



EMODnet



European Marine
Observation and
Data Network

EMODnet Thematic Lot n° I – Biology

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Centralisation Phase

Engagement plan for the Regional Sea Conventions [D4.2.1]





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Document info

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Engagement plan for the Regional Sea Conventions

1 Introduction

EMODnet Biology provides free and open access to interoperable data, data products and tools to evaluate temporal and spatial distribution of marine species from European regional seas and aims to provide a single access point to European marine biodiversity data and products and, thus, to support the environmental state of ecosystems and sea basins' assessments.

Within the different regional seas surrounding Europe, the Regional Sea Conventions (RSCs, namely HELCOM for the Baltic Sea, OSPAR for the North East Atlantic, the Mediterranean Action Plan (MAP) of the Barcelona Convention in the Mediterranean Sea and the Black Sea Commission for the Black Sea) engage neighbouring countries for the conservation of their common marine environment and are responsible for performing joint assessments of the state of the environment.

With the purpose of promoting awareness on the contribution that EMODnet Biology can provide to support Regional Sea Conventions' activities related with environmental status assessment at sea basin scale, a set of actions are proposed to further consolidate the dialogue already initiated during earlier phases of EMODnet Biology and an Engagement Plan is proposed.

2 Engagement Plan

Stakeholder engagement will follow a multi-step approach which will consist in:

- ❖ Identification in the stakeholder community of interest
- ❖ Collection of information through a dedicated questionnaire
- ❖ Organization of one or more workshops dedicated to experts from RSCs
- ❖ Sharing of workshop outcomes to the larger community through the EMODnet Central Portal and other means (e.g. news items, social media, ...)

As a preliminary activity, a template will be used to identify stakeholders to be engaged from all sea basins and to collect harmonized information on their role, expertise and possible contribution. Second, a questionnaire will be designed to inform about what data, products and services EMODnet Biology offers and to collect users' needs in terms of data and tools, which will be distributed to the stakeholder community. The results from the questionnaire will then be presented during a hybrid workshop which will be organised to actively engage the experts from the RSCs. The workshop will represent the major opportunity of interaction, of dissemination of information and of collection of feedback and of gaps and needs by RSCs. A report on the events will be prepared and disseminated via the EMODnet Central Portal.

2.1 Roadmap:

- ❖ Identify stakeholders through a standard template
- ❖ Prepare short overview on EMODnet Biology data and products per Sea Basin
- ❖ Prepare questionnaire
- ❖ Send questionnaire and anticipate the communication of the workshop
- ❖ Define workshop agenda
- ❖ Prepare PPT template for stakeholders
- ❖ Send invitations with PPT template
- ❖ Collect and analyse results from the questionnaire
- ❖ Workshop organization (using interactive tools such as Slido or similar)

- ❖ Workshop report with particular attention to the KPIs indicated in the proposal¹

2.2 Structure of the workshop

- ❖ The workshop will be organized as an online event in order to facilitate participation from several experts from the different Regional Sea Conventions. The hybrid event is expected to last approximately half a day
- ❖ Introduction of EMODnet Biology and of “mapping” between MSFD needs and EMODnet Biology data and products
- ❖ Presentation of examples of data and products, with particular focus on examples for the different EU basins
- ❖ Invite representatives of RSCs to give a presentation on major needs from their Quality Status Report (QSR)
- ❖ Presentation on outcomes from the questionnaire
- ❖ General discussion on: needs in terms of data, products, services, ...

2.3 Meeting preparation

Prepare and distribute a short overview of EMODnet Biology data and products, with examples of “most recent products” (e.g. based on data from multiple sources, or addressing specific MSFD needs, ...) together with the questionnaire designed to collect users’ needs in terms of data, products and tools. Collect responses before the workshop in order to present a synthesis of major outcomes.

Invite experts from RSCs to share feedback and needs by means of a pre-defined PPT template with common questions.

During the workshop: present results of the questionnaire and prepare an online poll (e.g. through Slido or similar tools) in order to stimulate discussion.

2.4 Proposed invited groups

2.4.1 UNEP/MAP – Mediterranean Sea

- The Plan Bleu Regional Activity Centre (PB/RAC) based in Marseille, France
- The Priority Actions Programme Regional Activity Centre (PAP/RAC) based in Split, Croatia.
- The Specially Protected Areas Regional Activity Centre (SPA/RAC) based in Tunis, Tunisia
- The Regional Activity Centre for Information and Communication (INFO/RAC) based in Rome, Italy
- UNEP/MAP IMAP Responsible for Integrated Monitoring – Biodiversity portfolio

2.4.2 OSPAR – North Atlantic

This is a list of the groups working on biological topics, which are organised under OSPAR-COBAM. These groups are led by one or two coordinators and several OSPAR indicator leads, all from various

¹ Key Performance Indicators (KPIs) indicated in the proposal: Number on RSCs and of institutions, initiatives, projects and parties actively participating to the workshop; Number of institutions (RSCs) and of institutions, initiatives, projects and parties responding to the questionnaire

institutes across the NE-Atlantic. The coordinators details are listed in the stakeholder list for the workshop.

