

## Technical Expert Group - MSP Data

Workshop – 28<sup>th</sup> of March 2025

Online

*All presentations given during the meeting will be available on the [European MSP Platform](#).*

### 1. Introduction by the TEG Co-chairs

The meeting was opened by the Co-Chairs – **Andrej Abramic (AA)** & **Joni Kaitaranta (JK)** - who welcomed participants and introduced the agenda, which was subsequently adopted.

### 2. Update from ReMAP

An update was provided on recent developments related to the ReMAP initiative. The project was represented during the 3rd International Ocean Data Conference, held on 10–11 March in Santa Marta, Colombia. ReMAP featured in several presentations, including one highlighting the work of the Technical Expert Group (TEG) with a dedicated slide showcasing MSP (Maritime Spatial Planning) data product. The technical dimension of the project was further underlined in another presentation, which addressed digital challenges in MSP.

### 3. TEG follow-up – intervention and support of CINEA, DG Mare

**Laura Stockute (LS) (DG MARE)** highlighted that world data, knowledge management, and the knowledge value chain will be featured at the upcoming Ocean Pact event. The review of the Marine Strategy Framework Directive (MSFD) points to a stronger focus on data standardisation and digitalisation, with efforts underway to link the MSFD and MSP Directive. Support from the MSP Assistance Mechanism for the TEG activities was welcomed, with further details to be clarified. MSP is moving towards greater regionalisation and the ReMAP regional workshops may support informal coordination. Data experts from other sea basins have been invited to engage with the TEG to improve oversight of data flows.

**Anja Detant (AD) (CINEA)** emphasised the growing importance of regional approaches to MSP, visible in recent EMFAF-supported projects. It proposed involving these projects in future technical meetings to align data efforts with TEG work. Closer links with Communities of Practice (CoP) on MSP were encouraged, particularly in the Mediterranean. MSP remains a priority in sea basin strategies, and the upcoming Union for the Mediterranean (UfM) and Steering Committee meetings could offer opportunities to highlight the TEG contributions. Both **DG MARE** and **CINEA** expressed readiness to support workshops and studies, with further clarification needed on scope and timelines. Identified priorities include improving the EMODnet EU MSP Layer - Human Activities portal, updating the HELIX code list, and conducting a study on Digital Twins of the Ocean (DTO) for MSP.

**AA** recalled that the ReMAP project builds on TEG outputs and has received positive feedback. The next meeting will be the [ReMAP Final Conference in Helsinki \(14–15 October 2025\)](#), which will present ten developed tools. The next TEG meeting and a workshop on the DTO will also take place back-to-back on 16<sup>th</sup> October.

### 4. 3rd TEG cycle working groups follow-up

**Stefano Meganon (SM) (CNR)** presented that the subgroup officially launched its activity on DTO for MSP, aiming to strengthen coordination with DG MARE and CINEA. The initiative focuses on exploring how DTO can support MSP by identifying data quality gaps, enhancing interoperability with European infrastructure, like EMODnet and Copernicus, and offering tools to simulate "what-if"

scenarios. A conceptual model has been proposed to establish a shared understanding of DTO for MSP. The first phase aims to consolidate the methodology and monitor existing DTO initiatives. A dedicated workshop is planned for 16 October 2025, back-to-back with the final ReMAP conference, to present preliminary findings and engage with other projects. The goal is to finalise results by September 2026, potentially through a scientific publication. Stakeholders interested in joining the activity are encouraged to engage ahead of the first meeting scheduled for late April 2025.

**Marta Ballesteros (MB) (IEO)** presented ongoing work on socioeconomic assessments within MSP, highlighting the current gap compared to other research areas. A pragmatic, mixed-method approach combining quantitative and qualitative data is being developed to provide practical tools for planners, researchers, and policymakers. Prioritised topics include cultural values, economic variables such as employment and gender, and governance analysis. The initiative seeks to ensure that socioeconomic dimensions are robust and capable of interacting with other data areas. Plans include organising expert webinars to build a knowledge-sharing community, enhance regional representation, and improve integration of data into MSP. Visualisation techniques combining spatial mapping with granular socioeconomic data are being explored to improve impact assessments and governance feedback mechanisms.

