EMODnet Thematic Lot n° V Biology

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Centralisation Phase

4.1.3 Informative material based on 4.2.3 (RSC Workshop)

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Contents

4.1.3 Informative material based on 4.2.3 (RSC Workshop)

The Regional Sea Conventions represent an important user community for EMODnet Biology, both as a source of monitoring and assessment data, and as consumers of synthesized and standardized data products. In previous phases of EMODnet Biology particular attention has been placed on capturing the needs of this community and leveraging this engagement to define and drive development of the EMODnet Biology workplan. In October 2017 all four RSCs participated in the 'Essential Marine Biological Data Products' workshop in London. This event was followed by the engagement of the RSCs in the context of the launch of the European Atlas of Marine Life in Lisbon as part of an EMODnet Biology end-user workshop (May 2019). These events helped shape the current engagement strategy and support the activities within this phase of EMODnet Biology.

1 What are the major needs in terms of data, tools and products to support environmental status assessment at sea basin scale?

With the workshop we aimed at: (1) promoting the awareness of EMODnet Biology data, tools and products and (2) collecting information on how we can support Regional Sea Conventions activities related to environmental status assessment at sea basin scale.

The event was organized in hybrid (physical and online participation) mode on the 18th April 2024 at the National Institute for Marine Research and Development "Grigore Antipa" (NIMRD) in Constanta, Romania. All EMODnet Biology WP4 partners (OGS, VLIZ, INRAE, ICES, ILVO, MBA, NIMRD, SYKE) were physically present and the representatives of the European Commission and of the Regional Sea Conventions (RSCs) were online. The participants included representatives from Directorate-General for Maritime Affairs and Fisheries (DG MARE), Directorate-General for Environment (DG ENV), and all of the Regional Sea Conventions: OSPAR, HELCOM, Black Sea Commission, UNEP-MAP, and also representatives of the EMODnet Seabed Habitats, with a total of 35 people connected online during the central part of the event. During the workshop, an online poll was organized to collect harmonized information on the RSCs data gaps and needs.

Within the different regional seas surrounding Europe, the Regional Sea Conventions (RSCs) engage neighbouring countries for the conservation of their common marine environment. Their work areas cover maritime activities, pressures, as well as biodiversity and ecosystem protection. The RSCs implement coordinated monitoring programmes in the regional sea basins, and perform joint assessments of the state of the environment. This requires data from multiple and, sometimes, heterogeneous sources as well as common analysis, tools and data products.

The European Marine Observation and Data Network (EMODnet) is the European Commission (EC) in situ marine data service of the EC Directorate-General Maritime Affairs and Fisheries (EC DG MARE), funded by the European Maritime Fisheries and Aquaculture Fund. Since its establishment in 2009, EMODnet plays a pivotal role as a trusted source of in situ marine environmental and human activities data and data products, serving a diverse user base across various sectors.

Strengthening dialogue among RSCs and EMODnet is fundamental to better address the needs of environmental assessment, management and conservation.

1.1 Vision by the policy makers

1.1.1 Directorate-General for Environment (DG ENV)

In the introduction to the workshop, the representative of DG ENV highlighted that the management, flow of data, and quality of the data used by member states for good environmental status (GES) assessments according to the Marine Strategy Framework Directive (MSFD) is a real challenge. It is underlined that, if the data used in the GES assessments are not quality checked and FAIR, this results in very different assessment reports between the member states and in loss of confidence in its findings. Recent collaborations between EMODnet and DG ENV and JRC in the case of other MSFD descriptors (e.g Marine Litter, Eutrophication, Contaminants) highlighted the importance of data standardization, harmonization and quality control, and this is as well important in the case of biodiversity.

1.1.2 Directorate-General for Maritime Affairs and Fisheries (DG MARE)

The representative of DG MARE stated that EMODnet represents a fundamental European infrastructure which is in charge of managing data from different disciplines using common standards and tools and making them Findable, Accessible, Interoperable and Reusable (FAIR). Collaborations among EMODnet and RSCs are greatly encouraged to reduce the burden of reporting by Member States, and to reach common goals, therefore, improved dialogue and sharing of data are strongly needed.

