



EMODnet



European Marine
Observation and
Data Network

EMODnet Thematic Lot n° I - Biology

EASME/EMFF/2022/3.5.2/Lot V/SI2.895681

Start date of the project: 10/05/2023 (24 months)

Operational Phase

Phase V final meeting [D1.4.1]



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Document info

Title (and reference)	D1.4.1 Phase V final meeting
WP title (and reference number)	WP1 Coordination
Task (and reference number)	Task 8: Monitor quality/performance and deal with user feedback
Authors [affiliation]	Joana Beja (VLIZ), Leen Vandepitte (VLIZ), Ruben Perez Perez (VLIZ), Benjamin Weigel (INRAE), Marina Lipizer (OGS), Bart Vanhoorne (VLIZ)
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Phase V final meeting

The last meeting for EMODnet Biology Phase V took place in Carthage, Tunisia on Monday May 12th 2025. The hybrid meeting was hosted by the Institut National des Sciences et Technologies de la Mer (INSTM) and counted with about 19 partners attending in presence and another 11 online.

The consortium was represented by at least one person per organisation, which contributed to fruitful and varied discussions. The sections that follow summarise the information on participants, agenda and WP presentations, followed by the main topics of discussion. A few consortium members were not available to attend online or on site and their contribution to Phase V was also not shared. The colleagues were from Instituto Português do Mar e da Atmosfera (IPMA), International Ocean Data Exchanged (IODE-UNESCO) and Ukrainian Scientific Center of Ecology of the Sea (UkrSCES).

1 Participants

The list of participants that attended the meeting is included in the table below:

Name	Organisation
Joana Beja	Flanders Marine Institute (VLIZ)
Leen Vandepitte	Flanders Marine Institute (VLIZ)
Ruben Perez Perez	Flanders Marine Institute (VLIZ)
Bart Vanhoorne	Flanders Marine Institute (VLIZ)
Benjamin Weigel	Institut National de Recherche pour l'Agriculture, L'Alimentation et l'Environnement (INRAE)
Marina Lipizer	Istituto Nazionale di Oceanografia e di Geofisica Sperimentale Trieste (OGS)
Oliver Williams	Centre for Environment, Fisheries and Aquaculture Science (CEFAS)
Dimitra Mavraki	Hellenic Centre for Marine Research (HCMR)
Ioannis Rallis	Hellenic Centre for Marine Research (HCMR)
Carlos Pinto	International Council for Exploration of the Sea (ICES)
Maria Makri	International Council for Exploration of the Sea (ICES)
Alejandro Isla	Instituto Español de Oceanografía (IEO)
Elvira Ramos	Instituto de Hidráulica Ambiental de la Universidad de Cantabria (IH Cantabria)
Jose Antonio Juanes De La Peña	Instituto de Hidráulica Ambiental de la Universidad de Cantabria (IH Cantabria)
Felien Festjens	Institute for Agricultural and Fisheries Research (ILVO)
Arnfinn Morvik	Havforskningsinstituttet Institute of Marine Research (IMR)
Chloe Figueroa	Marine Biological Association (MBA)
Peter Tjisse	Marine Information Service (MARIS)

Oana Vlas	National Institute for Marine Research and Development "Grigore Antipa" (NIMRD)
Laura Boicenco	National Institute for Marine Research and Development "Grigore Antipa" (NIMRD)
Astrid Wittmann	Pangaea- University of Bremen
Willem Stolte	Stichting Deltares
Tom Webb	University of Sheffield
Anders Torstensson	Swedish Meteorological and Hydrological Institute (SMHI)
Mikael Hedblom	Swedish Meteorological and Hydrological Institute (SMHI)
Henrik Nygard	Suomen ympäristökeskus - Finnish Environment Institute (SYKE)
Sirpa Lehtinen	Suomen ympäristökeskus - Finnish Environment Institute (SYKE)
Charles Troupin	Université Liège
Karline Soetart	Royal Netherlands Institute for Sea Research (NIOZ)
Jonas Rømer	Aarhus University



Figure 1: Photos of the meeting participants, online and on site

2 Agenda

The meeting took place over two days, at NIMRD in Constanta. All Work Package leads had a 30-minute slot to present the WP objectives, expectations, deliverables and deadlines. There were various slots for Q&A from the participants and also a 1.5h slot for WP breakouts and well as a report on the status of the work by the various partners. The agenda is included in the table below:

Time	What
09:00-09:30	Registration
09:30-10:00	Welcome / WP1
10:00-10:30	Partner's feedback (10 min pitch) VLIZ, INRAE, OGS
10:30-11:00	WP2
11:00-11:30	Coffee break
11:30-11:40	Q&A
11:40-12:10	Partner's feedback (5min pitch) Aarhus, CEFASDeltares, HCMR, ICES, IEO
12:10-12:40	WP3
12:40-13:00	Q&A
13:00-14:00	Lunch break
14:00-14:30	Partner's feedback (5min pitch) IFREMER, IH Cantabria, ILVO, IMR, IPMA, MARIS
14:30-15:00	WP4
15:00-15:30	Partner's feedback (5min pitch) MBA, NIMRD, NIOZ, Pangaea, SMHI, Syke
15:30-15:50	Q&A
15:50-16:20	Coffee break /Group photo
16:20-16:50	WP5
16:50-17:15	Partner's feedback (5min pitch) ULiege, U Sheffield, UkrSCES
17:15-17:35	Q&A
20:00	Group dinner

3 Main Topics discussed

The main topics discussed relate to concerns raised by the consortium members and are summarised below:

- Provenance: more specifically the loss and degradation of provenance when the metadata are harvested by other catalogues. A clarification was given that all information included in the metadata records is available to any initiatives or projects that harvest the catalogue. It was also noted that conversion from original metadata standard to INSPIRE causes a provenance degradation/loss and that there are some actions in place to ensure that the information is visible both on the website and on the XML files.
- Citations: it was clarified that all metadata records have citations and that users should include them in their work, papers, reports, assessments but currently there is no simple way to capture the number of citations. This is a long-standing discussion among the data community and solutions have not yet been found.
- Support for Regional Sea Conventions: this is a sensitive topic as consolidation of dialogue and practical engagement requires dedicated resources and commitment on RSC side, in some cases even formal agreements, as well as a better understanding of stakeholder needs. The secretariats are also not always available to follow up on our actions, in the wider organisations, it was clear that there is a general lack of knowledge and/or understanding of the work that EMODnet does and how EMODnet Biology can support their work.

4 Work Package Presentations



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Biology



EMODnet Biology annual meeting

WP1 status update

Joana Beja, VLIZ

12-13 May 2025 (Carthage, Tunisia)



The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) 2021/1139 of the European Parliament and of the Council of 7 July 2021 establishing the European Maritime, Fisheries and Aquaculture Fund.¹

WP1 Objectives



- General project coordination and supervision
- Budget Management
- Responsibility to deliver the reporting deliverables to the Commission
- Organisation of project meetings
- Liaise with external organisations on behalf of the project consortium
- Operate the helpdesk

WP1 Deliverables

- **D1.1.1 Quarterly Progress reports**
 - ☑ 15 Jul 2023
 - ☑ 15 Oct 2023
 - ☑ 15 Jan 2024
 - ☑ 15 Apr 2024
 - ☑ 15 Jul 2024
 - ☑ 15 Oct 2024
 - ☑ 15 Jan 2025
 - ☑ 15 Apr 2025
 - 15 Jul 2025
- ☑ **D1.1.2 Interim report 10 May 2024**
- D1.1.3 Final Report 10 May 2025



WP1 Deliverables

- D1.2.1 Update of EMODnet Biology data products via the EMODnet CP catalogue
 - 10 May 2024
 - 10 May 2025
- D1.3.1 Monitoring user feedback via EMODnet JIRA
- D1.3.2 Operation of the EMODnet CP helpdesk
- D1.4.1 Minutes from the three project meetings (kick off, annual and final)
 - [08 Jul 2023](#)
 - [10 Jun 2024](#)
 - 10 Jun 2025
- D1.5.1 Participation in the EMODnet Steering Committee meetings
- D1.5.2 Participation in the EMODnet Open Conference
- D1.6.1 Appropriate mechanisms and guidelines for handover 10 May 2025
 - Accompanies final report

WP1 Partners

Organisation	WP	Who	Logo
VLIZ	1	Joana Beja	
	2	Leen Vandepitte/Ruben Perez Perez	
	5	Bart Vanhoorne	
INRAE	3	Benjamin Weigel	
OGS	4	Marina Lipizer	

Payments

- Last payment is done upon approval of the Final Report
- VLIZ will send you an email when you can submit your invoices.
This will likely happen in September
- CINEA must approve submitted documents and pay within 60 days of report submission.
If CINEA has remarks, they will send them to VLIZ and the time limit for payment gets suspended. VLIZ has 30 days to make amendments or submit additional information or new report version. CINEA reviews and gives approval within remaining time (60 - x days)
- ~~Non-compliance with proposed work/contract might result in payment being suspended or decreased~~



Photo by [Diane Helentjaris](#) on [Unsplash](#)

EMODnet Biology information

Where to find published documents

- Reports: <https://emodnet.ec.europa.eu/en/reports>
 - select Biology in the EMODnet component and interim, final, quarterly in the Publication type
- Deliverables: <https://emodnet.ec.europa.eu/en/reports>
 - select Biology in the EMODnet component and the Deliverables in the Publication type
- Use cases: <https://emodnet.ec.europa.eu/en/use-cases>
 - select Biology in the EMODnet component
- Informative material
- Static page: <https://emodnet.ec.europa.eu/en/biology>



Events attended

(May 2023 – May 2025)

- By the coordinator:
 - Attended => 60
 - Organised => 11
 - Presentations given => 23
- By consortium organisations:
 - Not always clear
 - We need to collect this information for reporting purposes

Other contributions to EMODnet Biology activities

Requested from consortium



- Please provide your input for published publications in the project's Google document 'EMODnet Biology Reporting-Partners Input'
https://docs.google.com/document/d/1IGCcl0NZxgyvMDnJPLRZTRbGWR_mtxoev3Yn4UFIVvs/edit?usp=drive_link
- Organising Workshops/Training? We can boost the outreach
- Attending Events/Meetings wearing the EMODnet Biology hat -> information can be added to project's Google Drive document 'Meetings/Events attended/held'
<https://docs.google.com/document/d/1K4h7i5-GJqFXc5Il0rjwMvrUD45Ws5M2vE6tcmsIS8E/edit?usp=sharing>
(until end of May 2024)

WP1 Status Update

- Phase V ended on May 9th, extension period started on May 10th and runs until May 9th 2027
- Contracts are being drafted and will be sent
- Interested in receiving key EMODnet information? Sign up via <https://ec.europa.eu/eusurvey/runner/EMODnetConsentForm>
- EMODnet Vision 2035 Drafting Group (EMODnet-VDG)
 - Not yet presented publicly
 - Webinar date->
- EMODnet Jamboree and Open Conference
 - Week of November 24th
 - Brussels
- World Conference on Marine Biodiversity
 - November 2026, Bruges
 - Who is planning to attend?

A few metrics

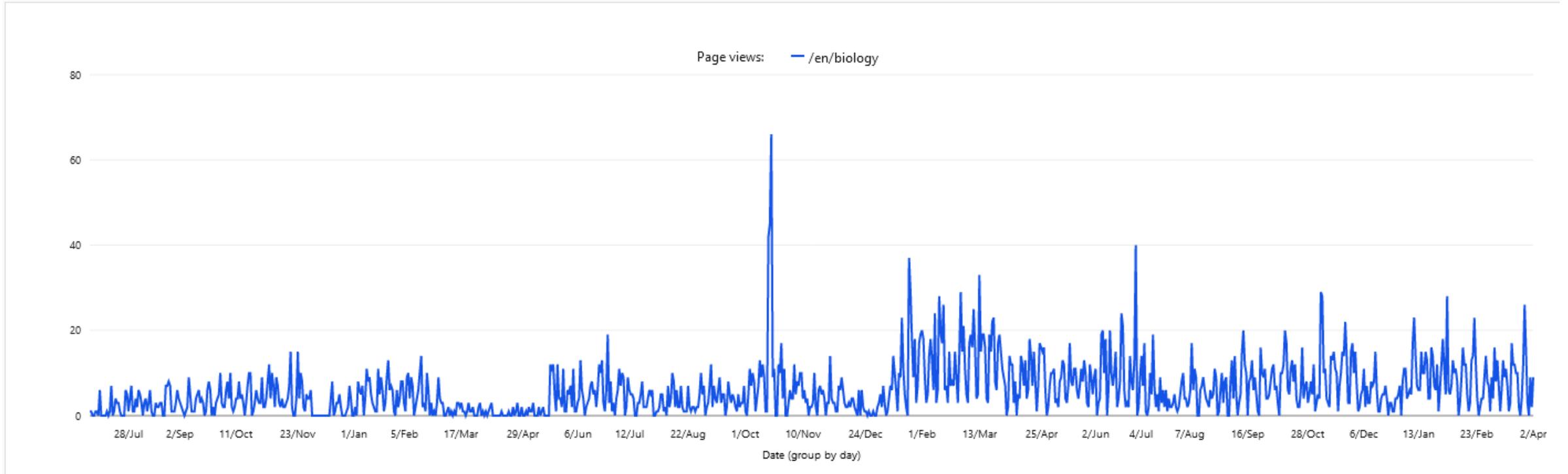
Most visited use cases since tracking was implemented in the CP

	Use case	# Sessions
2	<u>Distribution of reef-building benthos in the North Sea</u>	161
10	<u>EMODnet Biology datasets enriched with standardized associated media information</u>	97
14	<u>Holistic, standards-based access and interoperability for marine biodiversity data</u>	75
20	<u>Linking peer-reviewed publications with standardised eDNA derived occurrence data</u>	38

A few metrics

Page views since 2021-07-01

Daily number of page views (i.e. the number of times a page was visited) of EMODnet Thematic entry pages 