**Pascal Derycke (PD) (Marine Analyst)** An update was given on the establishment of the MSP Data Space, following a recent regulation that defines its organisational and governance structure. The model includes data, technical service layers, and a governance framework based on standards such as DCAT-AP for metadata and interoperability. Governance defines protocols, data agreements, and semantic specifications. DTOs are expected to be a data solution promoted by this governance. The Data Space aims to serve MSP users by supporting interoperability and creating tailored services rather than merely aggregating fragmented data. A distributed ecosystem of interoperable catalogues is envisioned, using metadata to standardise descriptions of datasets and services.

**AA** presented that ReMAP is maintaining the EU MSP data layer in EMODnet, focusing on three areas: management of the extended eHILUCS code list, improved visualisation, and refinement of MSP data outputs. A technical panel of 5–6 members is being set up to manage the conceptual framework of eHILUCS, including assessing current usage, restructuring if needed, and introducing new codes for emerging activities (e.g., offshore floating wind). The panel will also define a stable protocol for future updates. By summer 2026, a comprehensive report is expected.

**Jose Santiago (JS) (EMODNet)** recalled that improving visualisation is also a key objective. A benchmark analysis is underway, reviewing how national and international initiatives display MSP data. A survey will be circulated by mid-April to gather insights on styling and interoperability challenges. A short, closed-door workshop is planned—potentially on an isolated island—to collaboratively draft a style descriptor for EMODnet’s EU MSP layer, with the intention to implement agreed improvements.

**JK** reiterated the importance of facilitating voluntary data flows from Member States to EMODnet, given the absence of formal reporting mechanisms. Data sharing should follow established models or reference appropriate alternatives. Member States are encouraged to reach out to co-chairs or EMODnet for support and to address data quality or harmonisation issues. A feedback mechanism for data corrections is essential to maintain consistency and reliability at the EU level.

**Alessandro Mulazzani (AM)** The MSP and MSFD data management subgroup, established in 2021, continues to explore the alignment and integration of data between the two directives. Key activities include assessing shareable datasets, especially under Article 8(1a and 1b) of the MSFD—and examining interoperability. A recent report analysed current practices and synergies. Current work

focuses on datasets used for environmental assessments and identifying opportunities for collaboration with DG MARE. Further interest lies in integrating data across EU initiatives such as Natura 2000, the Nature Restoration Law, and the Common Fisheries Policy. A dedicated subgroup meeting to discuss relationships and shared data structures is planned for mid-May 2025, based on a conceptual diagram developed under the ReMAP project.

#### **5. Joana Costa (European Environment Agency) - Current Status of MSFD reporting, implementation Article 19(3) and support of TG Data**

**Joana Costa (JC)** provided a brief overview on the state of play in MSFD reporting and the EEA's support to the implementation of Article 19.3 and the Technical Group on Data (TG Data). Emphasis was placed on the synergies between the MSFD, MSP, and the broader Integrated Maritime Policy (IMP). The MSFD provides the environmental basis, supporting ecosystem-based management through systematic monitoring and data collection, which in turn informs MSP.

While MSFD and MSP are closely aligned in principle, challenges remain in practice—particularly regarding public access to harmonised marine and maritime data. The third MSFD reporting cycle began in 2024 and continues through 2026. It includes Article 8 (initial assessments), Article 9 (GES definitions), Article 10 (environmental targets), Article 11 (monitoring programmes), and Article 18 (interim progress on programmes of measures). Reporting includes tabular, text, and spatial data, as well as metadata links under Article 19.3.

The EEA plays a supporting role through the Reportnet 3 platform, facilitating submission of Member State reports and providing data access through its geospatial catalogue and the WISE Marine platform. However, studies have shown limitations in data access and usability. An analysis of 2018 data found that links to underlying datasets were often restricted or missing, lacked metadata, and failed to meet INSPIRE compliance, which hampered pan-European assessments.