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1.2   EMODnet for RSCs

A "mapping" between MSFD needs and EMODnet Biology data and products was presented, together with examples of data and products addressing the EU MSFD descriptors related to biodiversity (see Table 1).

Table 1. Number of data products on biodiversity - related MSFD descriptors (D1, D2, D3 and D4) covering all RSCs and number of those covering Regional Sea Convention specific products

	D1: Biodiversity	D2: Non-indigenous species	D3: Fisheries	D4: Food webs
All RSC	8	3	1	5
HELCOM	4	0	0	4
OSPAR	19	0	2	19
UNEP-MAP	4	0	0	4
Black Sea	0	0	0	0

The Table lists the number of products available for each RSC area and specific indicator. Note that the total number of products is not calculated by adding the numbers below. This is due to the fact that some products cover multiple indicators and RSC areas. It is also noted that not all products are included in this table, if they do not target any of the relevant Descriptors.

Since 2023, EMODnet Biology products are created in accordance to the specifications of the EMODnet Central Portal team. The products are in NetCDF format and comply with the Climate and Forecasting Convention (CF Convention) and are available via the Central Portal ERDDAP and GeoServer as well as the Central Portal viewer (https://emodnet.ec.europa.eu/geoviewer/).

1.3   Regional Sea Conventions views

Representatives from all Regional Sea Conventions presented their activities, the indicators adopted for the quality status assessment and the challenges they face in obtaining and sharing data. A synthesis of specific data and product needs and data management systems in charge of marine biodiversity data, is provided in the table below:

Table 2. Synthesis of information provided during the workshop by representatives of RSCs, with regard to: data and product needs, data sharing with EMODnet, currently used data management systems and related websites.

Regional Sea Convention (RSC)	Specific Data Needs	Data sharing with EMODnet	Data products required	Data management system	Website
SPA/RAC & Plan Bleu (UNEP MAP)	Limited data in the southern part of the Mediterranean	Upon formal agreement	Biology, Bathymetry, Human Activities, Seabed Habitats, Geology, Physics data	IMAP Info System for IMAP indicators	http://www.info-rac.org/en/infomap-system/imap-pilot-platform http://data.medchm.net/en/

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	Data needed for phytoplankton, zooplankton, cetaceans, sea birds, marine mammals, reptiles, commercial species (European seabass, seabream, blue Mediterranean, mussel, oyster, meagre, etc.)			Mediterranean Biodiversity Platform (MBP) MAPAMED: the online platform of Marine protected areas in the Mediterranean MAMIAS: the online database on marine invasive species in the Mediterranean Sea.	https://www.mapamed.org/ https://spa-rac.org/en/sig/show/id/14/label/marine-mediterranean-invasive-alien-species-mamias
HELCOM	Mysids, jellyfish Plankton traits eDNA & imaging improved seasonal data coverage	Open data policy, CC-BY Darwin Core-based format	Combine information in EMODnet geology and habitats with EMODnet biology to produce biotope maps	Macrospecies: HELCOM Biodiversity database Biological community data: ICES DOME	https://maps.helcom.fi/website/biodiversity/ https://www.ices.dk/data/data-portals/Pages/DOME.aspx
OSPAR	Limited data in some OSPAR Regions (I and V)	Contracting parties determine data flow		ODIMS Plankton Lifeform Extraction Tool - PLET	https://odims.ospar.org/en/search/?data_theme=biological-diversity-and-ecosystems https://www.dassh.ac.uk/lifeforms/

● *Specially Protected Areas Regional Activity Centre (SPA/RAC)*

SPA/RAC is in charge of assisting Mediterranean countries in implementing the Barcelona Convention Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean.

SPA/RAC currently derives and uploads its data from and to the Mediterranean Platform on Biodiversity, the MAPAMED platform, that relates to Marine protected areas in the Mediterranean, and the MAMIAS platform, that relates to marine invasive species in the Mediterranean.

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Sharing data with EMODnet requires a formal partnership agreement between data providers within UNEP/MAP and EMODnet.

- *Plan Bleu Regional Activity Centre*

Plan Bleu produces studies and scenarios in order to raise awareness to Mediterranean stakeholders and decision-makers regarding environment and sustainable development issues in the region. One of the main missions of Plan Blue is to observe the environment and development to inform governments and the general public.