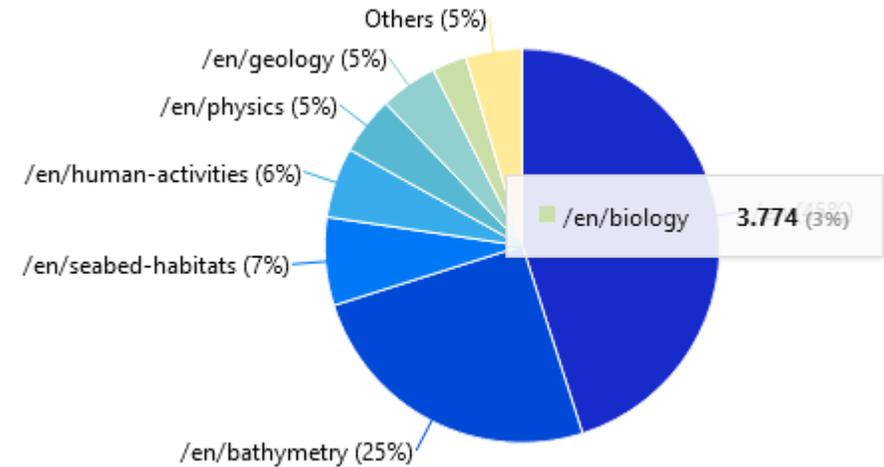


A few metrics

Metrics evolution for static pages

	Date	# Visitors	#Pageviews	#Unique Pageviews	% Returning visitors
CP Portal home page	2021-07-01 to 2024-04-02	60.020	10.7443	87.693	23.96%
Biology static page	2021-07-01 to 2024-04-02	3.774	6.121	4.940	34.66%
CP Portal home page	2023-02-01 to 2024-04-02	29.589	53.790	44.246	27.77%
Biology static page	2023-02-01 to 2024-04-02	2.304	3.867	2.967	31.86%

Quarterly # visitors to EMODnet home page and thematic entry pages





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Biology



EMODnet Biology annual meeting

WP2 status update

Ruben Perez Perez, Flanders Marine Institute
Leen Vandepitte, Flanders Marine Institute

12 May 2025 (Carthage, Tunisia)



The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) 2021/1139 of the European Parliament and of the Council of 7 July 2021 establishing the European Maritime, Fisheries and Aquaculture Fund.¹

WP2 Partners

- Lead: VLIZ;
- Partners: OGS;
- Subcontractors: Aarhus, Deltares, HCMR, ICES, IEO, IH Cantabria, ILVO, IMR, IPMA, MARIS, MBA, NIMRD, NIOZ, Pangea, SMHI, SYKE, Ifremer



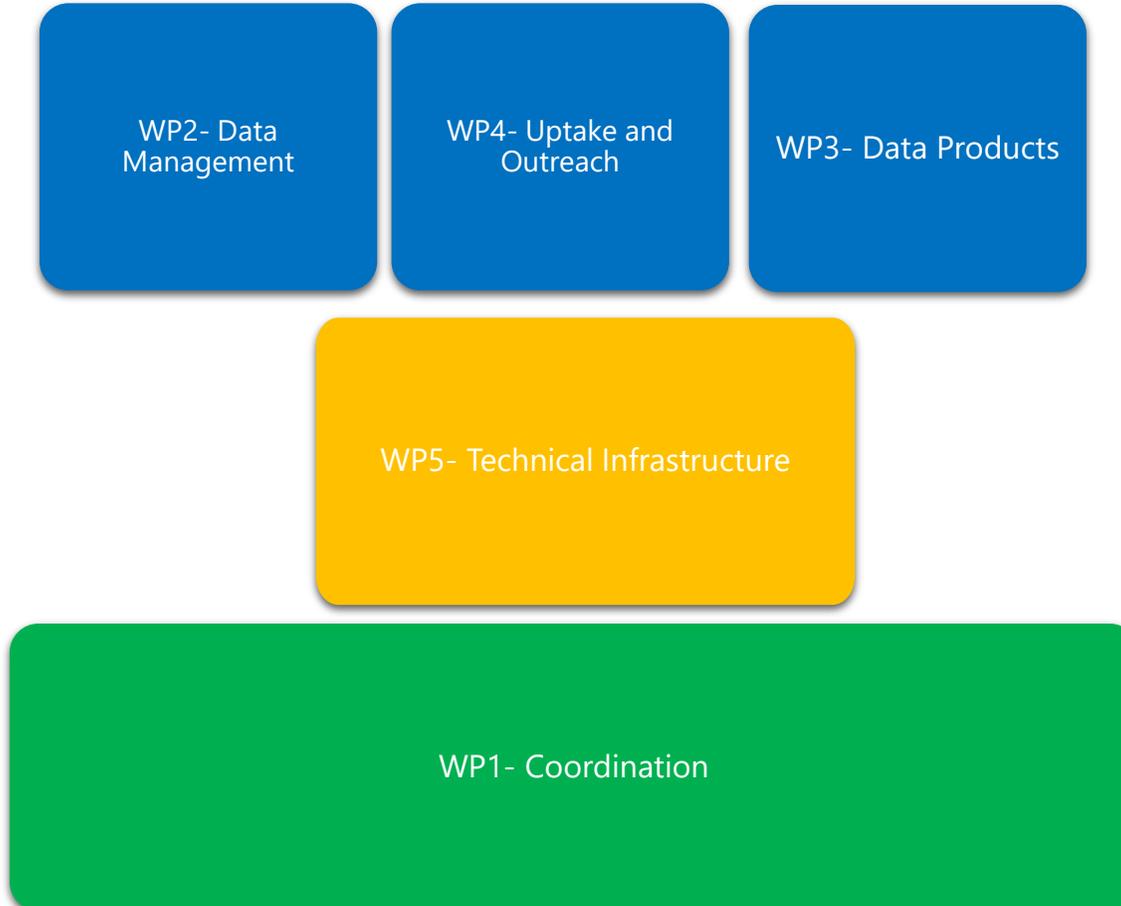
WP2 Objectives

Task 1: Maintain and improve a common method of access to data held in repositories.

- European seas: Water column, seabed & coastline
 - Arctic, Atlantic, Baltic, Black, Mediterranean & North Sea
 - Barents Sea
 - Jurisdictional waters of Member States, UK & Norway for the Northeast Atlantic
 - *Celtic Seas*
 - *Iberian coast*
 - *Bay of Biscay*
 - *Macaronesia*
 - *Norwegian Sea*
 - *Caribbean Sea*
- European projects
 - *Horizon2020*
 - *Horizon Europe*
 - *Mission Ocean*

=> active support towards data sharing through EMODnet
- *Also: focus on under-represented areas & species groups*

WP2 Objectives



WP2 Deliverables

#	Description	Due	Responsible
D2.1.1	Maintenance of adequate mechanisms to ensure data are interoperable	M0-M24 ✓	VLIZ
D2.1.2	Report on the standardisation and integration of datasets published during the Phase	M24 ✓	VLIZ
D.2.2.1	Summary on consortium data flows	M6 ✓	VLIZ
D2.3.1	Plan to optimise procedures to make restricted data available to users	M0-M24 ✓	all
D2.4.1	Workshop on use of Zooniverse for data digitisation through citizen science	M6 ✓	HCMR + VLIZ
D2.4.2	Data training workshop for Mediterranean organisations	M6 ✓	HCMR + VLIZ
D2.4.3	Report on the availability of data following the workshops	M22 ✓	HCMR
D2.5.1	Guidance for data management practices applied to omics data	M0-M24 ✓	VLIZ

Support to data providers

(Meta)data management

- Helpdesk at bio@emodnet.eu (proactive)
- Data Forum at MicrosoftT Team "project_EMODnet-Biology"
- Monthly Data Laundry Q/A Sessions

Resources

- OceanTeacher training [course](#)
- Biocheck [tool](#)

Data providers commitment

Expected activities

- Quality delivery of all proposed new and updated datasets following the agreed data format and quality standard.
- Proactive communication and responsiveness towards data delivery within the agreed deadlines.

Reminder

- Data delivery is only completed upon its acceptance by the EMODnet Bio DMT
- WP2 budget allocation depends on delivery of the proposed data.

WP2 Status Update

Partner	New	Updates	Delivered
Aarhus	-	1	1
Deltares	4	2	6
ICES	1	7	(8) 39
IEO	2	2	(4) 6
IFREMER	13	-	(13) 1
IHCantabria	1	2	3
ILVO	2	7	12
IMR	-	5	5
IPMA	-	5	(5) 4
NIMRD	2	-	3
NIOZ	3	-	3
OGS	4	4	8
SMHI	2	12	14
SYKE	-	3	3
UniHB	5	-	5
VLIZ	1 + TBD	TBD	172
MBA	1 + TBD	TBD	7
HCMR	6 + TBD	TBD	11
MARIS	-	-	-

Datasets for Phase V :

⇒ 222 new datasets

⇒ 87 updates of datasets

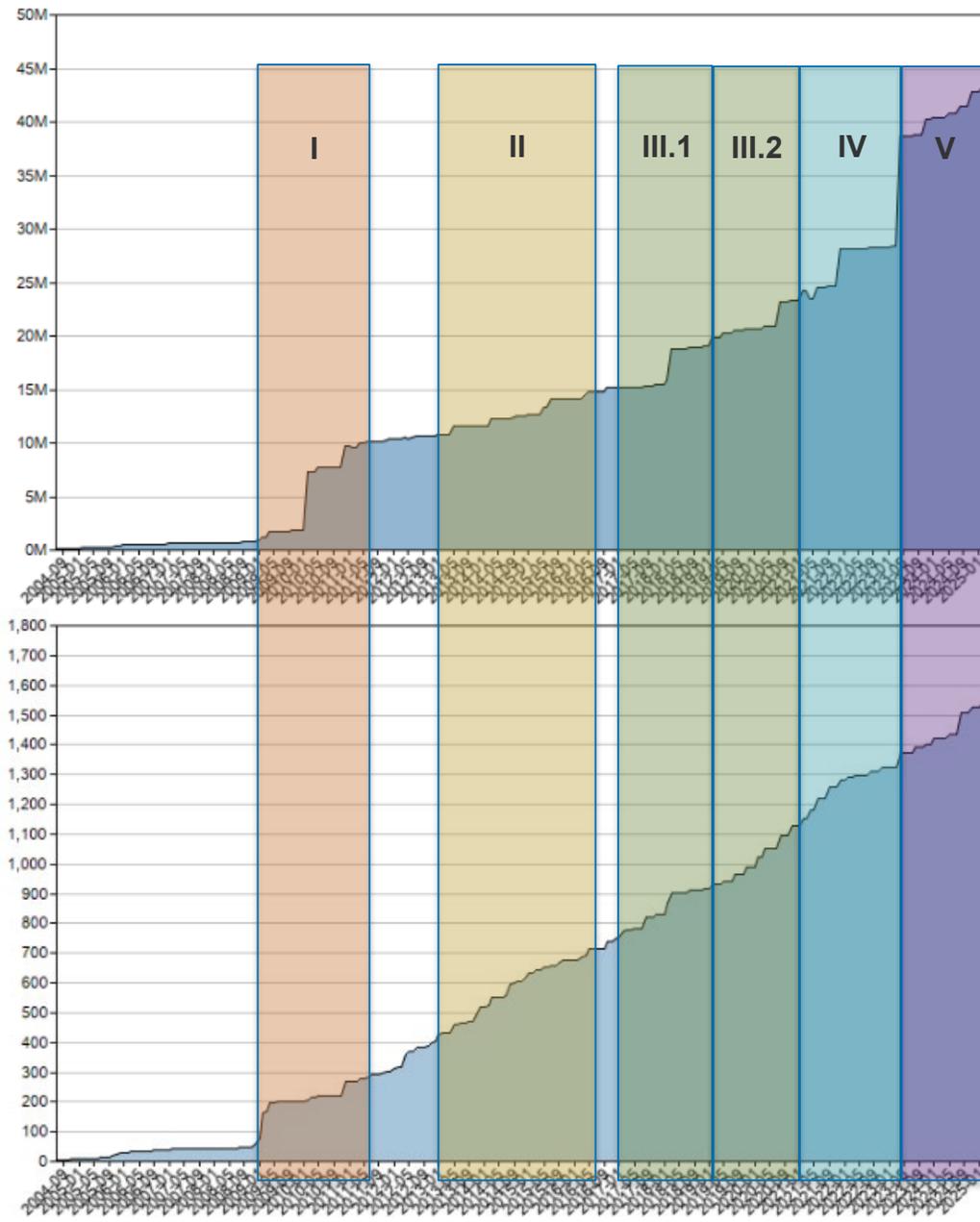
Currently delivered

⇒ 273% of proposed datasets

Covering:

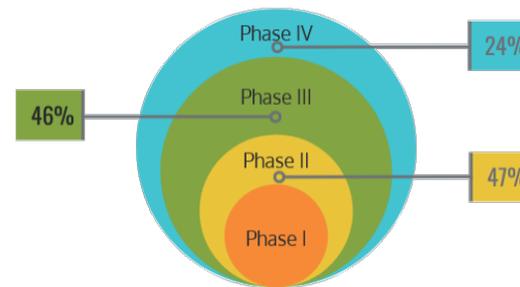
- All functional groups
- All geographic regions

