

MSFD MONITORING OPTIMIZATION

Concept Note, May 2021

The overall goal of the European Ocean Observing System (EOOS) in the domain of the Marine Strategy Framework Directive (MSFD) is to support science-based novel approaches that allow monitoring of Good Environmental Status that adequately describes the marine ecosystem and changes therein.

The MSFD, adopted in 2008 aims to protect the marine environment across Europe. Under the MSFD, Member States should have achieved Good Environmental Status (GES) of Europe's marine waters by 2020. For interpretation of GES in practice, the Directive sets out 11 descriptors that describe what the environment will look like if GES has been achieved. Member States developed step-wise marine strategies to attain GES and have to update them every six years. This includes the report on monitoring programmes under Article 11 of the Directive. It was initially prepared in 2014 and was updated on 15 July 2020, and notified to the European Commission (DG Environment) on 15 October 2020. This (compulsory) update and reporting on how Member States monitor the 11 GES descriptors is an opportunity for EOOS to investigate the efficacy of the monitoring programmes and how to optimize them.

The advancements in knowledge about both ecosystem functioning and observational technologies require regular monitoring and assessment approaches. GES criteria, including threshold values and methodological standards, should be periodically reviewed and amended in the light of scientific and technical progress. Monitoring programs should incorporate innovative observational schemes and techniques, when available, to provide data with the appropriate resolution in time and space for the assessment of the status, progress towards environmental targets, and effectiveness of measures to achieve GES.

Monitoring capacities differ among the European Member States. It will be beneficial to highlight case studies using new/cost-effective (augmented) technologies for marine environment monitoring and assessment purposes and evaluate if such measurements are reliable and can be used

by all nations. Furthermore, biological observation should be built in from the beginning to enable the assessment of all the ecosystem's key components. Thus, close cooperation with biological ocean observing networks (e.g. GEO BON MBON) should be established. In addition, collaboration with established research infrastructures (e.g. JERICO, EMSO, GROOM, etc.) data aggregation and management (e.g. EMODnet), and operational services (e.g. CMEMS) offer opportunities to further collect high-quality marine data, develop data products, expertise and infrastructures for Europe's coastal seas and open ocean. Fast uptake of new technologies and innovative tools and augmented observations in marine monitoring also enables realizing the aims and objectives of the Integrated Maritime Policy, and Towards a sustainable Europe by 2030 and consolidating Europe's role in global ocean developments and governance.

The JPI Oceans Joint Action on Science for Good Environmental Status (S4GES) was approved in November 2019. It aims to improve coordination and share best practices among the participating countries to ensure that monitoring and assessment are based on the best available science and new technologies are used in an integrated manner. Knowledge exchange will lead to the development and use of fit-for-purpose and innovative observational schemes and techniques and the multi-use of available innovative platforms to satisfy the needs of interested stakeholders, including scientists, politicians, and environmental and operational agencies. The JPI Oceans Joint Action S4GES will: 1) foster knowledge sharing through a series of workshops; 2) facilitate joint integrated monitoring approaches that take advantage of all state-of-the-art techniques and infrastructure; and 3) promote testbeds and augmented observatories that introduce new infrastructures for multi-parameter, real-time monitoring at sea.

Constellations of timing and capacities offer an opportunity to connect the S4GES and MSFD reporting processes. These include the 2020 reports from the Member States on their monitoring programmes, JPI Oceans Joint Action's aim to investigate new and innovative observational schemes, the

membership of JPI Oceans consisting of European countries, the chairmanship of JPI Oceans at the EOOS Resource Forum and the EOOS conference 2018 call to action for “[...] *Countries to coordinate all national marine and coastal data collection efforts to improve efficiency, and identify priorities and gaps to meet policy and societal needs. [...]*”.

JPI Oceans could facilitate a meeting of the S4GES Group of Experts, interested JPI Oceans countries participating in the Joint Action and the national representatives at the Marine Strategy Coordination Group (MSCG) to explore the possibilities for improving their monitoring programmes

with the best available science. Considerations will be made to include in this meeting presentations of best practices of national coordination and using ‘innovative’ sources of data, such as other environmental or fisheries monitoring. This meeting could be a step forward in harmonizing and optimizing the monitoring and observation schemes used for the status assessment of marine waters and other monitoring under the Common Fisheries Policy, Water Framework Directive, Habitat and Bird Directives and others. A second meeting with the EOOS Resource Forum and key actors of the first meeting could identify pilot areas in which new approaches for monitoring and GES assessment could be tested.

Next steps:

- Organize a meeting between JPI Oceans member countries participating in the Joint Action S4GES, the S4GES Group of Experts, and the national representatives at the MSCG. The meeting could explore the possibilities of improving Member States monitoring programmes with the best available science and connect member countries and scientists with the EOOS framework.
- Supported by activities in concept notes ‘Improving and integrating Europe’s capability in biological ocean observations’ and ‘Mapping existing ocean observing infrastructures and capabilities’; reach out to biological ocean observing networks, infrastructures, data management and operational services to request their interest in this activity.

Further reading:

On 16 January 2017, the Commission adopted a report assessing monitoring programmes submitted by most Member States in 2014 and 2015 to verify compliance with the Directive. The Commission’s report and its accompanying Staff Working Document contain the Commission’s findings and guides changes needed, globally and for each Member State, including per descriptor. Further information can be retrieved here:

- Commission Report assessing Member States’ monitoring programmes under the Marine Strategy Framework Directive.
- Commission Staff Working Document accompanying the Commission’s report (detailed findings and guidance per Member State).
- Technical reports per country
- Technical reports per MSFD region
- Access to projects EMFF have funded to support MSFD implementation is here.