Concerning biological data, there are important gaps in data availability for southern Mediterranean marine regions, both in terms of distribution, and resolution. Regarding the taxonomic groups, gaps are present for phytoplankton, zooplankton, cetaceans, sea birds, monk seals, marine turtles, and other commercial species (European seabass, seabream, blue Mediterranean mussel, oysters, meagre, etc.).

- *Helsinki Commission (HELCOM)*

In collaboration with its working groups and contracting parties, HELCOM produces holistic assessment of the ecosystem health of the Baltic Sea. The assessments include, among others, information about biodiversity, eutrophication, hazardous substances, and maritime activities, and include the use of core indicators with quantitative threshold values to evaluate the progress towards achieving good environmental status in the Baltic Sea.

HELCOM produces an integrated thematic assessment every 6 years, based on 24 biodiversity indicators.

Regarding data gaps, mysids and jellyfish have poor spatial and temporal coverage and increased data availability and resolution would help the development of the food web indicators.

HELCOM's biological datasets are currently stored within the HELCOM database, maintained by ICES DOME which is already communicating with EMODnet.

Some specific feedbacks:

- To improve indicator based assessments concerning pelagic habitats plankton traits are needed (size, stoichiometry, foraging types, and any growth related data). eDNA and imaging data from plankton monitoring would improve indicator based assessment.
- To improve indicator based assessments of contaminants, health parameters of biota regarding the biological effects of contaminants, would be needed.
- Seasonal data covering all areas of the Baltic would be especially useful for phytoplankton and zooplankton assessments, to assess the diversity during and in between different seasonal bloom events.

- *Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention)*

OSPAR data are managed by ODIMS centralized data infrastructure and could be, in principle, shared with EMODnet.

Improving data flow from OSPAR Contracting Parties, when there is a data call, still represents a challenge and requires efforts to facilitate data management and submission.

- *Black Sea Commission*

The Commission on the Protection of the Black Sea Against Pollution (the Black Sea Commission or BSC) is the inter-governmental body established for the implementation of the Convention on the Protection of the

Black Sea Against Pollution, its Protocols and the Strategic Action Plan for the Environmental Protection and Rehabilitation of the Black Sea.

The current complex geopolitical situation impacts on data availability and sharing, as most data are restricted. The Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area (ACCOBAMS) is the only active initiative and supports activities to preserve all species of cetaceans and their habitats within this region.

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2   Results from the online poll

During the workshop, an online poll aimed to collect harmonized information from the workshop participants on the main themes and data/products/tools of interest and the possibility of data sharing. The main results are summarized in the following plots:

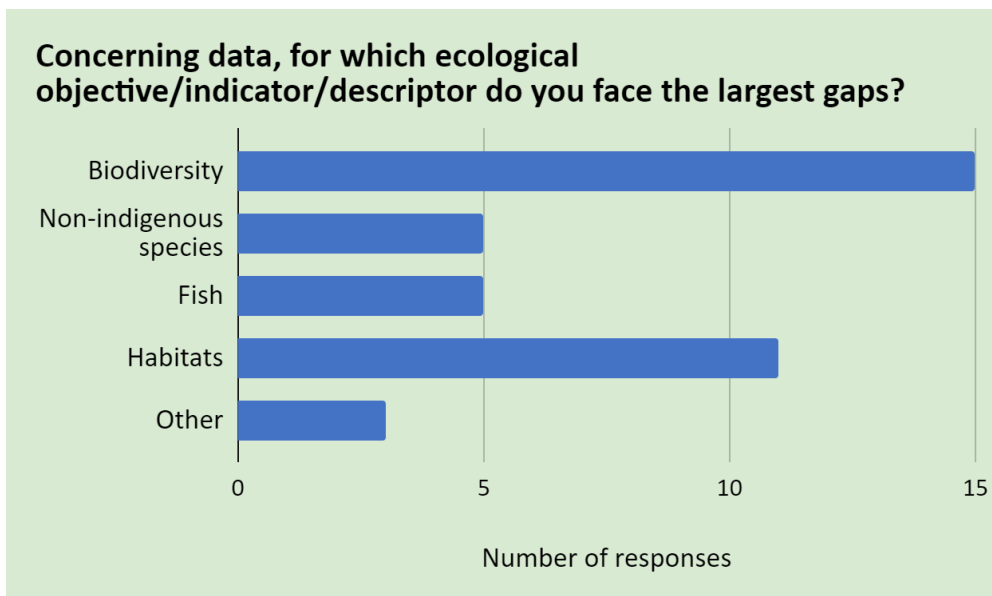o   biodiversity and seabed habitats are the themes with the largest data gaps