The TG Data group, co-chaired by the EEA and Italy under the MSFD common implementation strategy, has been reactivated since 2024. It aims to improve data access and standards, focusing on the interoperability and harmonisation of data across Member States and regional conventions. The group includes representatives from Member States, JRC, ICES, Regional Sea Conventions, and other stakeholders.

The 2024–2027 work programme outlines two main objectives: assessing the accessibility of Article 8 and 11 data and identifying existing standards to improve interoperability. The approach avoids creating new standards, instead building on those used by Member States and regional bodies. A pilot study has been approved to test this process using Descriptor 5 (D5) (eutrophication), one of the more harmonised areas. This will evaluate the data's availability, structure, and existing standards, serving as a model for refining the methodology before applying it to other descriptors with greater variability.

The group is also monitoring an ongoing DG MARE/CINEA study assessing metadata availability for Article 19.3. This study will revisit 2018 data and assess the current reporting under the third cycle. Results will support future improvements in data governance and EU-level environmental assessments.

#### **Discussion:**

**LS (DG MARE)** raised two key questions from the perspective of a maritime spatial planner:

1. *“As a planner from country X, conducting MSP and aware of its link with MSFD, I understand that ideally MSP should consider the condition of the sea. Authorities usually have access to national data. However, if I need data from neighbouring countries for cumulative impact*

*assessments, where can I find it? Is improving search, visualisation, and cross-border accessibility one of the aims of your group?"*

Additionally, **LS** asked whether the work of the TG Data group feed into the MSFD review? It seems data improvement will be a focus, and your emphasis on standards suggests that your work supports this.

**JC (& JK)** confirmed that data submitted under MSFD is publicly accessible via the WISE Marine platform, where both tabular and spatial data, along with official reports, can be downloaded. Regarding cumulative impact assessments, data is drawn from various sources including MSFD reports, EU-funded projects, and Regional Sea Conventions. Many institutions involved in these assessments also have MSFD reporting responsibilities, facilitating data harmonisation. The EEA further highlighted strong regional cooperation, particularly in the Atlantic and Baltic Seas. Additionally, recent efforts have focused on involving non-EU countries, with a workshop involving 28 countries including Turkey, Norway and Iceland, demonstrating a commitment to inclusive and harmonised marine data governance.

**JS** asked about data analyses involving socioeconomic assessments associated with the MSFD Directive?

**JC (& JK)** noted that socioeconomic data are reported under Article 8c of the MSFD, which addresses economic and social analysis. However, data submissions vary between Member States and remain incomplete, particularly based on the 2018 reporting cycle. Significant data gaps persist in this area.

#### **6. Anna Addamo (Nord University) - MPA Europe: Range and prioritisation maps for marine species**

**Anna Addamo (AA)** presented the [MPA Europe project](#), a Horizon Europe initiative, aims to identify optimal locations for marine protected areas (MPAs) across European seas to support science-based MSP. Coordinated by the Nord University, the project applies a systematic conservation planning approach across European, regional, national, and transnational scales.

The project targets biodiversity and blue carbon, supported by a number of key components: species and habitat data, environmental datasets, blue carbon stocks, oceanographic connectivity, and climate velocity as a proxy for climate change. Prioritisation maps are developed using the open-source *Zonation* software, identifying areas suitable for protection under 10% and 30% targets. Stakeholder engagement expanded the initial scope to include analyses at the regional and national levels, based on identified needs.

Environmental data layers have been modelled for both present and future conditions and are available through BIO-Oracle (Marine data layers for ecological modelling). Ecosystem classifications were conducted across water column depths up to 2,500m, with model precision maps highlighting zones of high uncertainty, particularly in transitional areas. Connectivity assessments based on larval dispersal durations (ranging from 5 to 180 days) indicate ecological connectivity between MPAs, classified into low, medium, and high degrees.