- OSPAR Secretariat
- OSPAR - COBAM (biodiversity group)
- COBAM expert group - Benthic habitats
- COBAM expert group - Pelagic habitats
- COBAM expert group - Cephalopods & Fish
- COBAM expert group - Foodweb
- COBAM expert group - Mammals and Reptiles
- COBAM expert group - Birds
- COBAM expert group – Non Indigenous Species (NIS)

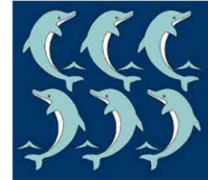
2.4.3 HELCOM – Baltic Sea

- Baltic Marine Environment Protection Commission (Helsinki Commission – HELCOM), Helsinki, Finland
- HELCOM Working Group on Biodiversity, Protection and Restoration
- HELCOM Expert Group on Marine Mammals
- HELCOM Expert Group on Benthic Habitats and Biotopes
- HELCOM Expert Group on Phytoplankton
- HELCOM Expert Group on Zooplankton
- HELCOM-OSPAR-ICES Joint Working Group on Seabirds
- HELCOM Expert Group on Bird Migration
- HELCOM Expert Group on Marine Protected Areas
- HELCOM Network for Marine Protected Area Management (MPA MaNet)

2.4.4 Black Sea Commission – Black Sea

- Commission on the Protection of the Black Sea Against Pollution (Bucharest Convention), Istanbul, Turkey
- Black Sea NGO Network (BSNN), Varna, Bulgaria
- Institute of Oceanology, Bulgarian Academy of Sciences (IO-BAS), Varna, Bulgaria
- Institute of Marine Sciences, Middle East Technical University (IMS-METU), Erdemli-Mersin, Turkey
- International Center for Black Sea Studies (ICBSS), Athens, Greece
- General Fisheries Commission for the Mediterranean (GFCM) - Working Group on the Black Sea, Burgas, Bulgaria
- Mare Nostrum NGO, Constanța, Romania
- GeoEcoMar, Constanța, Romania
- Ovidius University, Constanța, Romania
- National Administration of Romanian Waters (ANAR), Bucharest, Romania
- Ministry of Environment, Waters and Forests, Bucharest
- National Agency for Fishing and Aquaculture, Constanta, Romania
- National Company "Maritime Ports Administration", Constanta, Romania
- Danube Delta Biosphere Reserve Authority, Tulcea, Romania
- Danube Delta National Institute for Research and Development (DDNI), Tulcea, Romania

- Institute of Marine Biology of the NAS of Ukraine, Odesa, Ukraine
- I.I. Schmalhausen Institute of Zoology of National Academy of Sciences of Ukraine, Kyiv, Ukraine
- Odesa State Environmental University, Odesa, Ukraine
- Odesa I.I. Mechnikov National University/Faculty of Biology, Odesa, Ukraine