Figure 1. Results to the question: Concerning data, for which ecological objective/indicator/descriptor do you face the largest gaps?

o   the main resources needed for RSC work are harmonized datasets and analysis tools e.g. R packages for specific generalisable tasks (calculating biodiversity/community indices, impact assessments)
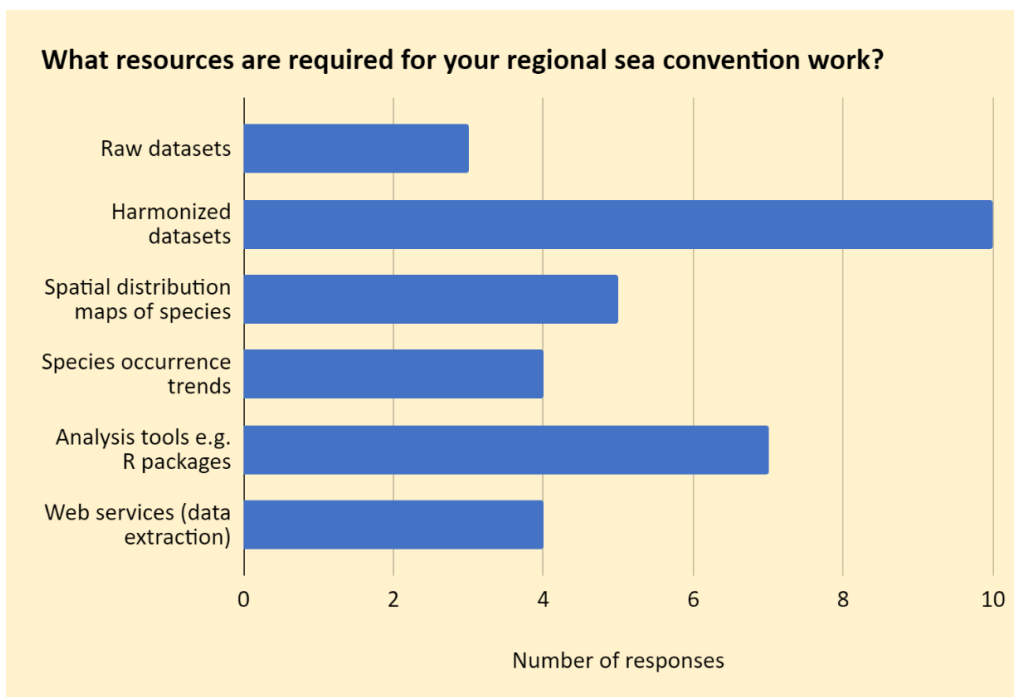

Figure 2. Results to the question: What resources are required for you Region Sea Convention work?

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o   Concerning data availability, zooplankton, birds and phytoplankton have the poorest spatial coverage (blue bars) and phytoplankton also has the lowest temporal coverage (orange bar).