WP2 Status Update



Occurrence records

Datasets



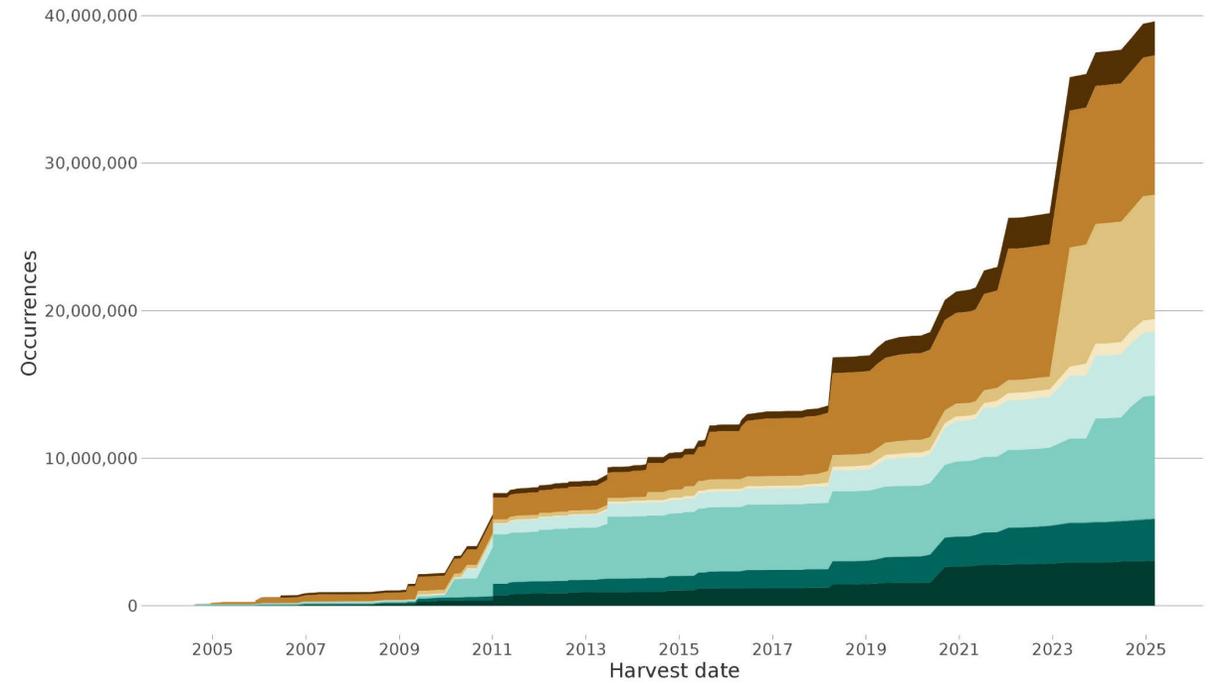
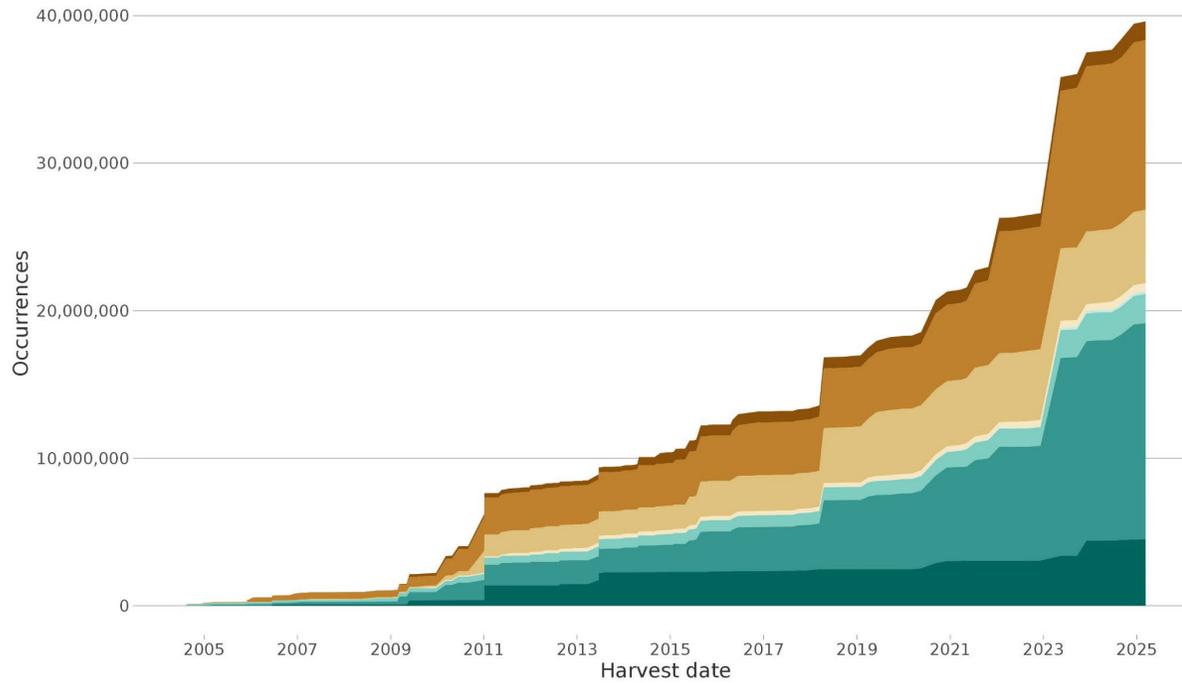
EMODnet Bio I: 5/2009 – 5/2011
 EMODnet Bio II: 9/2013 – 9/2016
 EMODnet Bio III - (1): 4/2017 – 4/2019
 EMODnet Bio III - (2): 4/2019 – 4/2021
 EMODnet Bio IV: 4/2021 – 4/2023
 EMODnet Bio V: 5/2023 – 5/2025

	End of: <i>(April-May)</i>	Bio III (1)	Bio III (2)	Bio IV	Bio V
		2019	2021	2023	2025
Datasets		899	1077	1280	1446
Mill. Occ. rec.		24.8	26.1	35.68	39.75
% QC'd		87%	86%	86%	90%
Mill. eMoF rec.		-	30.7	92.1	52.27
Species names		80,202	98,024	103,613	94,833
Acc species names		62,220	75,658	73,029	75,387

!!! More than just EMODnet Biology datasets... !!!

WP2 Status Update

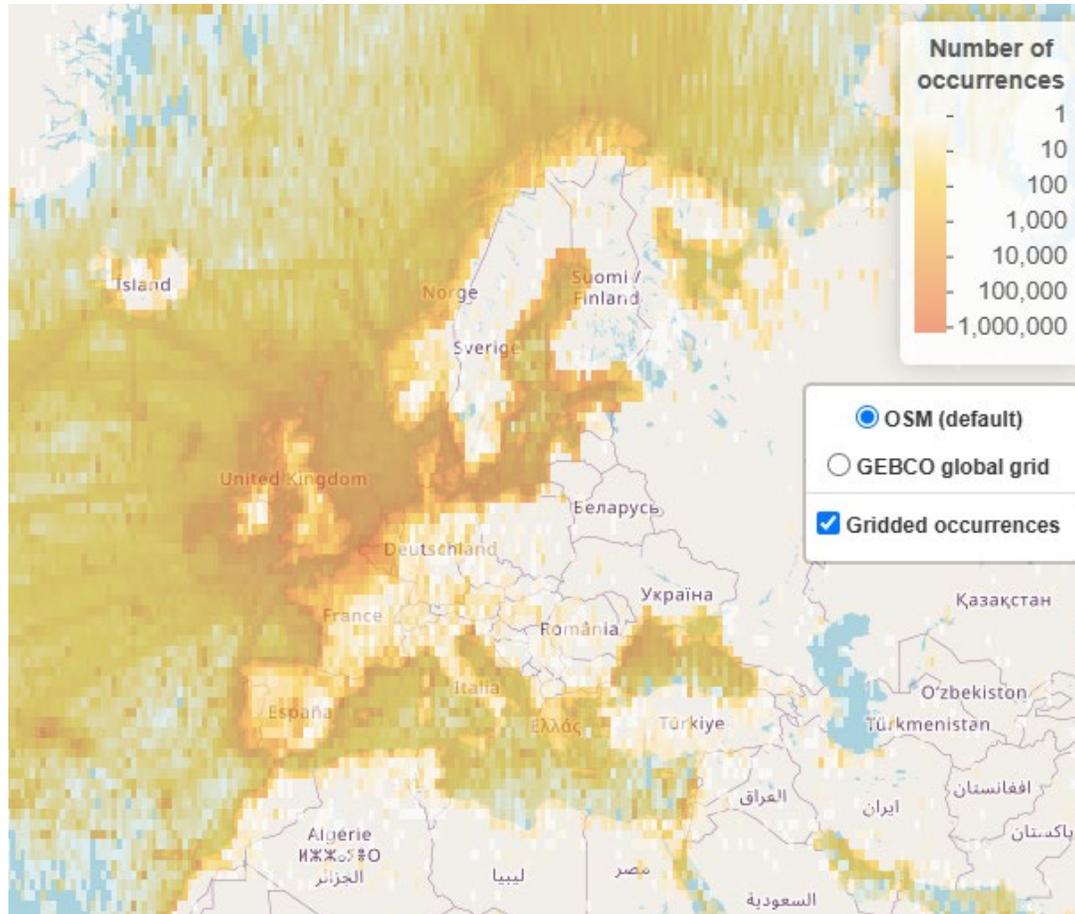
Evolution of the available occurrence records in EMODnet Biology



- Arctic
- Atlantic
- Baltic Sea
- Black Sea
- EMODnet-Biology reporting area: Land
- Mediterranean Sea
- North Sea
- Other Seas

- Algae
- Angiosperms
- Benthos
- Birds
- Mammals
- Phytoplankton
- Pisces
- Reptiles
- Unspecified
- Zooplankton

WP2 Status Update



Data Downloads

EMODnet CP:

⇒ 15K records (since March 2025)

OBIS:

⇒ 14M records (since 2023)

GBIF:

⇒ 26B records (since 2023)

* Billion representing a thousand millions



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Biology



EMODnet Biology annual meeting

WP3 status update

Benjamin Weigel 

12-13 May 2025 (Carthage, Tunisia)



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WP3 Objectives

- **Maximize uptake of existing and new data products by end-users**
 - raising awareness of existing products
 - provide training materials in form of tutorials to manipulate and visualize EMODnet products using the existing R packages developed in Phase III and IV
 - co-creation of data product needs with stakeholders (e.g., RSCs, environmental agencies of member states)
- **Products targeting species migration routes**
 - identify and contact experts and relevant stakeholders
 - assessing data sources of existing external products and indicators and the possibility of hosting these external products in EMODnet Biology
 - Liaison with external entities and experts
- **Continue creating distribution maps**
 - **Data products targeting groups of species, as well as presence/absence maps, both of which can be queried, subset and downloaded via the EMODnet Central Portal viewer**

WP3 Deliverables

- **3.1.1 Internal WP3 and WP4 Workshop (M4)**

Cross WP communication and knowledge exchange to achieve best possible outcomes for this phase

- to facilitate cross-WP collaboration and awareness of previous work done by WP3 and WP4
- to discuss the best possible ways of how EMODnet can support Regional Sea Convention (RSC) needs in the future.
- precursor for RSC workshop of WP4 (M12)

- **3.2.1 Quarterly community calls (M3-M24)**

Space for discussion of WP internal progress, challenges, feedback, sharing information

- each community call produces one summary report (meeting-minutes)

- **3.3.1 Liaison with external entities targeting seabird and cetacean migration outputs (M0-M24)**

- data products should now be especially linked to temporal changes of species distributions due to coastal infrastructure considering cetaceans and migratory sea birds

- **3.3.2 Data product creation (M0-M24-M19)**

WP3 Deliverables

... and what cannot happen again!



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WP3 – Deliverables and Deadlines

Internal Workshop WP3 and WP4 10.09.2023 (M4)

Discuss RSC needs and involment

Evaluation of data products from previous phases

Quarterly community calls M3 – M24

Liaison with external entities targeting seabird and cetacean migration outputs M0 – M24

Data product creation
2024 (M19)

latest by December

WP3 Deliverables



3.1.1 Internal WP3 and WP4 Workshop (M4)

Cross WP communication and knowledge exchange to achieve best possible outcomes for this phase

→ to facilitate cross-WP collaboration and awareness of previous work done by WP3 and WP4

→ to discuss the best possible ways of how EMODnet can support Regional Sea Convention (RSC) needs in the future.

→ precursor for RSC workshop of WP4 (M12)

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→ data products should now be especially linked to temporal changes of species distributions due to coastal infrastructure considering cetaceans and migratory sea birds

3.3.2 Data product creation (M0-M24-M19)

WP3 Deliverables

To ensure timely submission of deliverables

New requirements:

- Product development time-line to be submitted around the first community call
- Mid term evaluation of product development to ensure mid term payment

New-contract likely to include a section specifying that submissions after December 2026 result in breach of contract and therefore no payment

WP3 Status Update

Deliverables

3.1.1 Internal WP3 and WP4 Workshop (M4)

Delivered: September 2023

Report is available on EMODnet webpage



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EMODnet Biology V
CINEA/EMFAF/2022/3.5.2/SI2.895681
Start date of the project: 10/05/2023 (24 months)
EMODnet Phase III
D3.1.1 Internal WP3 and WP4 Workshop

The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) No 508/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund.



WP3 Status Update

Deliverables

3.2.1 Quarterly community calls (M3-M24)

8 delivered on time:

June, September, December **2023**

March, April, July, October **2024**

January **2025**

Reports are available in the Drive



3.3.1 Liaison with external entities targeting seabird and cetacean migration outputs (M0-M24)

Efforts are undergoing to establish collaboration with seabird and mammal experts, e.g. by offering to host any existing products that address the impact of coastal human infrastructures in migrating species.

WP internal: ongoing investigation of possibility to create seabird sensitivity maps for wind parks in the North Sea.

WP3 Status Update

Deliverables

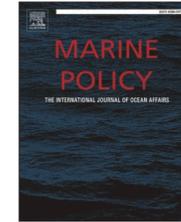
Marine Policy 173 (2025) 106578



Contents lists available at [ScienceDirect](#)

Marine Policy

journal homepage: www.elsevier.com/locate/marpol



Realising the potential of interoperable data products to improve the outlook for marine biodiversity: Lessons from the European marine observation and data network



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^b Flanders Marine Institute, Jacobsenstraat 1, 8400, Ostend, Belgium

^c IHCantabria - Instituto de Hidráulica Ambiental de la Universidad de Cantabria, Santander 39011, Spain

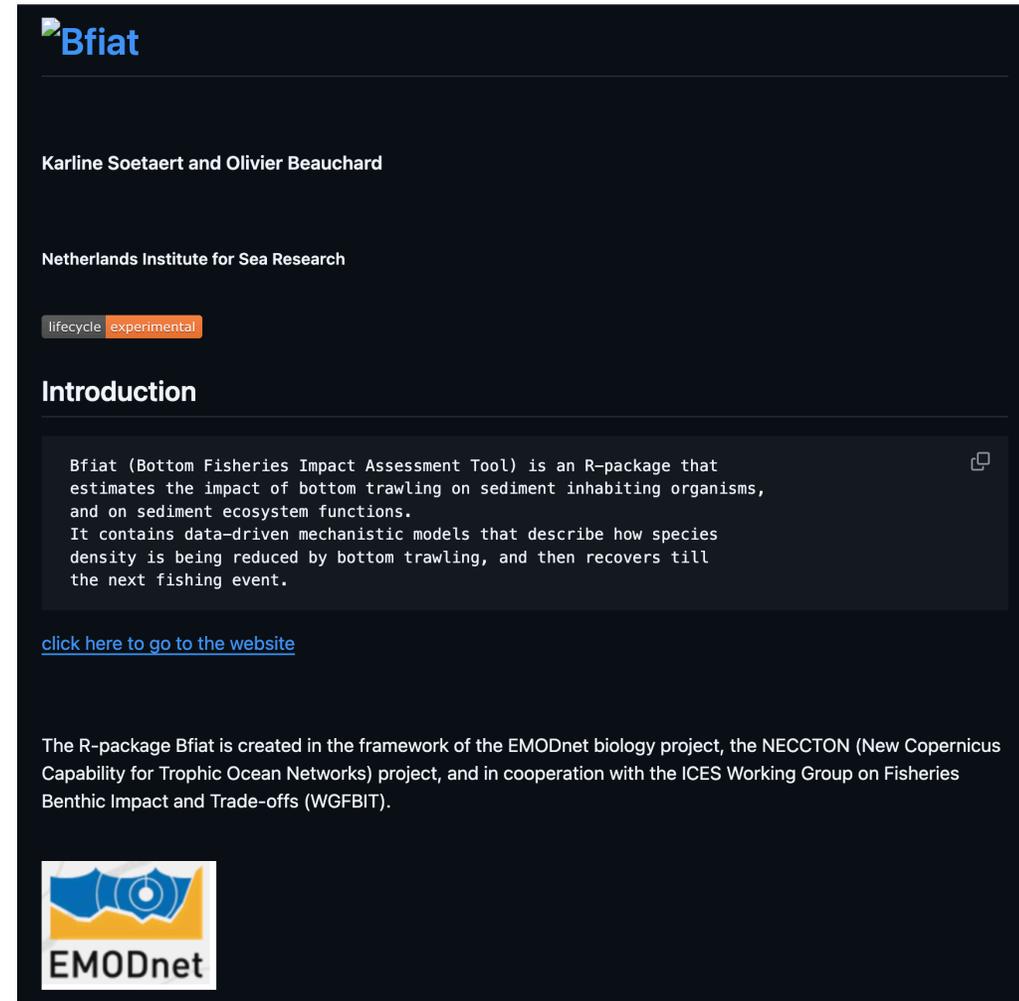
^d Department of Estuarine and Delta Systems, Royal Netherlands Institute for Sea Research (NIOZ), Yerseke, the Netherlands

^e Marine and Coastal Systems, Deltares, Delft, the Netherlands

^f GeoHydrodynamics and Environment Research, FOCUS Research Unit, University of Liège, Liège, Belgium

^g INRAE, EABX, 50 avenue de Verdun, Cestas 33612, France

New software tool to model the impact of bottom trawling on the benthos



Bfiat

Karline Soetaert and Olivier Beauchard

Netherlands Institute for Sea Research

lifecycle experimental

Introduction

Bfiat (Bottom Fisheries Impact Assessment Tool) is an R-package that estimates the impact of bottom trawling on sediment inhabiting organisms, and on sediment ecosystem functions. It contains data-driven mechanistic models that describe how species density is being reduced by bottom trawling, and then recovers till the next fishing event.