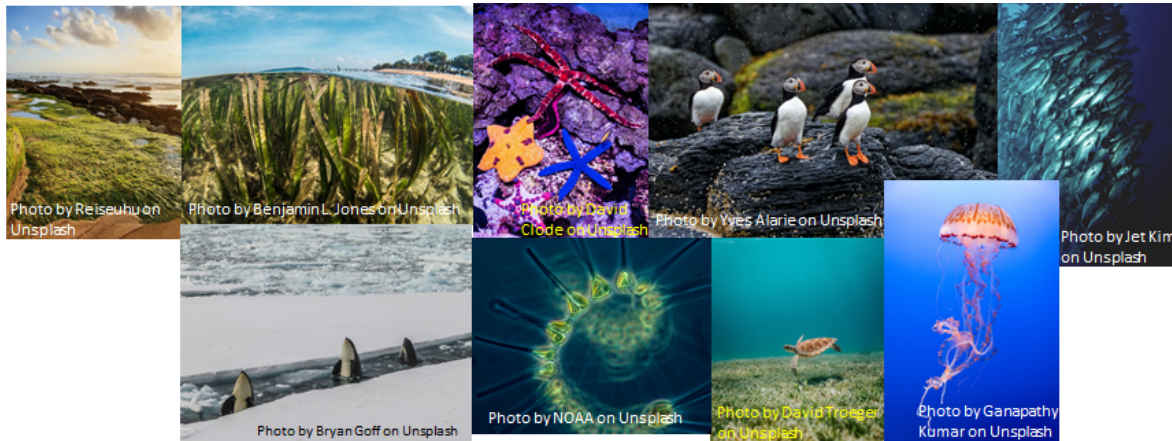


Institution role	Type of Institution	Stakeholder Role	Geograph. Relevance	Geographic focus	Organization Name	Address	Country	Contact person name	Contact person role	email	Website
Regional Sea convention	International Institution	Coordinators	sea-basin	Baltic	HELCOM			Rüdiger Stempel	Executive Secretary	rudiger.stempel@helcom.fi	www.helcom.fi
Regional Sea convention	International Institution	Coordinators	sea-basin	Baltic	HELCOM Working Group Biodiversity			Jannica Haldin	Professional Secretary	jannica.haldin@helcom.fi	https://helcom.fi/helcom-at-work/groups/state-and-conservation/
Regional Sea convention	International Institution	Experts/providers	sea-basin	Baltic	HELCOM Expert Group on Marine Mammals			Anders Galatius	EG Chair	agj@dmu.dk	https://helcom.fi/helcom-at-work/groups/state-and-conservation/eg-mama/
Regional Sea convention	International Institution	Experts/providers	sea-basin	Baltic	HELCOM Expert Group on Benthic Habitats and Biotopes			Antonia Nyström Sandman	EG Chair	antonia.sandman@aquabiota.se	https://helcom.fi/helcom-at-work/groups/state-and-conservation/en-benthic/
Regional Sea convention	International Institution	Experts/providers	sea-basin	Baltic	HELCOM-OSPAR-ICES Joint Working Group on Seabirds			Volker Dierschke	Co-Chair	volker.dierschke@web.de	https://helcom.fi/helcom-at-work/groups/state-and-conservation/jwg-bird/
Regional Sea convention	International Institution	Experts/providers	sea-basin	Baltic	HELCOM Fish-Pro III			Jens Olsson	Project manager	jens.olsson@slu.se	https://helcom.fi/helcom-at-work/projects/fish-pro-iii/
Regional Sea convention	International Institution	Experts/providers	sea-basin	Baltic	HELCOM Red List II			Agnes Unnuk	Project manager	agnes.unnuk@helcom.fi	https://helcom.fi/helcom-at-work/projects/helcom-red-list-ii/
Regional Sea convention	International Institution	Experts/providers	sea-basin	Baltic	HELCOM Expert Group on Phytoplankton			Jannica Haldin	Professional Secretary	jannica.haldin@helcom.fi	
Regional Sea convention	International Institution	Experts/providers	sea-basin	Baltic	HELCOM Expert Group on Zooplankton			Jannica Haldin	Professional Secretary	jannica.haldin@helcom.fi	
Regional Sea convention	International Institution	Experts/providers	sea-basin	Baltic	HELCOM Expert Group on Bird migration			Ommo Hüppop	EG Chair	ommo.hueppop@ifv-vogelwarte.de	https://helcom.fi/helcom-at-work/groups/biodiv/eg-birdmove/
Regional Sea convention	International Institution	Experts/providers	sea-basin	Baltic	HELCOM Expert Group on Marine Protected Areas			Penina Blankett	EG Chair	Penina.Blankett@gov.fi	https://helcom.fi/helcom-at-work/groups/biodiv/eg-mpa/
Regional Sea convention	International Institution	Experts/providers	sea-basin	Baltic	HELCOM Network for Marine Protected Area Management			Jannica Haldin	Professional Secretary	jannica.haldin@helcom.fi	https://helcom.fi/helcom-at-work/groups/biodiv/mpa-manet/
Regional Sea convention	International Institution	Coordinators	sea-basin	Black Sea	Commission on the Protection of the Black Sea Against Pollution (Bucharest Convention)	256, Maslak Mahallesi, Büyükdere Caddesi, Sarıyer – İstanbul, 34398	Turkey	Irina Makarenko	Pollution Monitoring and Assessment Officer	irina.makarenko@blacksea-commission.org	http://www.blacksea-commission.org/
Regional Sea convention	International Institution	Funders/sponsors	international	Black Sea	General Fisheries Commission for the Mediterranean (GFCM) - Working Group on the Black Sea	Burgas International Congress Center Office No.4, Sea Station, 8000 - Burgas	Bulgaria	Huseyin Ozbilgin	GFCM Black Sea Tehnical Unit	Huseyin.Ozbilgin@fao.org; gfc-secretariat@fao.org	https://www.fao.org/gfcm/contacts/en/
Regional Sea convention	International Institution	other	sea-basin	Black Sea	The Commission on the Protection of the Black Sea Against Pollution, Permanent Secretariat	Maslak Mahallesi, Büyükdere Caddesi, No 265 (Doğa Koruma ve Milli Parklar 1. Bölge Müdürlüğü Binası, 3. Kat), 34398 Sarıyer, İstanbul	Turkey	Irina Makarenko	Pollution Monitoring and Assessment Officer	irina.makarenko@blacksea-commission.org	http://www.blacksea-commission.org/Institutions/Permanent%20Secretariat/
Regional Sea convention	International Institution	Coordinators	sea-basin	Mediterranean	UNEP-MAP-PAP/RAC	Kraj Sv. Ivana 11, HR-21000	Croatia	Marko Prem	Deputy Director	marko.prem@paprac.org	https://paprac.org/
Regional Sea convention	International Institution	Coordinators	sea-basin	Mediterranean	UNEP/MAP SPARAC		Tunisia	Yassine Eramzi	IMAP Implementation	yassineramzi.sghaier@spa-rac.org	https://www.rac-spa.org/
Regional Sea convention	International Institution	Coordinators	sea-basin	Mediterranean	UNEP/MAP IMAP			Ms. Asma Yahyaoui	IMAP officer	asma.yahyaoui@spa-rac.org	
Regional Sea convention	International Institution	Implementers	sea-basin	Mediterranean	INFO/RAC - UNEP/MAP	Via Vitaliano Brancati 48 00144 Roma (Italia)	ITALY	Arthur Pasquale	Data management	arthur.pasquale@isprambiente.it	http://www.info-rac.org/en