Within the region you work most in, which of the following taxonomic groups have poor coverage of data?
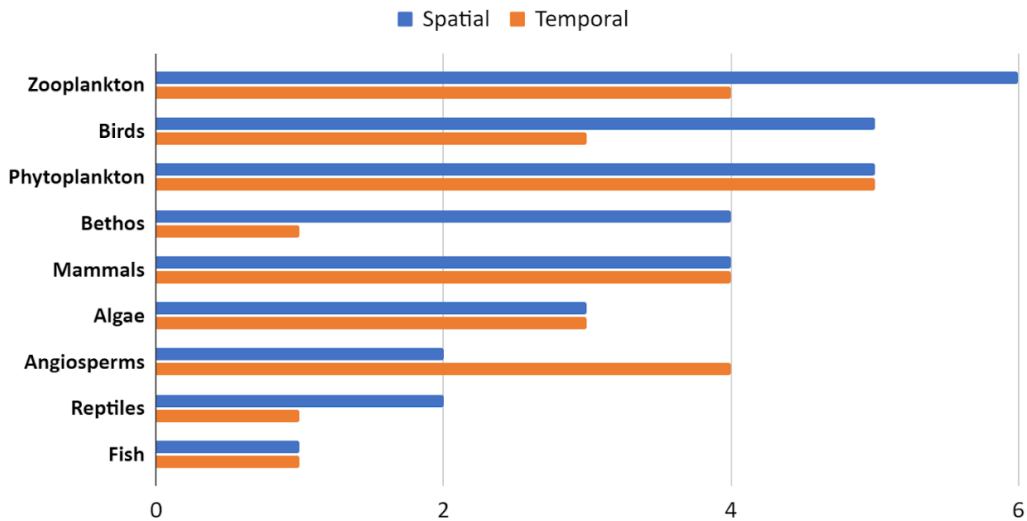
Figure 3. Results to the question: Within the region your work most in, which of the following taxonomic groups have poor coverage of data

o   Lastly, marine biology data related to Regional Sea Conventions are currently shared with national data infrastructures and with ICES, which acts as the data centre for OSPAR and HELCOM. Some RSC data are also shared with other centres in the different sea basins.
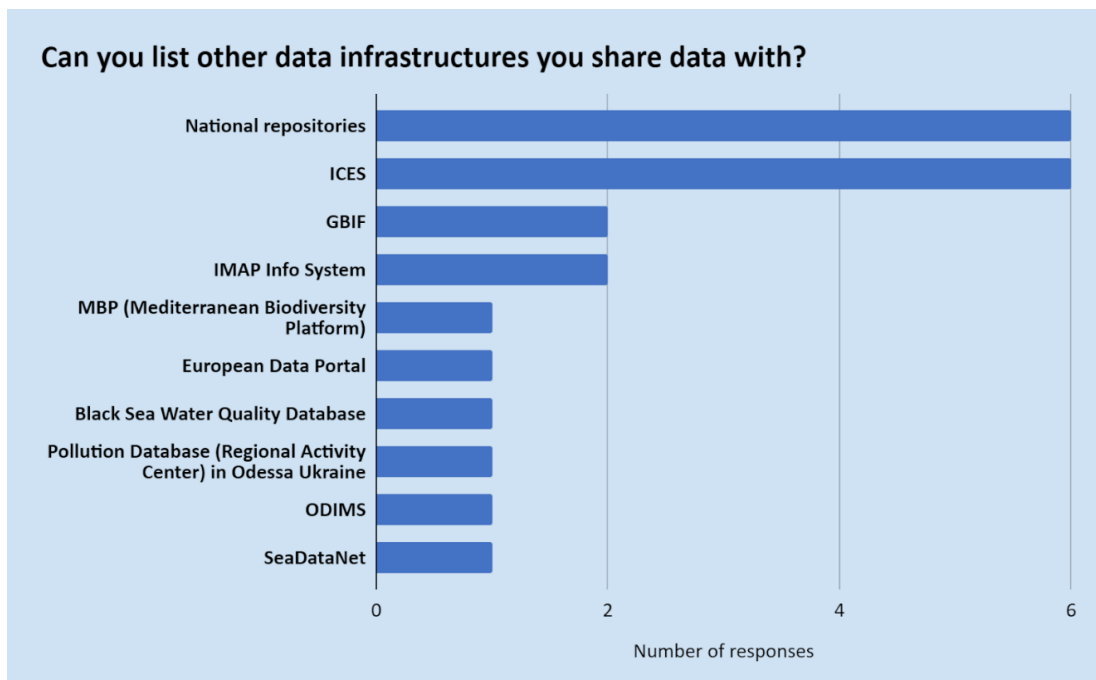
Can you list other data infrastructures you share data with?

Figure 4. Results to the question: Can you list other data infrastructures you share data with?