[click here to go to the website](#)

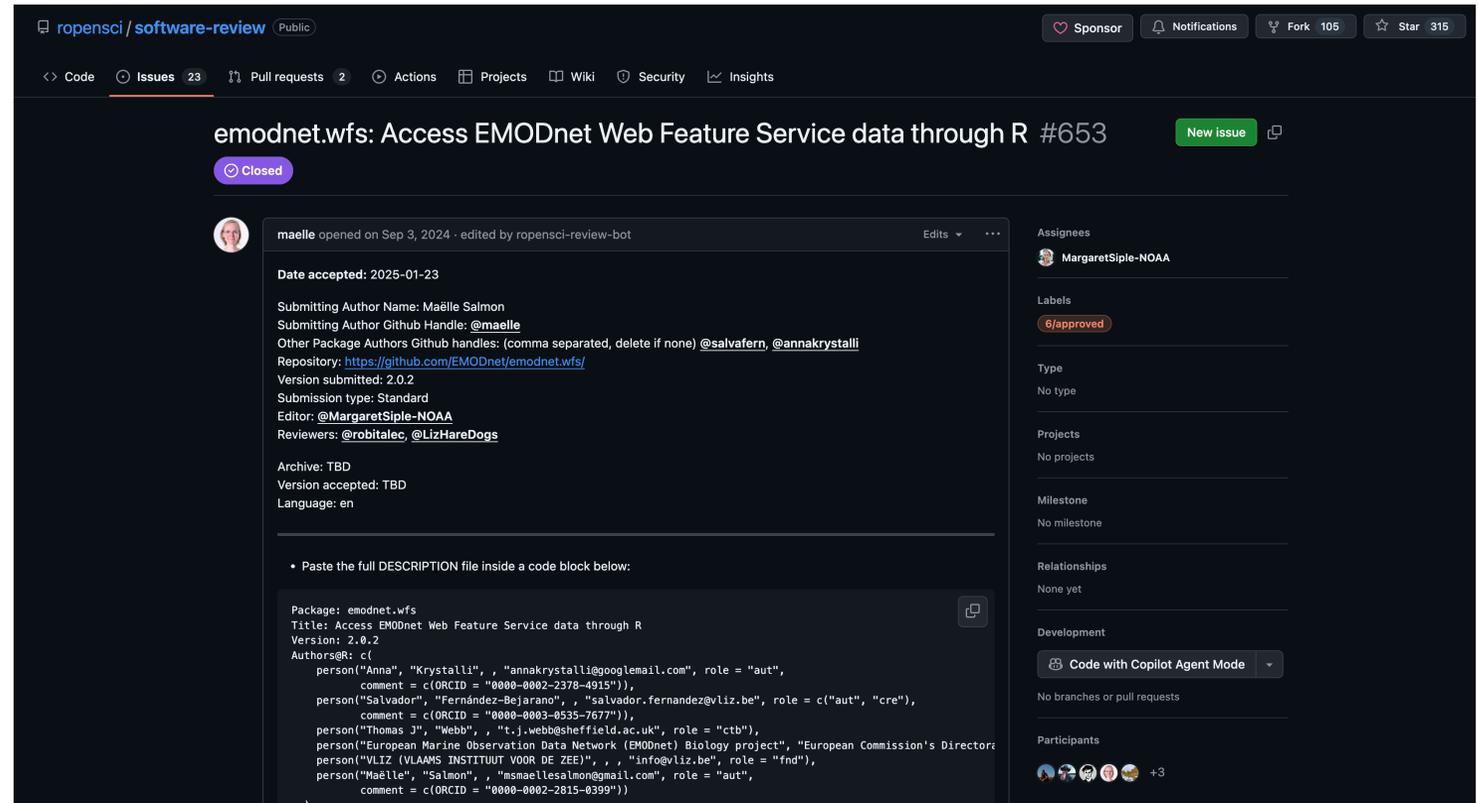
The R-package Bfiat is created in the framework of the EMODnet biology project, the NECCTON (New Copernicus Capability for Trophic Ocean Networks) project, and in cooperation with the ICES Working Group on Fisheries Benthic Impact and Trade-offs (WGFBIT).



WP3 Status Update

Deliverables

emodnet.wfs R package
fully revised and reviewed
(ROpenScience)
ready to be publish on
CRAN



The screenshot shows a GitHub issue page for the repository 'ropensci/software-review'. The issue title is 'emodnet.wfs: Access EMODnet Web Feature Service data through R #653'. The issue is marked as 'Closed' and was opened by user 'maelle' on Sep 3, 2024. The issue details include:

- Date accepted: 2025-01-23
- Submitting Author Name: Maëlle Salmon
- Submitting Author Github Handle: @maelle
- Other Package Authors Github handles: (comma separated, delete if none) @salvafern @annakrystalli
- Repository: <https://github.com/EMODnet/emodnet.wfs>
- Version submitted: 2.0.2
- Submission type: Standard
- Editor: @MargaretSiple-NOAA
- Reviewers: @robitalec, @LizHareDogs
- Archive: TBD
- Version accepted: TBD
- Language: en

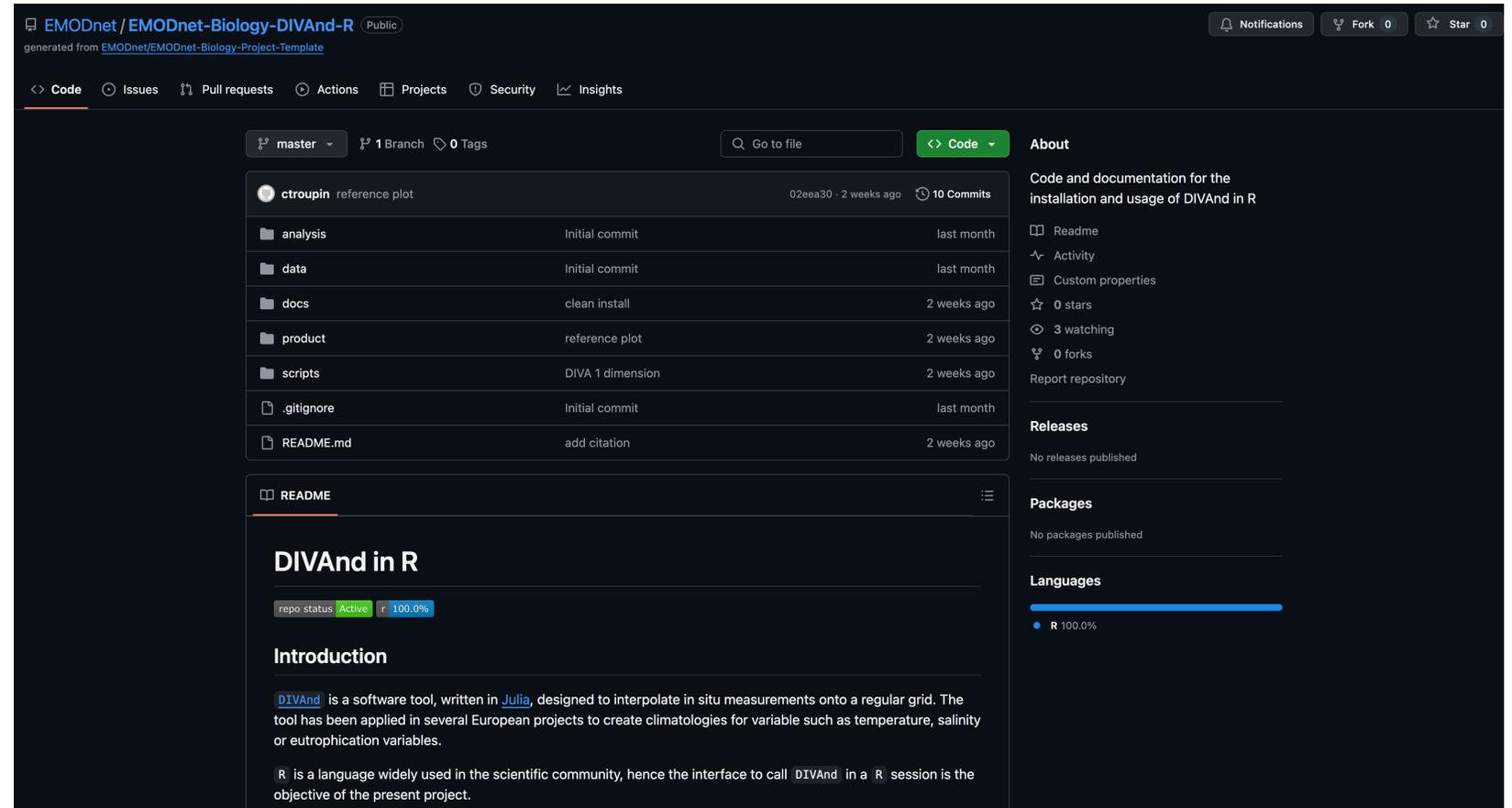
The issue description includes a code block for the R package DESCRIPTION file:

```
Package: emodnet.wfs
Title: Access EMODnet Web Feature Service data through R
Version: 2.0.2
Authors@R: c(
  person("Anna", "Krystalli", , "annakrystalli@gmail.com", role = "aut",
    comment = c(ORCID = "0000-0002-2378-4915")),
  person("Salvador", "Fernández-Bejarano", , "salvador.fernandez@vliz.be", role = c("aut", "cre"),
    comment = c(ORCID = "0000-0003-8535-7677")),
  person("Thomas J", "Webb", , "t.j.webb@sheffield.ac.uk", role = "ctb"),
  person("European Marine Observation Data Network (EMODnet) Biology project", "European Commission's Director",
    person("WILZ (VLAAMS INSTITUUT VOOR DE ZEE)", , "info@vliz.be", role = "fnd"),
  person("Maëlle", "Salmon", , "msmaellesalmon@gmail.com", role = "aut",
    comment = c(ORCID = "0000-0002-2815-0399"))
```

WP3 Status Update

Deliverables

- **DIVAnd-R implementation**



EMODnet / EMODnet-Biology-DIVAnd-R (Public)
generated from EMODnet/EMODnet-Biology-Project-Template

<> Code Issues Pull requests Actions Projects Security Insights

master 1 Branch 0 Tags

Go to file Code

File	Commit	Time
ctroupin reference plot	02eea30	2 weeks ago 10 Commits
analysis	Initial commit	last month
data	Initial commit	last month
docs	clean install	2 weeks ago
product	reference plot	2 weeks ago
scripts	DIVA 1 dimension	2 weeks ago
.gitignore	Initial commit	last month
README.md	add citation	2 weeks ago

README

DIVAnd in R

repo status Active r 100.0%

Introduction

[DIVAnd](#) is a software tool, written in [Julia](#), designed to interpolate in situ measurements onto a regular grid. The tool has been applied in several European projects to create climatologies for variable such as temperature, salinity or eutrophication variables.

R is a language widely used in the scientific community, hence the interface to call `DIVAnd` in a R session is the objective of the present project.