Institution role	Type of Institution	Stakeholder Role	Geograph. Relevance	Geographic focus	Organization Name	Address	Country	Contact person name	Contact person role	email	Website
Regional Sea convention	International Institution	Coordinators	sea-basin	Mediterranean	Plan Bleu	Tour la Marseillaise 2 bis, Boulevard Euroméditerranée Quai d'Arc 13002 Marseille - France	France			planbleu@planbleu.org	https://planbleu.org/
Regional Sea convention	International Institution	Coordinators	sea-basin	Mediterranean	UNEP-MAP-PAP/RAC	Kraj Sv. Ivana 11, HR-21000	Croatia	ivan sekovski	Programme Officer	ivan.sekovski@papr.org	
Regional Sea convention	UN entities and intergovernmental organizations (IGOs)	Decision makers	international	North East Atlantic	ASCOBANS	UNEP/ASCOBANS Secretariat, Platz der Vereinten Nationen 1, 53113 Bonn	Germany	Jenny Rennell	Coordinator	jenny.renell@un.org	https://www.ascobans.org
Regional Sea convention	International Institution	Experts/providers	international	North West Atlantic	OSPAR COBAM (biodiversity workgroup)			Richard Emmerson & Ian Mitchell			
Regional Sea convention	International Institution	Experts/providers	international	North West Atlantic	COBAM expert group benthic habitats			Laurent Guérin & Christina Herbon	expert lead	laurent.guerin@mnhn.fr , Cristina.Herbon@jncc.gov.uk	
Regional Sea convention	International Institution	Experts/providers	international	North West Atlantic	COBAM expert group pelagic habitats			Abigail McQuatters-Gollop	expert lead	abigail.mcquatters-gollop@plymouth.ac.uk	
Regional Sea convention	International Institution	Experts/providers	international	North West Atlantic	COBAM expert group birds			Matt Parsons	expert lead	matt.parsons@jncc.gov.uk	
Regional Sea convention	International Institution	Experts/providers	international	North West Atlantic	COBAM expert group cephalopods and fish			Maurice Clarke	expert lead	maurice.clarke@marine.ie	
Regional Sea convention	International Institution	Experts/providers	international	North West Atlantic	COBAM expert group foodweb			Ulrike Schueckel, and Izaskun Preciado	expert lead	Ulrike.Schueckel@lkn.landsh.de , izaskun.preciado@ieo.csic.es	
Regional Sea convention	International Institution	Experts/providers	international	North West Atlantic	COBAM expert group mammals and reptiles			Anita Gilles	expert lead	anita.gilles@tiho-hannover.de	
Regional Sea convention	International Institution	Experts/providers	international	North West Atlantic	COBAM expert group - NIS			Peter Staehr	expert lead	pst@bios.au.dk	
Regional Sea convention	International Institution	Experts/providers	international	North West Atlantic	OSPAR secretariat		UK	Dominic Pattinson	Head of ospar secretariat	Dominic.Pattinson@ospar.org	

Invitation to contribute to the EMODnet Biology stakeholder questionnaire

Fields marked with * are mandatory.



As part of the European Marine Observation and Data Network (EMODnet) funded by the European Commission, EMODnet Biology provides free access to interoperable data on temporal and spatial distribution of marine species (angiosperms, benthos, birds, fish, macroalgae, mammals, phytoplankton, reptiles, zooplankton) and species traits from European regional seas, as defined by the EEA's Europe's seas' dataset (Arctic Ocean, Northeast Atlantic Ocean- including EU member states' jurisdictional waters in the Caribbean Sea, Baltic Sea, Black Sea, Mediterranean Sea and North Sea). EMODnet Biology aims to provide a single access point to European marine biodiversity data and products and, thus, to support the environmental state of ecosystems and sea basins' assessments.

With this survey we aim at collecting information on how EMODnet Biology can support the assessment of marine ecosystem status and on what are the major needs in terms of data and data products. This information is very important to guide EMODnet Biology's future development.

We thank you for your time and collaboration!

Stakeholder profile

* Institute name

500 character(s) maximum

* Institute role

- Regional Sea Convention
- Observing System/Monitoring
- Data Infrastructure
- Decision makers
- Experts
- Other

* Please specify

1000 character(s) maximum

* Type of Institute

- Academia/Research
- Government/Public administration
- Business and Private company
- NGOs/Civil society
- Other

* Please specify

500 character(s) maximum

* Geographic relevance

- Local
- Regional
- National
- International
- Sea-basin

* Geographical focus

- Arctic Sea
- (North East) Atlantic
- Baltic Sea
- Black Sea
- Mediterranean Sea
- North Sea
- Other (please specify)

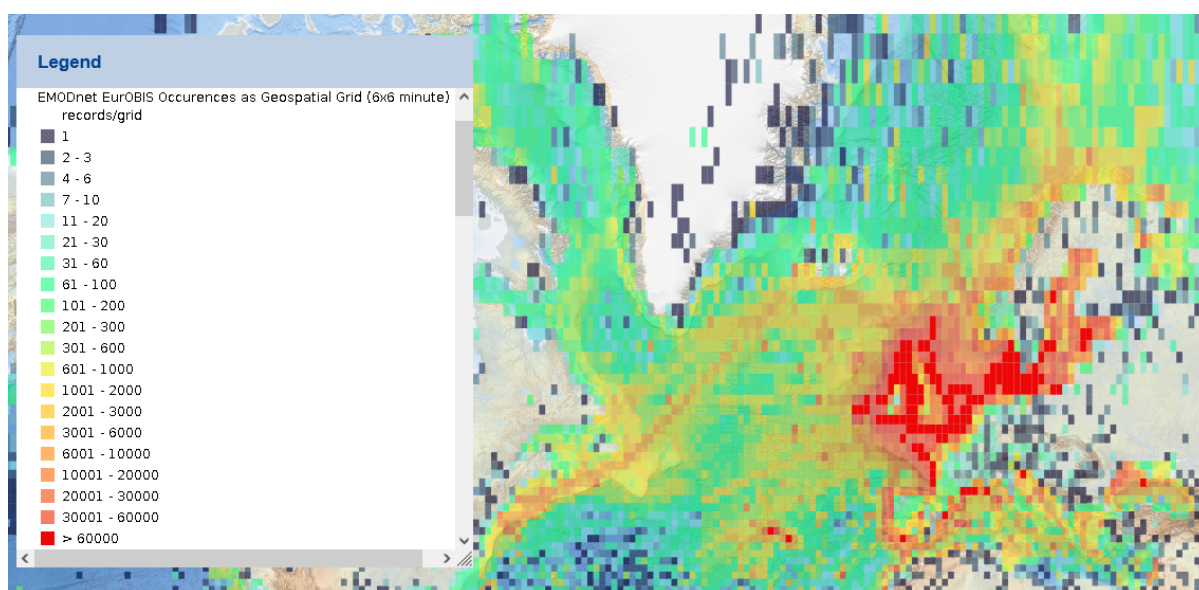
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Data needs