3   Main outcomes and conclusions

Summarizing feedback reported during the workshop and collected during the poll, the following needs have been highlighted:

- Management of marine biodiversity data is characterized by different degrees of organization and by different kinds of access conditions among RSCs (ranging from Open Data CC-BY to the need of a formal agreement). Thanks to the strong commitment on interoperability and data FAIRness, EMODnet can act as a common system for all European seas, providing assistance to regions where data management is not consolidated yet.
- To support marine environmental status assessment at regional scale, harmonized regional datasets are indicated among the major needs.
- To complement already available information, improved spatial and temporal data coverage as well as details on traits, eDNA and imaging are indicated as important needs.
- Interest has been demonstrated in data products derived from multiple EMODnet themes (e.g. aside from Biology, Geology, Chemistry …).
- By promoting the use of standard metadata and dataset formats which are interoperable with international frameworks (such as OBIS, DarwinCore and GBIF),which facilitate interoperability, data from Regional Sea Conventions can be shared with EMODnet Biology, however this implies, in some cases, a formal agreement and a dedicated Memorandum of Understanding.

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4   Way forward

Efforts carried out by EMODnet Biology towards data standardization, harmonization and quality control, based on well consolidated data management systems, facilitate data FAIRness and enable interoperability among existing data infrastructures (e.g. OBIS- Ocean Biodiversity Information System and GBIF- Global Biodiversity information System). Interoperability and ease of data reporting are fundamental to address the need of Member States of the European Community to report monitoring data driven by EU directives (e.g. MSFD) only once, but at the same time making them available through multiple systems.

In order to improve data sharing, following actions need to be addressed:

- organization of training dedicated to data management,
- assure financial and human resources dedicated to data management,
- consolidate interoperability and data flow among major infrastructures (e.g. ICES, OBIS, etc)
- establish formal agreements between countries, RSCs and EMODnet Biology in order to overcome current data sharing constraints

Lastly, in order to better address stakeholder needs, given the heterogeneity of the themes addressed (from plankton to marine mammals) and, consequently, the multiple involved expertise, as well as the different needs by the RSCs, it is proposed that further engagement activities should target separately different RSC and address specific expert groups.

5   Workshop agenda and participants

Table 3. Workshop Agenda

Time	Speaker	Title
10:00	Marina Lipizer	Aim, agenda and short participant presentation (10')
10:10	Zoi Konstantinou Alice Belin	DG ENV and DG MARE introduction (10')
10:35	Joana Beja Benjamin Weigel	"Mapping" between MSFD needs and EMODnet Biology data and products (20')
10:55		RSC OSPAR and UNEP Map (20')
11:10	All	Q&A (10')
11:20	Coffee break	
11:35	Gert Van Hoey	Outcomes from EMODnet Biology questionnaire and discussion including online polls (---) (General discussion on: needs in terms of data, products, services, …) Part 1 (20')
11:55		RSC HELCOM and Black Sea (20')
12:20	Marina Lipizer	Outcomes from EMODnet Biology questionnaire and discussion including online polls (---) (General discussion on: needs in terms of data, products, services, …) Part 2 (20')
12:40	All	Q&A (20')
13:00		End