About

Code and documentation for the installation and usage of DIVAnd in R

Readme
Activity
Custom properties
0 stars
3 watching
0 forks
Report repository

Releases

No releases published

Packages

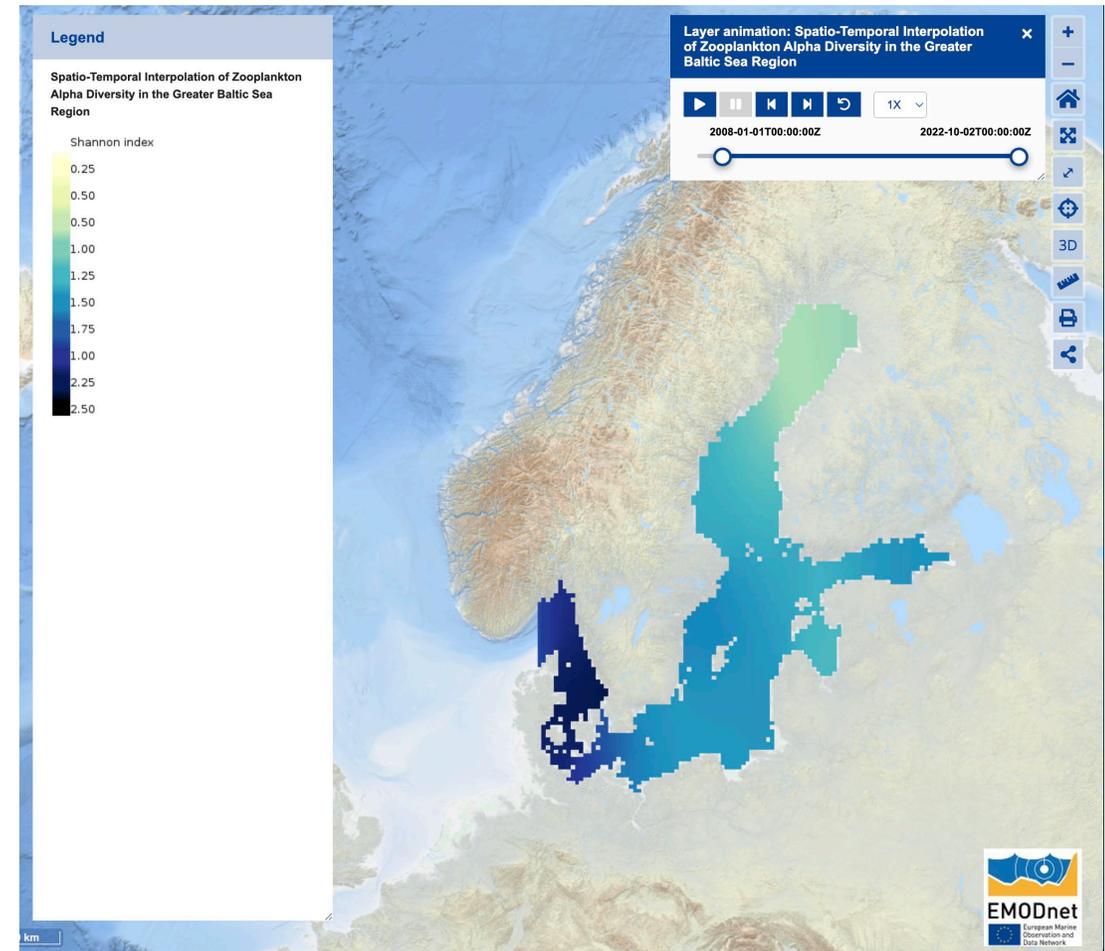
No packages published

Languages

R 100.0%

Spatio-Temporal Interpolation of Zooplankton Alpha Diversity in the Greater Baltic Sea Region

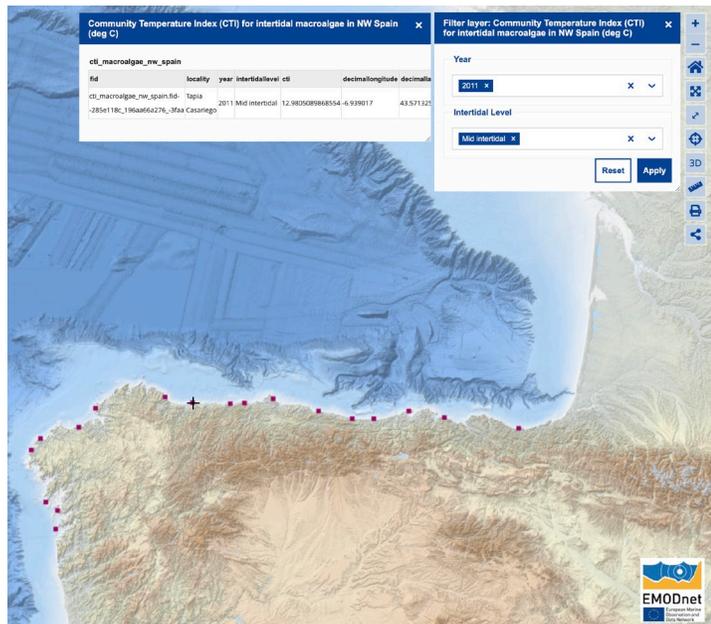
Use of a DIVAnd – R product



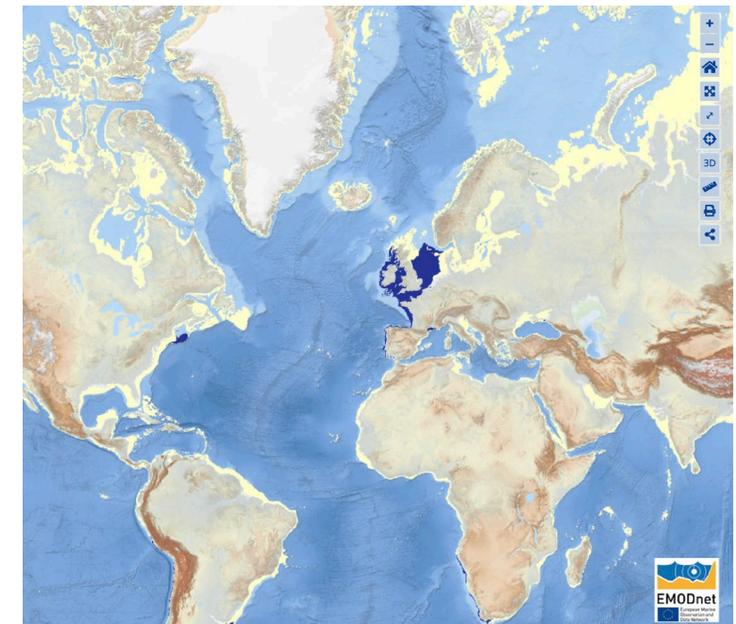
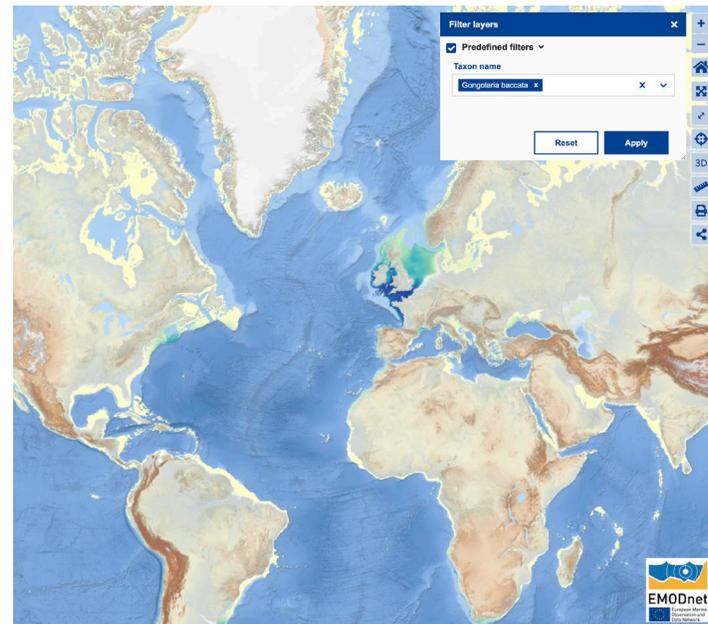
WP3 Status Update

Deliverables

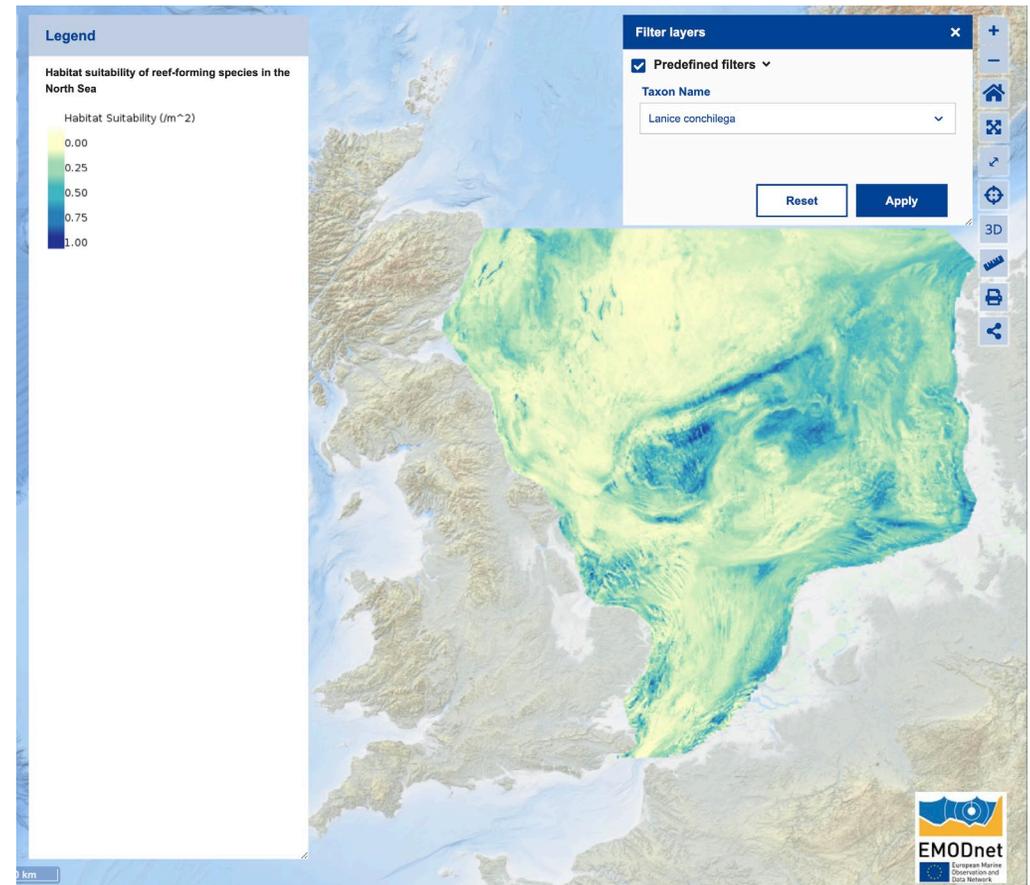
Community Temperature Index (CTI) for intertidal macroalgae in NW Spain



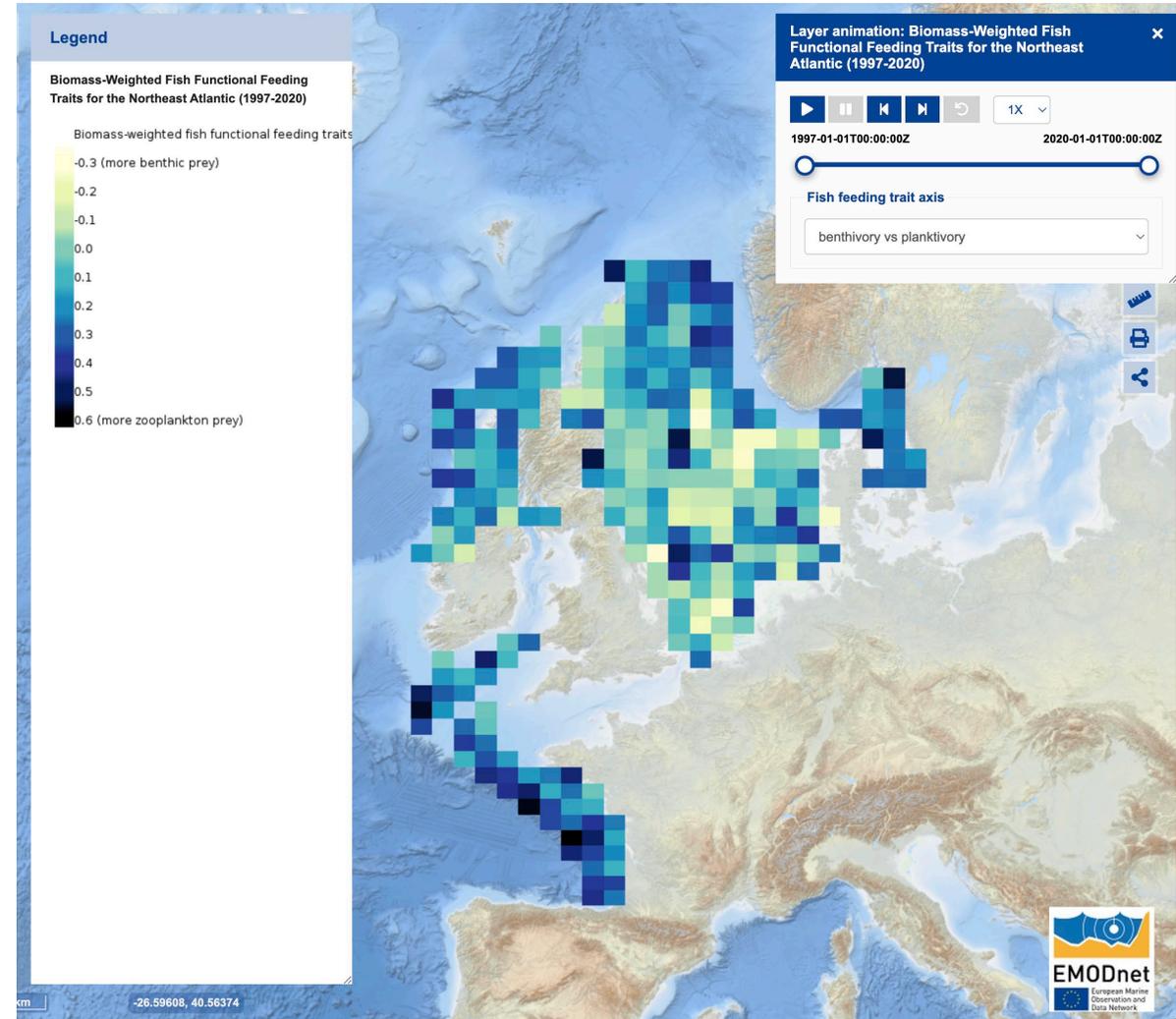
Global predicted thermal distributions for intertidal macroalgae



Habitat suitability of reef-forming species in the North Sea



Biomass-Weighted Fish Functional Feeding Traits for the Northeast Atlantic (1997-2020)