EMODnet Biology's data infrastructure is the same used by the European node of the Ocean Biodiversity Information System (EurOBIS). These two initiatives are the most comprehensive gateway to European marine biodiversity data and information. Data are managed according to informatics data standards like the Darwin Core format, which are used by the Global Biodiversity Information Facility (GBIF) and the Ocean Biodiversity Information System (OBIS), and are provided by research projects and national monitoring programmes as well as citizen science initiatives and historical records.

You can find more information about EMODnet Biology via the [link](#).



* Have EMODnet Biology data been used in your assessments/work?

- Yes
- No
- No but planning to
- Not Applicable

* What type of parameters have been used?

- Species occurrences
- Species abundance
- Species biomass
- Traits
- None
- Other (please specify)

* Please specify

500 character(s) maximum

* Which taxonomic group do you consider most relevant for your work?

- (Macro)algae
- Angiosperms
- Benthos
- Birds
- Fish
- Mammals
- Phytoplankton
- Reptiles
- Zooplankton
- Other (please specify)

* Please specify

500 character(s) maximum

* What type of information concerning this taxonomic group is most relevant for your work?

- Occurrences
- Abundance
- Biomass
- Traits
- Spatio-temporal distribution
- Not Applicable

* What are the main difficulties in accessing data for your needs?

- Finding the data I need
- Accessing data (Data not public)
- Difficulty in merging data from different sources (Data in different formats)
- Data in paper format
- Not enough data available for the region of interest
- Other (please specify)

* Please specify

1000 character(s) maximum

Do you have any other comment on data provision needs?

1000 character(s) maximum

* Have you ever submitted data to be published via EMODnet Biology/EurOBIS?

- Yes
- No
- No but intend to do so
- Not Applicable

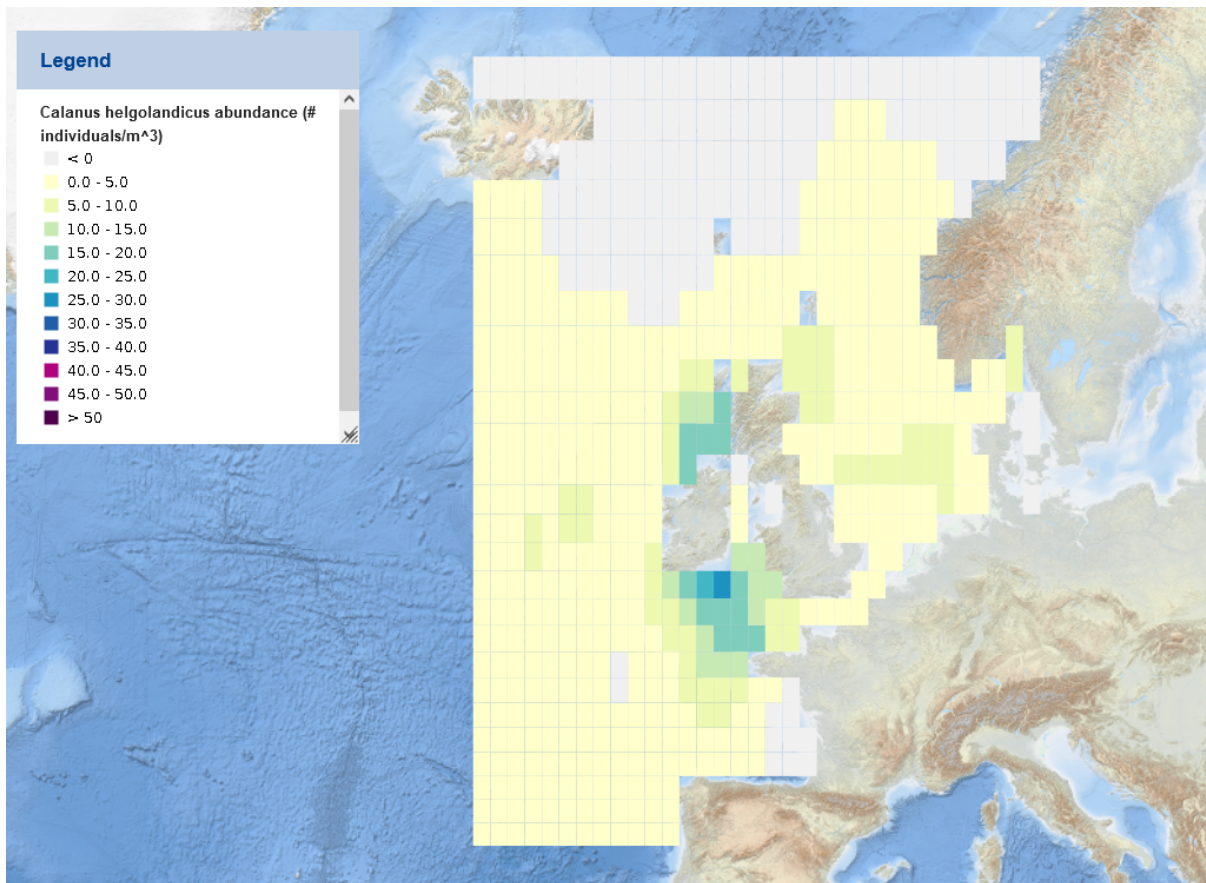
* What are the main constraints to sharing data with EMODnet Biology/EurOBIS?