Blue carbon data were gathered from over 61,000 samples, integrating literature, databases, and stakeholder contributions. The project differentiates biogenic from non-biogenic habitats, analyses environmental drivers of carbon accumulation (e.g. sediment type, wave exposure), and continues to refine models with new datasets.

Species distribution models follow OBIS protocols and draw on data from GBIF and other sources. Of 30,000 species considered, around 15,000 were modelled due to data quality constraints. Models include projections of species range shifts under five climate scenarios (for 2050 and 2500) and highlight the conservation status of species and habitats. Habitat modelling for biogenic systems and richness indicators are also incorporated.

All outputs are hosted on the interactive MPA Europe map platform. Users can explore and download species maps, model metrics, data layers, and underlying code (via Jupyter Notebooks or R Markdown). The platform supports transparent, reproducible research and facilitates model replication and customisation. A second version of the models is under development (due June 20205), addressing user feedback and reviewed by external experts. Evaluation scores will also be published to guide critical usage.

The platform also includes maps of thermal ranges for species, biogenic habitat models, and aggregated species diversity metrics (with more indicators under development). A notable addition is the climate velocity map, which illustrates how rapidly different marine areas may be affected by climate change. This layer is essential for assessing long-term resilience in MPA designation and planning.

## **7. Stelios Contarinis (HARTIS Integrated Nautical Services) - Charting Maritime Regulations for MPAs – A perspective on the S-122 IHO Standard**

**Stelios Contarinis (SC)** presented this ongoing collaborative work, led by Hartis in partnership with the National and Kapodistrian University of Athens, the University of New Hampshire, and ProtectedSeas (a US-based NGO), focuses on enhancing the visualisation and regulatory clarity of marine protected areas (MPAs). It aligns with UN Sustainable Development Goal 14, addressing ecosystem protection, conservation of coastal and marine zones, and the implementation of international marine law.

The study draws on the IUCN Red List of ecosystems framework, using case studies of endangered species such as the Mediterranean monk seal and *Caretta Caretta* (Loggerhead Sea turtle), both protected under Greek national marine park zoning systems. These zones (A, B, C) implement varying regulations regarding vessel speeds, access, and anchoring to safeguard habitats.

The project explores the distinction between static and dynamic maritime management areas—static being permanent and dynamic adapting to changing conditions. It also addresses the complexity of global marine protection data, referencing databases such as the World Database on Protected Areas and ProtectedSeas Navigator platform, which includes data on 24,000 MPAs covering 8% of the ocean.

ProtectedSeas has developed a comprehensive regulatory dataset encompassing restrictions such as entry, speed, anchoring, discharge, diving, stopping, overflight, and fishing. These are classified across thousands of areas using digitised ENC usage bands reflecting different navigational scales.

The work aligns with the S-122 standard, a geospatial product specification used in marine navigation systems. S-122 defines spatial features such as MPAs, restricted areas, and vessel traffic services, along with informational types for regulations that may not have explicit spatial data. The project proposes enhanced symbolisation for MPAs, including icons for endangered species (e.g., turtles, whales, dolphins), submerged heritage sites, and vessel activity regulations. Symbols indicate permitted or prohibited actions and can be layered for clarity.

The team applied these symbols in pilot sites, including Alonissos and Zakynthos in Greece, southern Italy, and Indonesia. Zoning is a key concept, enabling distinct regulations within a single MPA based on environmental or operational needs.

Further work includes mapping vessel categories and hazard types, particularly through systems like the HNS and IBC Code. A proposed innovation is the environmental risk contour: a dynamic system on vessel bridges that calculates proximity-based environmental risks and provides alerts when vessels carrying hazardous cargo approach MPAs.

Concluding recommendations stress the importance of refining the S-122 standard to better account for small-scale MPAs, implementing zoning best practices, and integrating advanced symbolisation and hazard-based vessel navigation alerts.

-----**Meeting Closed**-----