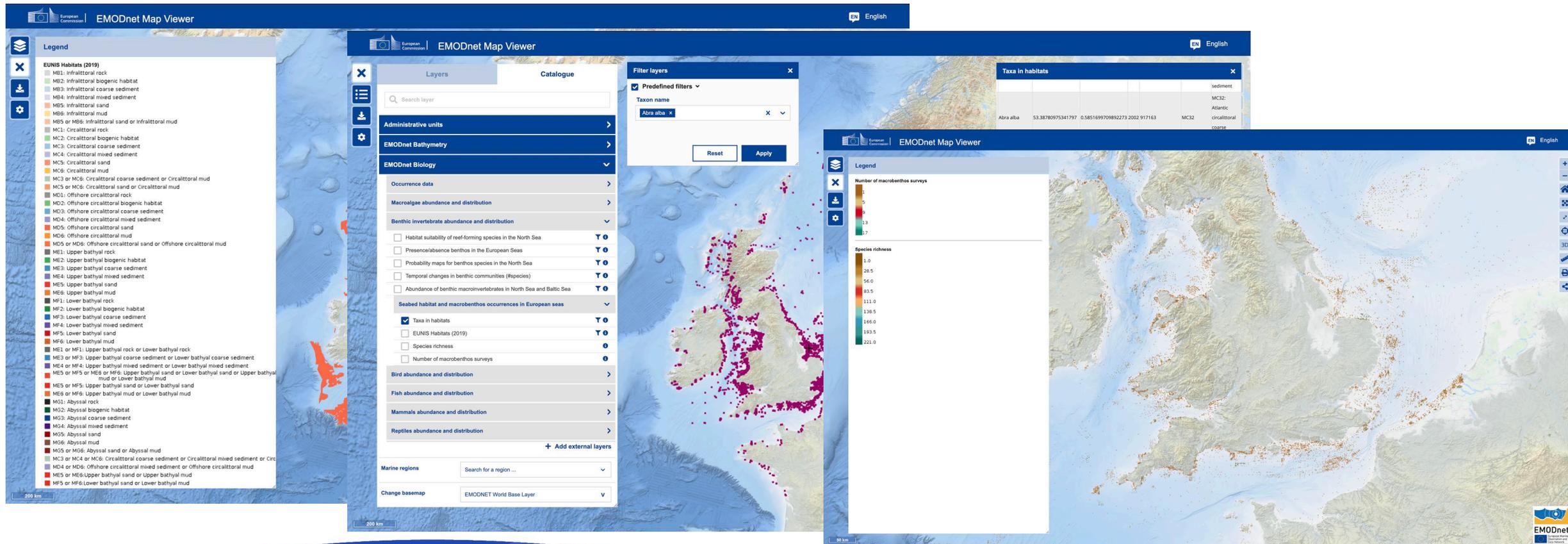


WP3 Status Update

Deliverables

Biodiversity of European macrobenthos by EUNIS seabed habitat types

- A cross lot product with Seabed habitats

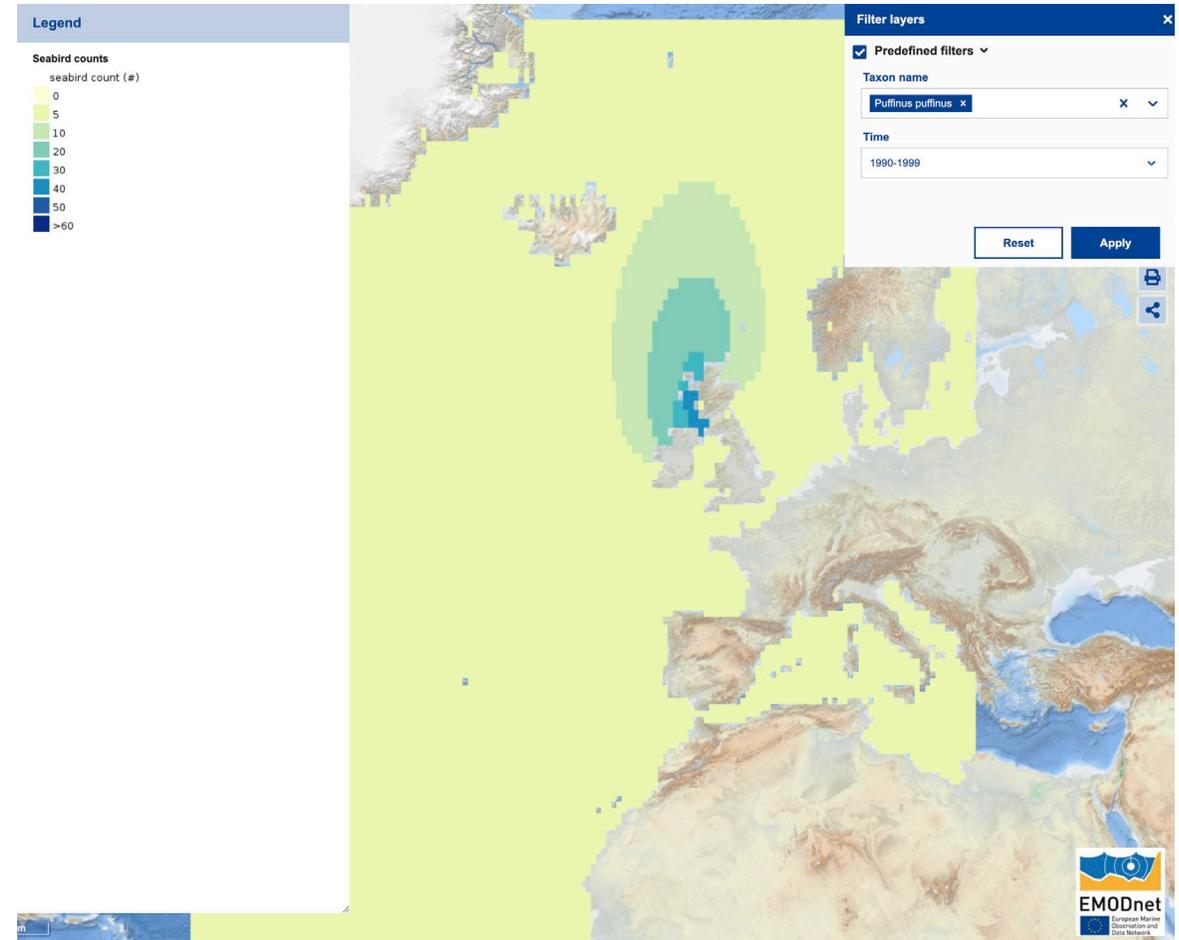


WP3 Status Update

Deliverables

Count maps of sea birds in European Seas (first bird product!)

Created with DIVAnd



WP3 Team

INRAE

Benjamin Weigel



VLIZ

Joana Beja

Salvador Fernandez



OGS

Marina Lipizer

Deltares

Willem Stolte

Luuk van der Heijden



IH cantabria
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Samuel Sainz



**Royal Netherlands Institute
for Sea Research**

Karline Soetaert



LIÈGE
université

Charles Troupin

Alexander Barth

SMHI

Anders Torstensson



**University of
Sheffield**

Tom Webb



Cefas

Murray Thompson

Oliver Williams



Maëlle Salmon



WP3 Summary

- Nice uptake of new products in terms of downloads
- Multiple products have been published
 - analytical tools
 - maps of distribution changes for species and functions (benthos, zooplankton, macrophytes, fish and birds)
- RSC workshop highlighted that our products are relevant
- RSC workshop also provided feedback on future needs we need to follow
- Position paper now published, highlighting the value of biological data products to marine research and management

WP3

Reflection on phase V and lessons for the continuation

- Quarterly community calls seemed to have worked well and will be continued.
- We may consider a monthly window for opportunities to chat in addition to the community calls. Open zoom channel one can call in if need be.
- Product development needs a stricter time line with mid-term evaluations to ensure payments
- Future products need to be envisioned so they can be implemented in the EMODnet Viewer
- Future products need to highlight their relevance for RSCs following the lessons learned from the RSC workshop

Thank you all in WP3 for you hard work and excellent output





EMODnet

European Marine
Observation and
Data Network

Biology



EMODnet Biology annual meeting

WP4 Uptake and Outreach Status update

Marina Lipizer, OGS



OGS

12-13 May 2025 (Carthage, Tunisia)



The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) 2021/1139 of the European Parliament and of the Council of 7 July 2021 establishing the European Maritime, Fisheries and Aquaculture Fund.¹

WP4: What we were required to do

❖ **WP Objectives:** to promote EMODnet Biology data (WP2), products (WP3) and services (WP5), to engage relevant actors (e.g. RSC, EU projects) and contribute to implementation of EU legislation

❖ WP Tasks & Actions

Task 5: Contributing static content to dedicated spaces in the Central Portal

Action 4.1 Provide and update content to the EMODnet Central Portal

Task 6: Ensure the involvement of Regional Sea Conventions RSC

Action 4.2 Interaction with the RSCs and ICES

Task 7: Contribute to the implementation of the EU legislation and broader initiatives for open data

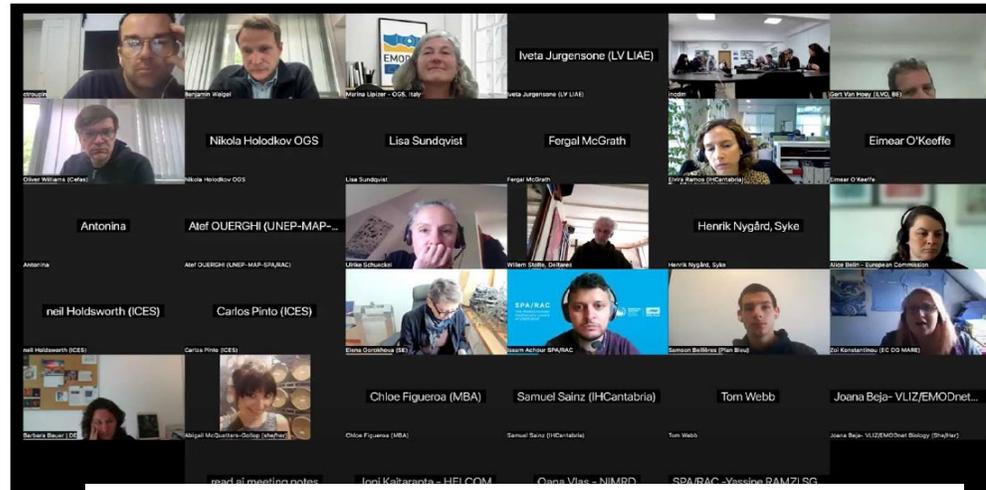
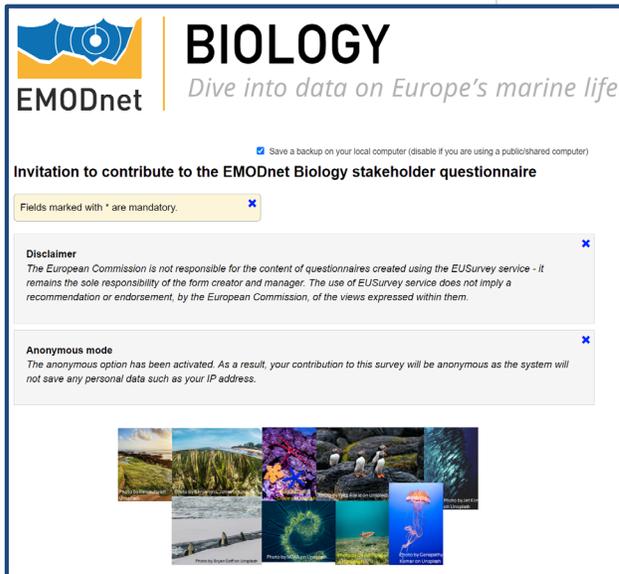
Action 4.3 Liaison with relevant EU initiatives, projects and parties

Action 4.4 Ensure compatibility with INSPIRE Directive

Task 6: Ensure the involvement of Regional Sea Conventions RSC



Action	Deliverable	Participants:	Timeline	Status
4.2 Interaction with the RSCs and ICES	4.2.1 Engagement plan for each RSC	OGS, ILVO, NIMRD, SYKE, UkrSCES	M6	done
	4.2.2 Questionnaire to inform about what data & products EMODnet Biology offers and to collect stakeholder needs	OGS, ILVO, MBA, NIMRD, SYKE, UkrSCES,	M6	done
	4.2.3 Workshop with RSCs to understand major needs	OGS, ILVO, NIMRD, SYKE, UkrSCES	M12	done
	4.2.4 Report on progress for the publication of fisheries survey data	VLIZ, ICES	M24	done



- All RSC involved
- Useful feedbacks
- Indication of gaps & needs



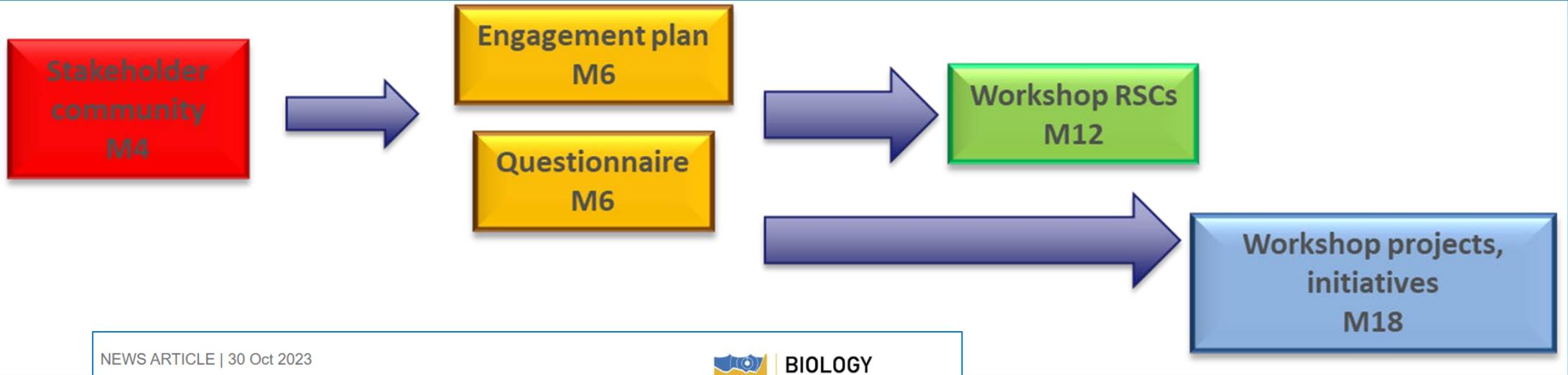


EMODnet
European Marine Observation and Data Network

EMODnet Biology
CINEA/EMFAF/2022/3.5.2/SI2.895681

EMODnet Phase V
D4.2.4: Report on progress for the publication of fisheries survey data

Task 6: Ensure the involvement of Regional Sea Conventions RSC



NEWS ARTICLE | 30 Oct 2023

EMODnet Biology invites input to stakeholder survey

A questionnaire was prepared to collect feedback from stakeholders that develop work within the marine biodiversity domain. This includes, primarily, those involved in the Regional Sea Conventions working groups, ICES working groups, European Union Technical Groups and Horizon projects. We welcome responses via this link until the end of 2023.



Additional Questionnaire M16

NEWS ARTICLE | 04 Sep 2024

EMODnet Biology launches new survey targeting EU funded projects working on biodiversity

EMODnet Biology has launched a survey aimed at EU-funded projects working on biodiversity to gather valuable feedback and insights. This information will help the EMODnet Biology consortium plan an online workshop in mid-November. The workshop will provide an overview of EMODnet Biology, the resources available to data providers, and explore how the consortium can support projects in submitting their outputs—particularly data and products for (re)hosting in EMODnet.