- Data are restricted
- Limited expertise on data management
- Limited resources for data management
- Data are already shared through different systems
- Other (please specify)

* Please specify

1000 character(s) maximum

Data products and tools



EMODnet Biology develops data products, which are primarily map layers of species distributions or a group of species distributions over space and time, based on multiple openly available data sources (e.g. data available in EMODnet Biology, OBIS, GBIF). In addition, specific analytical tools to process biodiversity data, i.e. R packages, are developed and made available, that users can apply to their own data and individual needs, such as producing their own distribution maps and data quality check. Tools and services are described here: <https://emodnet.ec.europa.eu/en/biology#biology-key-services>

* Have you ever used data products from EMODnet Biology?

- Yes
- No
- Not Applicable

* What type of data products or tools have you used?

- Spatial distribution maps
- Temporal trends
- Harmonised datasets on functional groups
- R Packages
- None

* What are the current gaps in required information to support environmental quality assessments concerning indicators you are working on/with?

- Information of specific taxa groups
- Spatial distribution
- Temporal trends
- Updated information

- Not applicable
- Other (please specify)

* Please specify

1000 character(s) maximum

* Which spatial scale is most relevant for your work?

- < 1 km
- < 10 km
- < 100 km
- Other (please specify)

* Please specify

500 character(s) maximum

* Which temporal resolution is the most relevant for your work?

- Less than monthly
- Monthly
- Seasonal
- Annual
- Other (please specify)

* Please specify

500 character(s) maximum

We aim to improve the range of expertise contributing to guide EMODnet Biology implementations, which is why we invite external experts to collaborate with EMODnet. The collaboration could for example comprise input of expert knowledge into the development of data products.

Would you be willing to collaborate with EMODnet Biology as external expert?

- Yes
- No

* If yes, can you please provide your name and email address?

500 character(s) maximum

* What is your specific field of expertise?

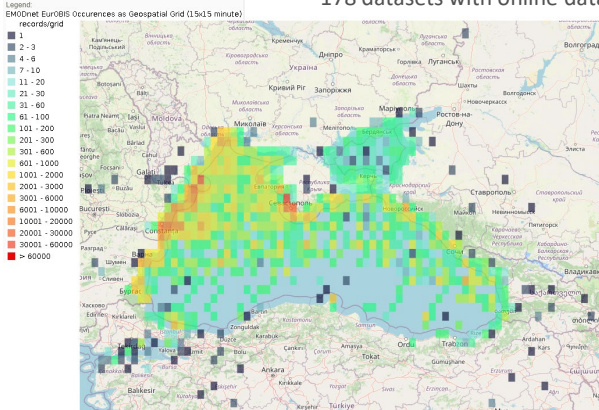
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Thank you for your time and contribution. For any questions or comments, contact us as
secretariat@emodnet.ec.europa.eu
For more information, please check the [EMODnet Privacy Statement](#).

EMODnet Biology is the European service for marine biodiversity in situ data and follows the “collect once and use many times” philosophy. It was established in 2009 with the main objectives to improve access to high quality marine data for private bodies, public authorities and researchers.

Data

178 datasets with online data (records available via the [catalogue](#), ~500k occurrence records)

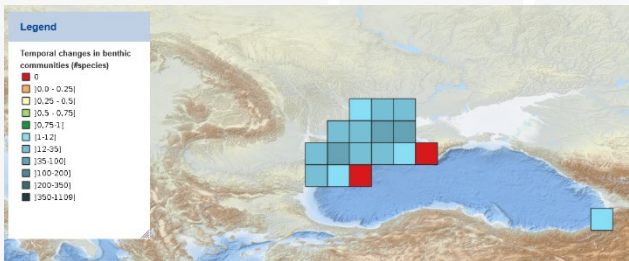


Data coverage per functional group



Latest Data Products

- [Species distribution model of invasive macroalgae](#)
- [Temporal Turnover in European Macrobenthos Communities](#)
- [Presence/absence data of macrozoobenthos in the European Seas](#)

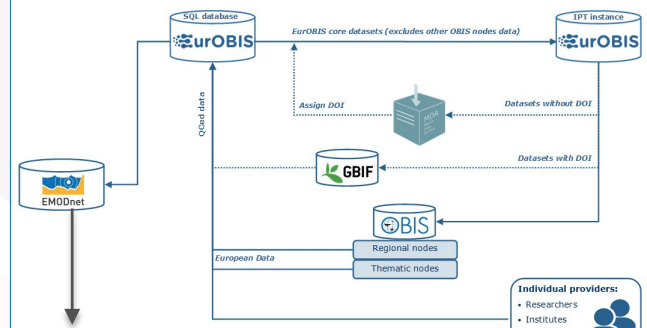


The product ‘Temporal turnover in European Macrobenthos Communities’ derives estimates of temporal turnover in benthic communities on a spatial grid across European seas. It uses only species-level records, and sampling events where the full macrobenthic community was surveyed. The image shows the beta total variable for the pre 1990 vs 1990 period. More periods and variables are available.