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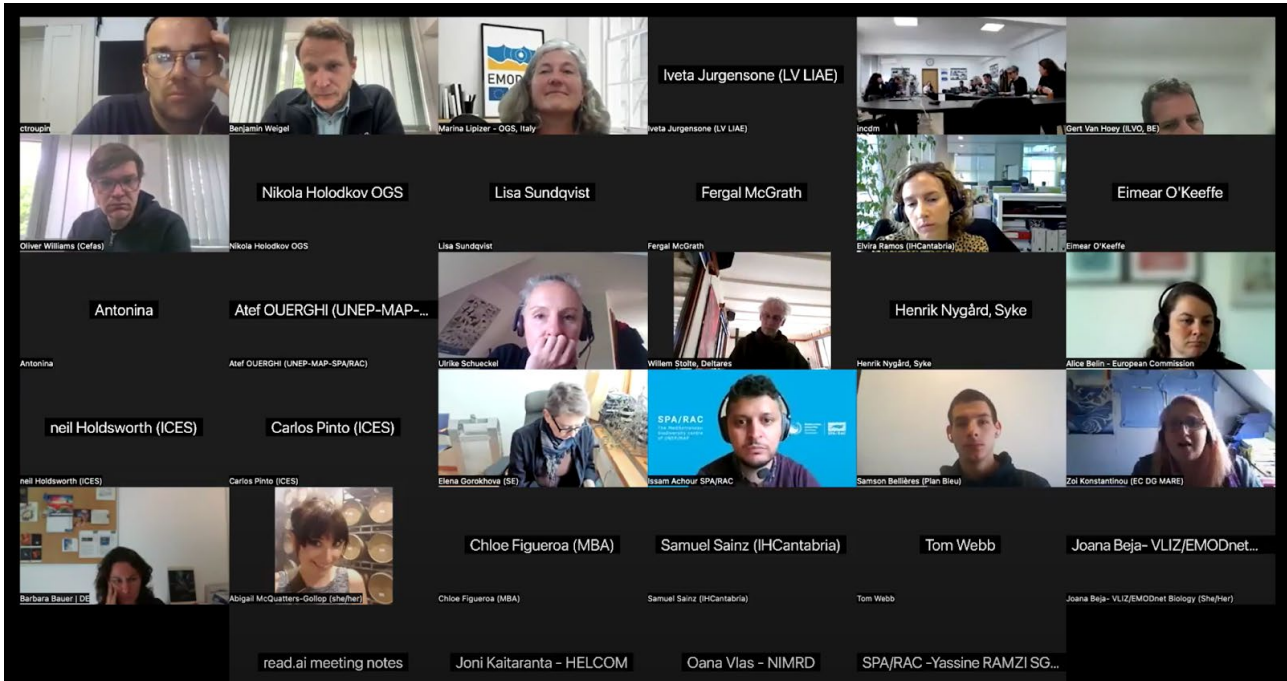
Figure 5. Screenshot of the workshop participants

Table 4. List of participants

Institution	Participant name
HELCOM Secretariat; Finland	Joni Kaitaranta
HELCOM; LIAE – Latvia	Iveta Jurgensen
HELCOM; SYKE – Finland	Sirpa Lehtinen (EMODnet)
HELCOM; Pelagic Habitat	Elena Gorokhova
UNEP/MAP - SPA/RAC	Adef Ouerghi
UNEP/MAP - SPA/RAC	Issam Achur
UNEP/MAP - SPA/RAC	Y.R. Sghaier
UNEP/MAP - Plan Bleu	Samson Bellieres
OSPAR - Food web expert group	Ulrike Schueckel
OSPAR	Abigail McQuatters-Gollop
OSPAR; ILVO – Belgium	Gert Van Hoey
Black Sea Commission	Iryna Makarenko
DG MARE	Zoi Konstantinou
DG ENV – Biodiversity	Alice Belin
EMODnet Seabed Habitats; Marine Institute – Ireland	Eimear O'Keeffe

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EMODnet Seabed Habitats; Marine Institute - Ireland	Fegal McGrath
German Environmental Agency - Germany	Barbara Bauer
EMODnet Biology; VLIZ - Belgium	Joana Beja
EMODnet Biology; VLIZ - Belgium	Ruben Perez
EMODnet Biology; VLIZ - Belgium	Salvador Fernandez
EMODnet Biology; OGS - Italy	Marina Lipizer
EMODnet Biology; OGS - Italy	Nikola Holodkov
EMODnet Biology; ILVO - Belgium	Gert Van Hoey
EMODnet Biology; NIMRD - Romania	Laura Boicenco
EMODnet Biology; NIMRD - Romania	Oana Vlas
EMODnet Biology; SMHI - Sweden	Lis Sundqvist
EMODnet Biology; MBA - UK	Chloe Figueroa
EMODnet Biology; SYKE - Finland	Henrik Nygård
EMODnet Biology; Deltares - Netherlands	Willem Stolte
EMODnet Biology; IPMA - Portugal	Antonina dos Santos
EMODnet Biology; ICES - Denmark	Neil Holdsworth
EMODnet Biology; ICES - Denmark	Carlos Pinto
EMODnet Biology; GHER - Belgium	Charles Troupin
EMODnet Biology; INRAE- France	Benjamin Weigel
EMODnet Biology; CEFAS - UK	Oliver Williams
EMODnet Biology; Leeds University - UK	Tom Webb
EMODnet Biology; Uni.Ca. - Spain	Elvira Ramos
EMODnet Biology; Uni.Ca. - Spain	Samuel Sainz