Task 6: Ensure the involvement of Regional Sea Conventions RSC – SWOT analysis

Strengths

- Consolidated connection with some RSC
- Better awareness of EMODnet

Questionnaire: sent to 70 stakeholders,
25 answers collected

Opportunity

- Task to be consolidated in the next phase
- Next EMODnet Open Conference as a new opportunity to engage RSCs

Weakness

- Low participation to surveys
- Weak follow-up activities close to first engagement
- Not clear needs from RSC
- Not clear what EMODnet offers to RSC

Threats

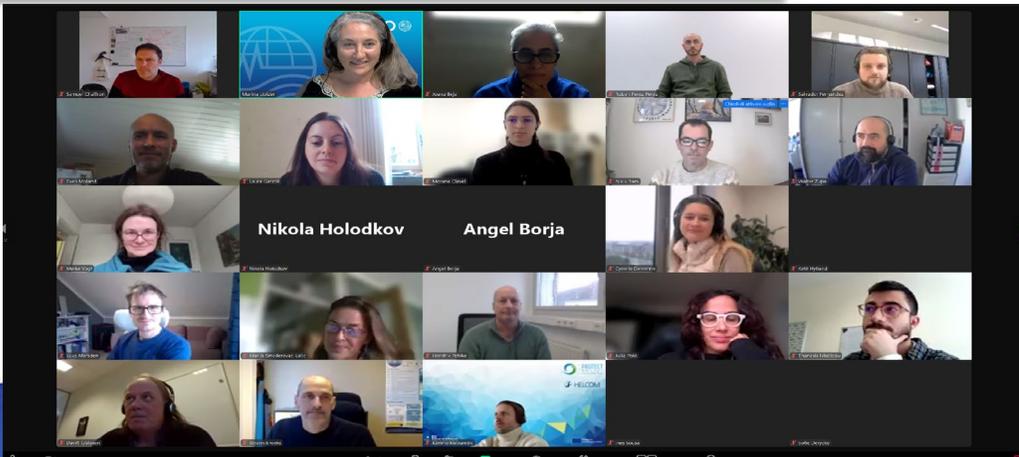
- Change in RSC contact persons which requires establishment of connections (*ab initio*)
- Limited (no?) resources/commitment on RSC side

Task 7: Contribute to the implementation of the EU legislation and broader initiatives for open data



Action	Deliverable	Participants:	Timeline	Status
4.3 Liaison with relevant EU initiatives, projects and parties	4.3.1 Workshop with representatives of major recent and current European Research Projects and initiatives to share experience and knowledge in biodiversity monitoring and assessment and in data, tools and services	VLIZ, INRAE, OGS, Aarhus, CEFAS, Deltares, HCMR, ICES, IEO, IH Cantabria, ILVO, IMR, IPMA, MARIS, MBA, NIMRD, NIOZ, Pangea, SMHI, SYKE, UkrSCES, Ulg, U. Sheffield, UkrSCES	M18	done
	4.3.2 Participation in TG DATA meetings	VLIZ, ICES	M0-M24	done
4.4 Ensure compatibility with INSPIRE Directive	4.4.1 Ensure compatibility with INSPIRE Directive (data, metadata, data products)	VLIZ	M0-M24	done
	4.4.2 Report on the activities to support EU Member States regarding their reporting obligations	OGS, VLIZ,	M24	

○ Need to design follow-up activities close to first engagement (EU Projects)





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European Marine Observation and Data Network

EMODnet Thematic Lot n° V - Biology
CINEA/EMFAF/2022/3.5.2/SI2.895681
Start date of the project: 10/05/2023 (24 months)
Centralisation Phase

Informative material based on the 4.3.1 outcomes (Workshop for EU Mission Ocean Projects) [D4.1.4]

The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) No 508/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund.



EMODnet Thematic Lot n° V – Biology
CINEA/EMFAF/2022/3.5.2/SI2.895681
Start date of the project: 10/05/2023 (24 months)
Operational Phase

D4.4.2 Activities to support EU Member States regarding their reporting obligations

The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) 2021/1139 of the European Parliament and of the Council of 7 July 2021 establishing the European Maritime, Fisheries and Aquaculture Fund.

Lessons learned:

Main contribution EMODnet can provide:

- Promote use of **standard** metadata and dataset formats which are interoperable with international frameworks (such as DarwinCore), **clear licence** conditions and **open data** principles, to support the **FAIR** data principles
- Provide necessary skills to manage data and ensure that it adheres to community standards through **outreach, training, workshops**

Main gaps & needs perceived:

- Limited **resources** for data management
- Limited **expertise** on data management
- Data already available in **multiple systems**
- **Lack** of data availability in some areas
- **Formal agreement** for data sharing

Way forward

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

- ❖ organization of capacity building initiatives to support data management and curation,
- ❖ facilitate the overall data management process
- ❖ ICT development to support data management, exploiting the use of Artificial Intelligence to facilitate data management and Quality Control
- ❖ consolidate interoperability and data flow among major infrastructures (e.g. ICES, OBIS, etc)
- ❖ a governance aspect which involves dedicating specific funding to assure financial and human resources dedicated to data management
- ❖ establish formal agreements between countries, RSCs and EMODnet Biology in order to overcome current data sharing constraints

WP4 Partners: Thank you!



Deltares



6/7/2023

3





EMODnet

European Marine
Observation and
Data Network

Biology



EMODnet Biology annual meeting

WP5 status update

Bart Vanhoorne (VLIZ)

12-13 May 2025 (Carthago, Tunisia)



The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) 2021/1139 of the European Parliament and of the Council of 7 July 2021 establishing the European Maritime, Fisheries and Aquaculture Fund.¹

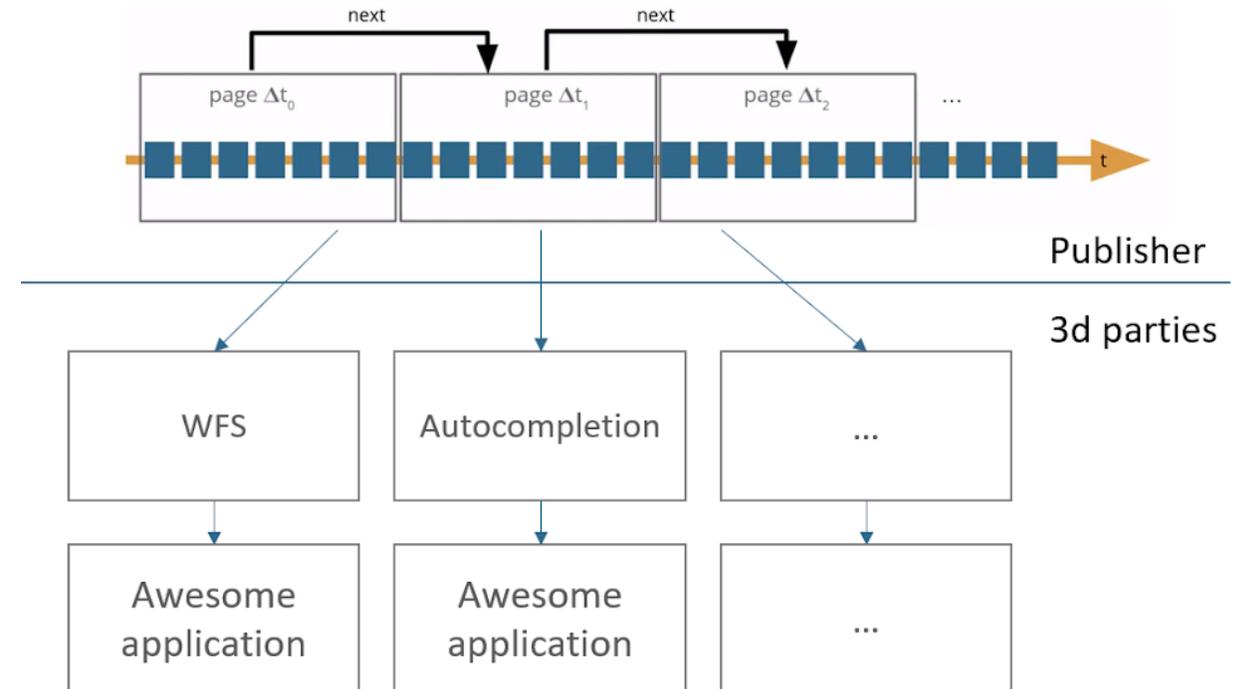
5.1 Extend interoperability and data types (Lead: VLIZ, Subcontractor: MARIS)

Item	Summary	Details
New data types	Integration of omics and image data.	<ul style="list-style-type: none"> - Using (DwC) standard extensions - Investigate how to store and track remotely linked large data blobs - Needs to link up to initiatives like the OBIS eDNA EMO-BON and eDNAQuaPlan
Alignment with other projects	Incorporation and implementation of other projects' outputs in EMODnet Biology	<p>DTO Bio Flow, MAREGRAPH, ARMS (EMOBON), tracking data (ETN), plankton images, acoustics and developing a data model and ontology for the EurOBIS database</p>
Interoperability	Set of agreed standards and techniques for extending the interoperable exchange of information within and outside EMODnet	<ul style="list-style-type: none"> - Extending OGC standards with semantically annotated data and metadata - Link with i.e. Ocean InfoHub - Using the knowledge gathered within other projects, e.g. ENVRI, EOSC Life, FAIR Ease, EOSC interoperability framework, Open Data Directive, ...

5.1 Status Update

Semantic Alignment 1/3 "LDES feeds"

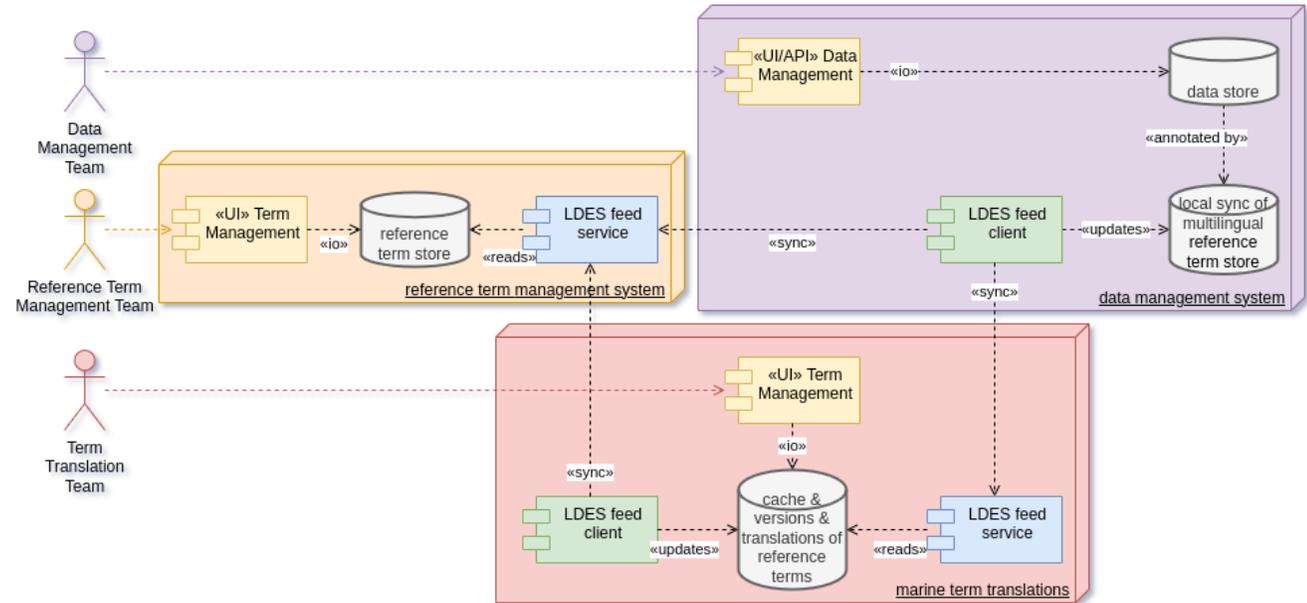
- LDES, Linked Data Event Stream
 - Open standard
 - Goal: synchronise with remote data changes
 - Tuned to "semantic-web-technology"
- Applied to core Marine Vocabularies
 - http://vocab.nerc.ac.uk/ldes/{collection_id}/
 - <https://edmo.seadatanet.org/ldes/feed>
 - <https://edmerp.seadatanet.org/ldes/feed>
 - <https://marineregions.org/feed>
 - <https://aphia.org/feed>
- Some minor sidewise cleanup in the process
- Submitted to LDES-registry
 - <https://imec-int.github.io/ldes-registry/>
- Next steps: more vocab feeds to be added



5.1 Status Update

Semantic Alignment 2/3 "Translation Management"

- Approach & supporting code to coordinate term-translations
- I/O: LDES feeds
- Open translation repositories based on GIT
 - Transparent change tracking
 - Open to integration
- Next steps
 - Deployment
 - Actual use
 - Dedicated presentation and invitation in Marine Community
 - Setup / coordination Network of Translation Communities
 - Fine tuning & support



<https://github.com/marine-term-translations/>

5.1 Status Update

Semantic Alignment 3/3 "Best Practice Guide"

- Integral part of deliverable
Streamlining semantic interoperability [D5.1.1]
- Objectives:
 - improve our semantic web applications
 - Establish quality level in semantic web content for Marine Domain
- Approach:
 - Basic foundational principles & technical components
 - Contextualised to marine data management.
- Next steps:
 - Translate to effective tools for self-help and automated coverage.
 - Assess 'Semantic Web'-level in Marine Domain.
 - Identify concrete areas for further improvement.

5.2 Implement m2m connections to data and products (Lead: VLIZ)

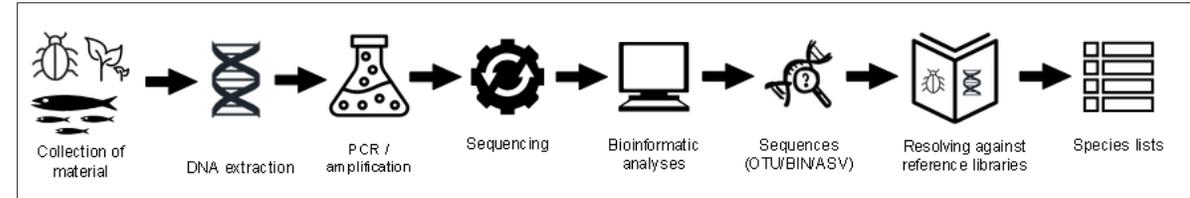
- ④ Maintain & **upgrade OGC stack** (EMODnet standard)
- ④ New **API endpoints for new data types (images, eDNA)**, so they can easily be queried via the EMODnet Central Portal and external machines
- ④ Find ways to **represent new data types** (i.e. on geoviewer)
- ④ **Client packages** (R, Python) will be further developed and maintained, so users can easily access the data without barriers (i.e. no login, registration, form, ...): FAIR

5.2 Status Update

Implement m2m connections to data and products

- **Software stack upgrades**

- 12x Geoserver version upgrades 2.22->2.27
- 5x IPT version upgrades 2.3->3.1



- **Media & DNA-derived extension data available** in dedicated Geoserver layers

- Required major changes in harvester/EurOBIS database & exports scripts
- Will allow for download via toolbox & central portal
- Simple yes/no query option will be added to central portal filter

- Different **R packages have been added/updated** to the EMODnet github.