Tools/services

- [EMODnet Biology information](#)
- [OGC Webservices, R Packages, Online training, Data submission, QC tool](#)
- [Documentation \(reports and deliverables\)](#)
- [Use cases](#)

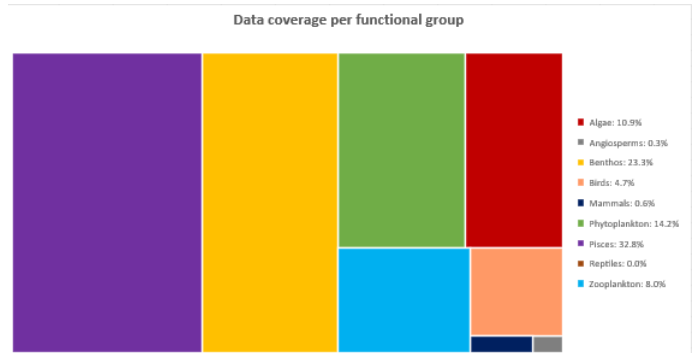
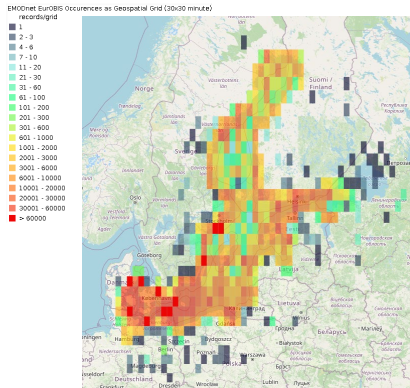
International connections



EMODnet Biology is the European service for marine biodiversity in situ data and follows the “collect once and use many times” philosophy. It was established in 2009 with the main objectives to improve access to high quality marine data for private bodies, public authorities and researchers.

Data

124 datasets with online data (records available via the [catalogue](#), ~4.4M occurrence records)



Latest Data Products

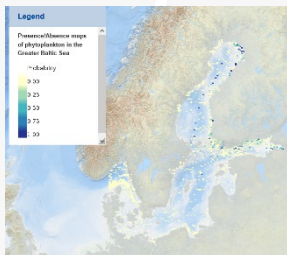
[Species distribution model of invasive macroalgae](#)

[Temporal Turnover in European Macrobenthos Communities](#)

[Presence/absence data of macrozoobenthos in the European Seas](#)

[Presence/Absence maps of Phytoplankton in the Greater Baltic Sea](#)

[Phytoplankton alpha diversity in the Greater Baltic Sea](#)

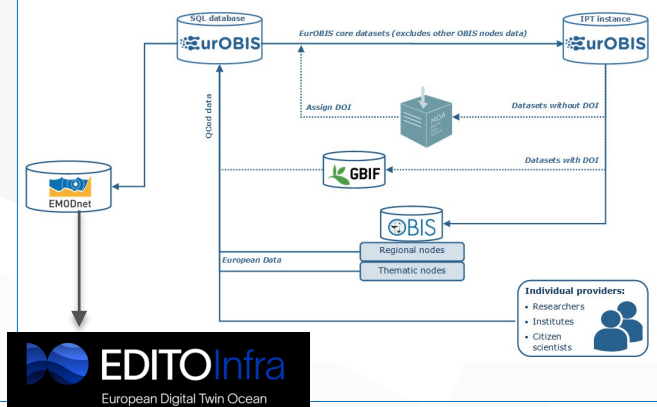


The product ‘Presence/Absence maps of Phytoplankton in the Greater Baltic Sea’ is a comprehensive data product of the occurrence and absence of (phyto)plankton species. As a basis, data from EMODnet Biology are used. The selection of relevant datasets is optimized in order to find all planktonic species, and exclude all species that are not planktonic. The occurrences from EMODnet Biology were complemented with absence data assuming fixed species lists within each dataset and year.

Tools/services

- [EMODnet Biology information](#)
- [OGC Webservices, R Packages, Online training, Data submission, QC tool](#)
- [Documentation \(reports and deliverables\)](#)
- [Use cases](#)

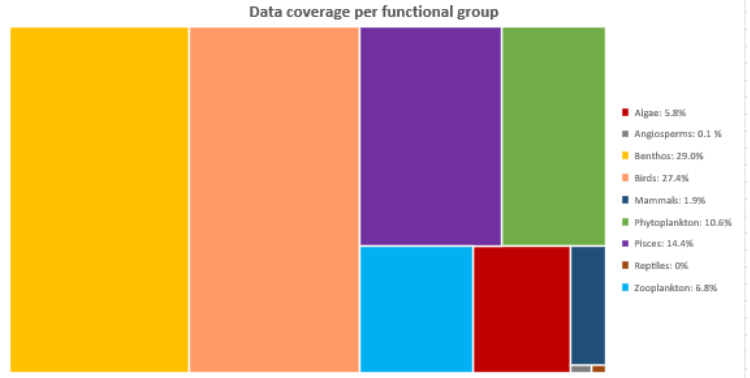
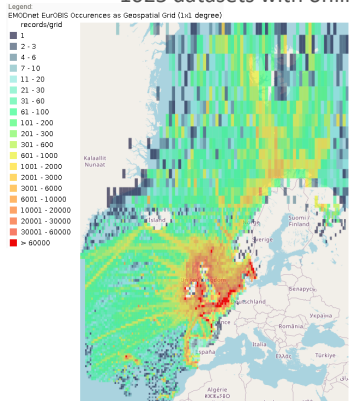
International connections



EMODnet Biology is the European service for marine biodiversity in situ data and follows the “collect once and use many times” philosophy. It was established in 2009 with the main objectives to improve access to high quality marine data for private bodies, public authorities and researchers.

