of ocean observation data.**



Activity 4

Promoting best practices and open data sharing

The EOOS Framework strives to be open and inclusive, based on FAIR principles and the European Open Data and Open Science policies. It connects and helps to exchange best practices in ocean observation data collection, operation and technology, and assists in identifying capacity building needs to close gaps in oceanographic capability between regions, sectors and disciplines, and throughout the ocean observing value chain. **Through the EOOS Framework, the benefits of open data sharing are promoted to reduce duplication and to further integration of ocean observing.**

Actions under Activity 4 will include the championing of broad open data practices to maximise the benefits realised from European ocean observations. The EOOS Framework will promote the implementation of Open Data and Open Science Policies, and the FAIR principles more generally.

Work in Activity 4 will strengthen cooperation in ocean data and information collection and sharing to increase its availability through services such as EMODnet, SeaDataNet and Copernicus Marine.

Activity 5

Fostering innovation in ocean observing

The E00S Framework identifies emerging priorities for innovations in acquisition of ocean observations, data management, observing technologies, and scientific or other applications. Through cooperation with established scientific organisations and initiatives, technical communities, data managers and operational service providers, the E00S Framework identifies and highlights priorities for innovation in ocean observing for collaborative development by the wider community.

Actions under Activity 5 will include efforts to identify emerging priorities for ocean science technologies and data management. Utilising the biennial E00S Technology Forum, dialogue, exchange and innovation will be fostered between technology developers and suppliers, data managers and users. Priorities in ocean science will be identified through established fora where E00S partners are engaged. Particular efforts will be made to contribute to the ongoing development of biological ocean observing, in coordination with existing networks and initiatives in Europe and worldwide.

Activity 5 will help to nurture technological and scientific development in ocean observing, opening up new possibilities and capabilities in ocean knowledge and understanding. **By developing a fertile environment for ideas and discussion, the E00S Framework will strengthen as a force for innovation in ocean observing and marine activities more broadly.**

Activity 6

Advancing the transition to a well-connected, coordinated ocean observing system

All actors engaged in the EOO Framework are encouraged and supported, in coordination with marine data and information services, to proactively improve connection between existing ocean observing activities and assets according to known gaps, requirements and data availability. This will reduce duplication, save costs and align European ocean observations with user requirements.

Working across European countries, regions and waters can present organisational or regulatory barriers that hinder the ambitions of the ocean observing community to strengthen collaboration and integration. The EOO Framework, and the EOO governance structure in particular, provides a forum where solutions to such barriers can be explored and developed.

Actions under Activity 6 will include identification of barriers to further integration of European ocean observing at all levels. By gaining a clear overview of the interconnected communities engaged in ocean observing throughout Europe, as well as an understanding of the acute challenges faced in particular contexts, solutions to improve Europe-wide integration of ocean observing will be developed. Particular recommendations to strengthen integration will be communicated to policymakers, funders and others with the ability to enact improvements. Particular efforts will be made in Activity 6 to foster the development and strengthening of national ocean observation communities around Europe, in support of established GOOS National Focal Points.

Activity 6 will support the shift to a landscape of European ocean observing where planning, operations and funding are aligned or harmonised at a European scale, while ensuring national priorities and obligations are respected. This will streamline the pan-European cooperation required to realise the EOO Vision and alleviate current bottlenecks to collaboration.

Activity 7

Communicating the value of ocean observing

To ensure wide support and buy-in to the development of EOOS, it is necessary to communicate and foster understanding of the societal value and benefits of integrating European ocean observing across sectors and regions, and for all different users. To this end effective communication and engagement with stakeholders is key to the implementation of the EOOS Strategy. To inform on progress, promote achievements and demonstrate realised benefits, dissemination of information on ongoing and completed work through the EOOS Framework is key.

Through the EOOS Framework, partners are able to coordinate to develop policy advice and recommendations that support the development of EOOS, strengthening Europe's capacities for ocean observation. To fully realise the benefits of European coordination and integration of ocean observing, wider coordination with global activities, such as GOOS, is essential. EOOS will further strengthen Europe's role in ocean observing globally and the wider ocean community, particularly through the prominent role of EuroGOOS, Europe's GOOS Regional Alliance.

Actions under Activity 7 will include the development and implementation of an EOOS Communication and Engagement Strategy, to ensure the societal and economic value of ocean observing activities are known and understood among policymakers, industry and society in general. This will include presentation of EOOS at relevant major events around Europe in a manner to actively engage stakeholders across sectors, disciplines and regions. EOOS communication materials will be further developed, with extensive activities in person and online. Actions will have a strong emphasis on engagement with regional and international ocean initiatives whose success is underpinned by ocean observations, and access to reliable and timely ocean knowledge.

Activity 7 plays a key role in the successful completion of all other Activities in the EOOS Strategy 2023-2027 Implementation. It will ensure awareness of EOOS and activities through the EOOS Framework. **Activity 7 will help to guide new users to ocean data, information and services that they could benefit from, and demonstrate the societal value of ocean observing for Europe.**



Progress monitoring

Throughout the **2023-2027 E00S Strategy period**, progress towards the fulfilment of the E00S Mission and realisation of the Vision will be monitored. The Steering Group, with support from all E00S governing bodies, will closely assess progress and make strategic adjustments to planned activities as necessary. Annually updated internal implementation plan, provides an operational-level of detail, will defines specific tasks with resources and deadlines for execution, with responsible partners identified.

Further to monitoring individual tasks and actions planned for the current Strategy period, the Steering Group takes responsibility for monitoring the overall strategic progression of E00S and the suitability of the E00S Framework to achieve its identified objectives. This may include the development of a review process for E00S and the E00S Framework if needed. Towards the end of the current Strategy period, an open and inclusive process to develop the next E00S Strategy beyond 2027 will be carried out, building on the successes achieved over many years, and the new advances made during 2023-2027.

Beyond 2027

At the completion of the current Strategy period it is intended that E00S will be prepared to begin entering an operational phase. The process of co-designing E00S during 2023-2027 will set out a plan for realisation of the Vision of a European Ocean Observing System that is sustained and meets the specific needs of users.

This Roadmap for Implementation has been prepared by EuroGOOS and the EMB in consultation with the EOOS Steering Group, Advisory Committee, Operations Committee and Resource Forum, as well as the DG MARE, the Global Ocean Observing System (GOOS) and the EuroSea project (European Union Horizon 2020, grant agreement No 862626).

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