Data

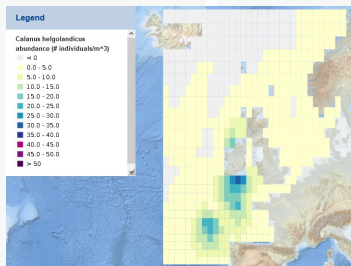
1025 datasets with online data (records available via the [catalogue](#), ~24.8 M occurrence records)



Latest Data Products

[Species distribution model of invasive macroalgae](#)
[Temporal Turnover in European Macrobenthos Communities](#)
[Presence/absence data of macrozoobenthos in the European Seas](#)

[Presence/absence of macro-endobenthos in the Greater North Sea](#)
[Probability maps for benthos species in the north Sea](#)
[Calanus helgolandicus and finmarchicus temporal change](#)

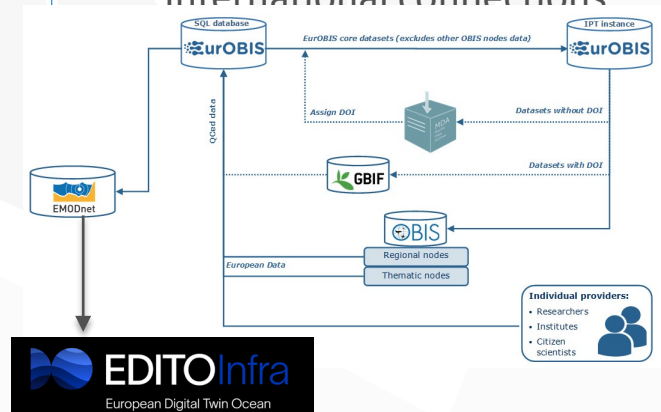


The product ‘Calanus helgolandicus and finmarchicus temporal change’ provides a spatial interpolation of species observations in the North Sea using the DIVAnd software tool. The outputs are in terms of abundance and relative error.

Tools/services

- [EMODnet Biology information](#)
- [OGC Webservices, R Packages, Online training, Data submission, QC tool](#)
- [Documentation \(reports and deliverables\)](#)
- [Use cases](#)

International connections



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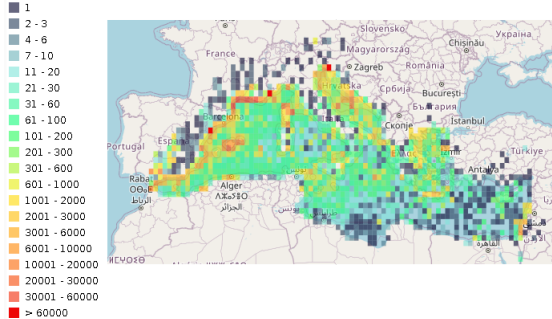


EMODnet Biology is the European service for marine biodiversity in situ data and follows the “collect once and use many times” philosophy. It was established in 2009 with the main objectives to improve access to high quality marine data for private bodies, public authorities and researchers.

Data

368 datasets with online data (records available via the [catalogue](#), ~1.8M occurrence records)

EMODnet EurOBIS Occurrences as Geospatial Grid (30x30 minute)
records/grd



Data coverage per functional group

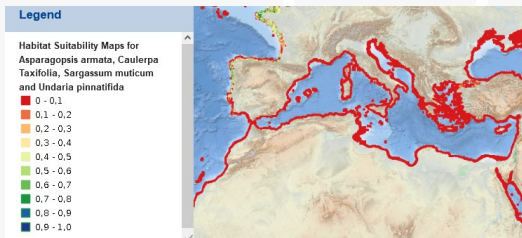


Latest Data Products

[Species distribution model of invasive macroalgae](#)

[Temporal Turnover in European Macrobenthos Communities](#)

[Presence/absence data of macrozoobenthos in the European Seas](#)

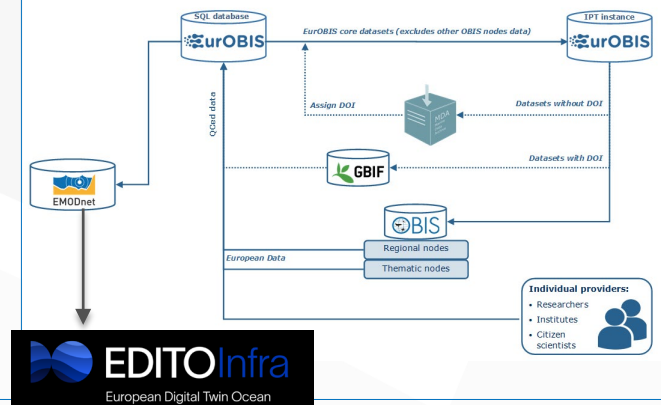


The product ‘Species distribution model of invasive macroalgae’ aims to predict the European distribution of four widespread introduced seaweed species (Asparagopsis armata, Caulerpa Taxifolia, Sargassum muticum and Undaria pinnatifida) selecting the best model building process.

Tools/services

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- [OGC Webservices, R Packages, Online training, Data submission, QC tool](#)
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