- Mainly for products (WP3)
- Using templating system developed in WP3
- Documentation auto-generated via Github actions
- Also general purpose R library: *emodnet.wfs*

5.3 Technical Infrastructure maintenance and operational management (Lead: VLIZ)

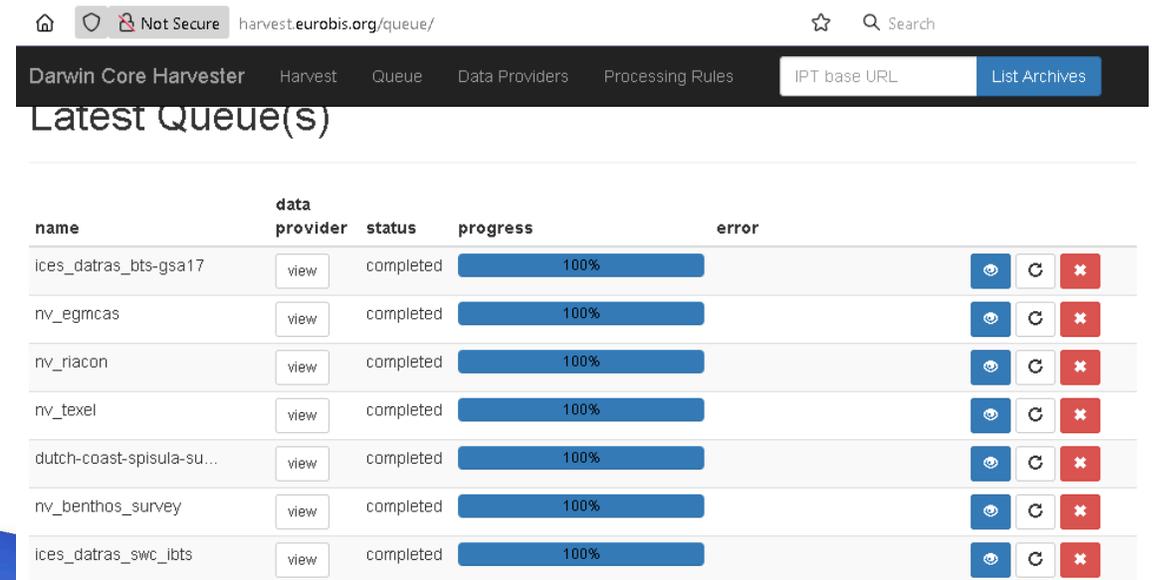
- ① The main objective of this task is to keep the current **infrastructure and services operational**
- ① New **microservices tech.** (i.e. Docker), using modern pipelines (i.e. CI/) + test framework (s)
- ① Further **develop the IPT harvest system** that is flexible and quicker in dealing with new data types (images, omics + possible others)
- ① Tuning of the procedures and debugging of the code used to reformat the data from **BIO-ODV to DwC**

5.3 Status Update

Implement m2m connections to data and products

- Kept service **operational**: close to 100%
- Prepared infrastructure for **more microservices**:
 - GeoNetwork instance on docker
 - ERDDAP instances on docker
 - Start centralizing all SQL scripts for QC in Gitlab repository
- Added to Darwin Core (DwC) Harvester**:
 - Harvest media/images
 - Harvest DNA data (GBIF DNA extension)

Type	Name	Status	Reliability
Web Coverage Service (WCS)	EMODnet Biology (WCS) Biology	✓	99.98%
Web Feature Service (WFS)	EMODnet Biology (WFS) Biology	✓	99.99%
Web Map Service (WMS)	EMODnet Biology (WMS) Biology	✓	100.0%



harvest.eurobis.org/queue/

Darwin Core Harvester Harvest Queue Data Providers Processing Rules IPT base URL List Archives

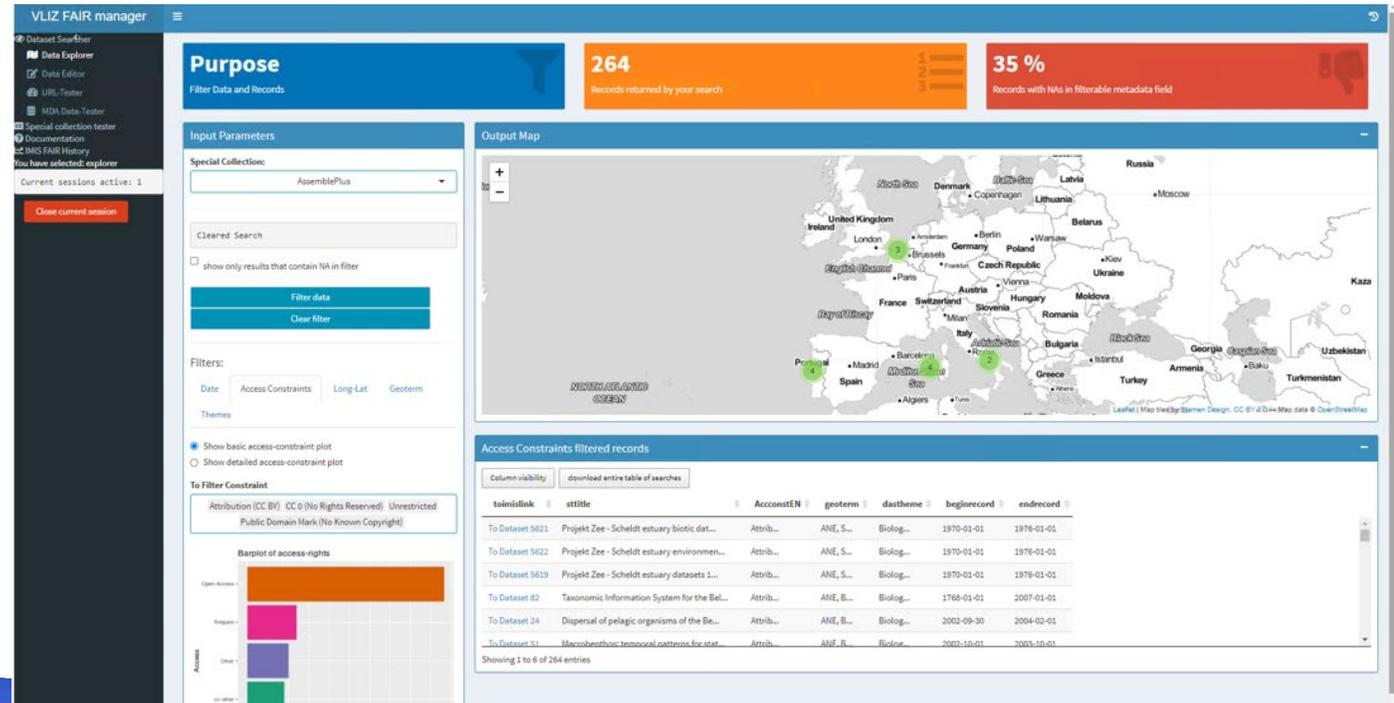
Latest Queue(s)

name	data provider	status	progress	error
ices_datras_bts-gsa17	view	completed	100%	👁️ 🔄 ✖️
nv_egmcas	view	completed	100%	👁️ 🔄 ✖️
nv_riacon	view	completed	100%	👁️ 🔄 ✖️
nv_texel	view	completed	100%	👁️ 🔄 ✖️
dutch-coast-spisula-su...	view	completed	100%	👁️ 🔄 ✖️
nv_benthos_survey	view	completed	100%	👁️ 🔄 ✖️
ices_datras_swc_ibts	view	completed	100%	👁️ 🔄 ✖️

5.4 Contribute data, data products and content to EMODnet Central portal (Lead: VLIZ)

🎯 Improve automated **synchronizing metadata** (from IMIS) to the EMODnet CP catalogue (GeoNetwork) and share with others e.g. the EU Open Data Portal, EOSC, EDITO-Infra, ...)

🎯 Via the **EOSC FAIR checker**, ensure FAIRness of existing metadata is improved



The screenshot displays the VLIZ FAIR manager interface. The top navigation bar includes 'Dataset Searcher', 'Data Explorer', 'Data Editor', 'URL-Tester', 'MDI Data-Tester', 'Special collection tester', 'Documentation', and 'Access FAIR History'. The main content area is divided into several sections:

- Purpose:** Filter Data and Records. Shows 264 records returned by the search and 35% records with NA in the filterable metadata field.
- Input Parameters:** Includes 'Special Collection' (set to 'AssemblePlus'), a 'Cleared Search' field, and a 'Filter data' button.
- Filters:** Includes 'Date', 'Access Constraints', 'Long-Lat', and 'Geoterm'. There are options to 'Show basic access-constraint plot' and 'Show detailed access-constraint plot'.
- To Filter Constraint:** A barplot of access-rights showing the distribution of different access levels.
- Output Map:** A map of Europe with several green markers indicating data locations.
- Access Constraints filtered records:** A table with columns: 'toisidlink', 'stitle', 'AccessEN', 'geoterm', 'dastheme', 'beginrecord', and 'endrecord'. The table lists several datasets with their titles and dates.

5.4 Status Update

Contribute data, data products and content to EMODnet Central portal



- **IMIS metadata** now synchronized properly to EMODnet portal
 - For both EurOBIS datasets & EMODnet Bio products
 - Fully INSPIRE compliant
 - In an automated way, i.e. after each harvest/new product
 - Picked up by EMODnet portal GeoNetwork
 - Published as part of central metadata catalogue
- EOSC/EMODnet central portal INSPIRE/FAIR checker
 - Still under construction

← → ↻ 🏠 🛡️ <https://www.eurobis.org/emodnet-biology-inspire/>

INSPIRE XML files

for all EMODnet Biology IMIS metadata records

Name	Last modified	Size
6d617269-6e65-696e-666f-000000000002.xml	2025-04-30 14:45	25K
6d617269-6e65-696e-666f-000000000011.xml	2025-04-30 14:45	27K
6d617269-6e65-696e-666f-000000000012.xml	2025-04-30 14:45	26K
6d617269-6e65-696e-666f-000000000018.xml	2025-04-30 14:45	28K
6d617269-6e65-696e-666f-000000000020.xml	2025-04-30 14:45	33K
6d617269-6e65-696e-666f-000000000024.xml	2025-04-30 14:45	35K
6d617269-6e65-696e-666f-000000000042.xml	2025-04-30 14:45	24K
6d617269-6e65-696e-666f-000000000043.xml	2025-04-30 14:45	24K
6d617269-6e65-696e-666f-000000000051.xml	2025-04-30 14:45	31K
6d617269-6e65-696e-666f-000000000054.xml	2025-04-30 14:45	32K

5.4 Contribute data, data products and content to EMODnet Central portal (Lead: VLIZ)

🎯 **INSPIRE compliance** will be maintained and improved (Central Portal checker)

🎯 **Expand data filters Central Portal (CP) geoviewer** to accommodate for more options. (i.e. the available seabed habitat point data, data source, species attributes, etc.)



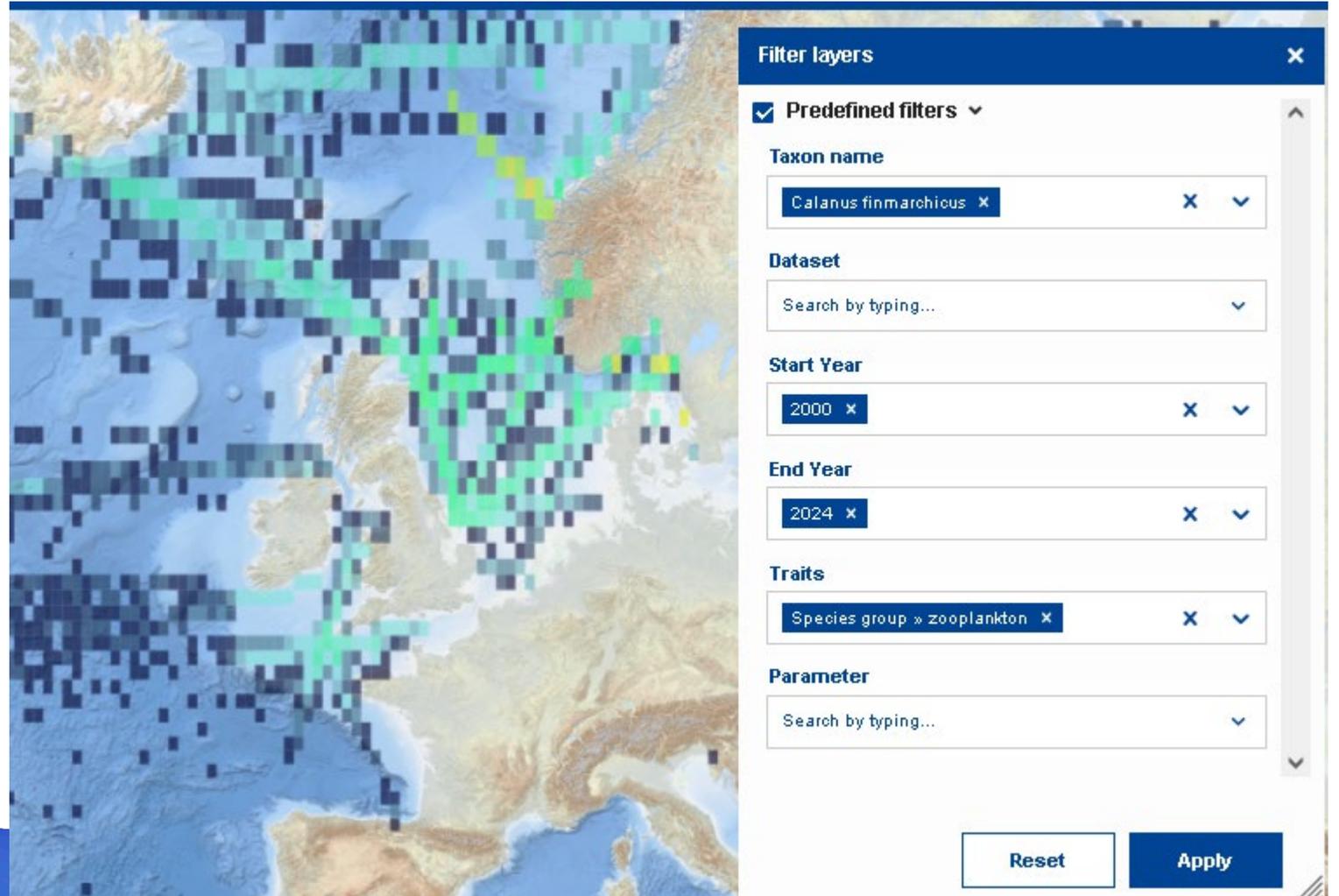
Filters, development in progress

- Traits
- Dataset source

5.4 Status Update

Contribute data, data products and content to EMODnet Central portal

- Most common filters on Biodiversity records (EurOBIS) layer now implemented



The screenshot displays the EMODnet Central portal interface. On the left, a map shows the North Atlantic region with a grid overlay and a color-coded data layer. On the right, a 'Filter layers' panel is open, showing the following filters:

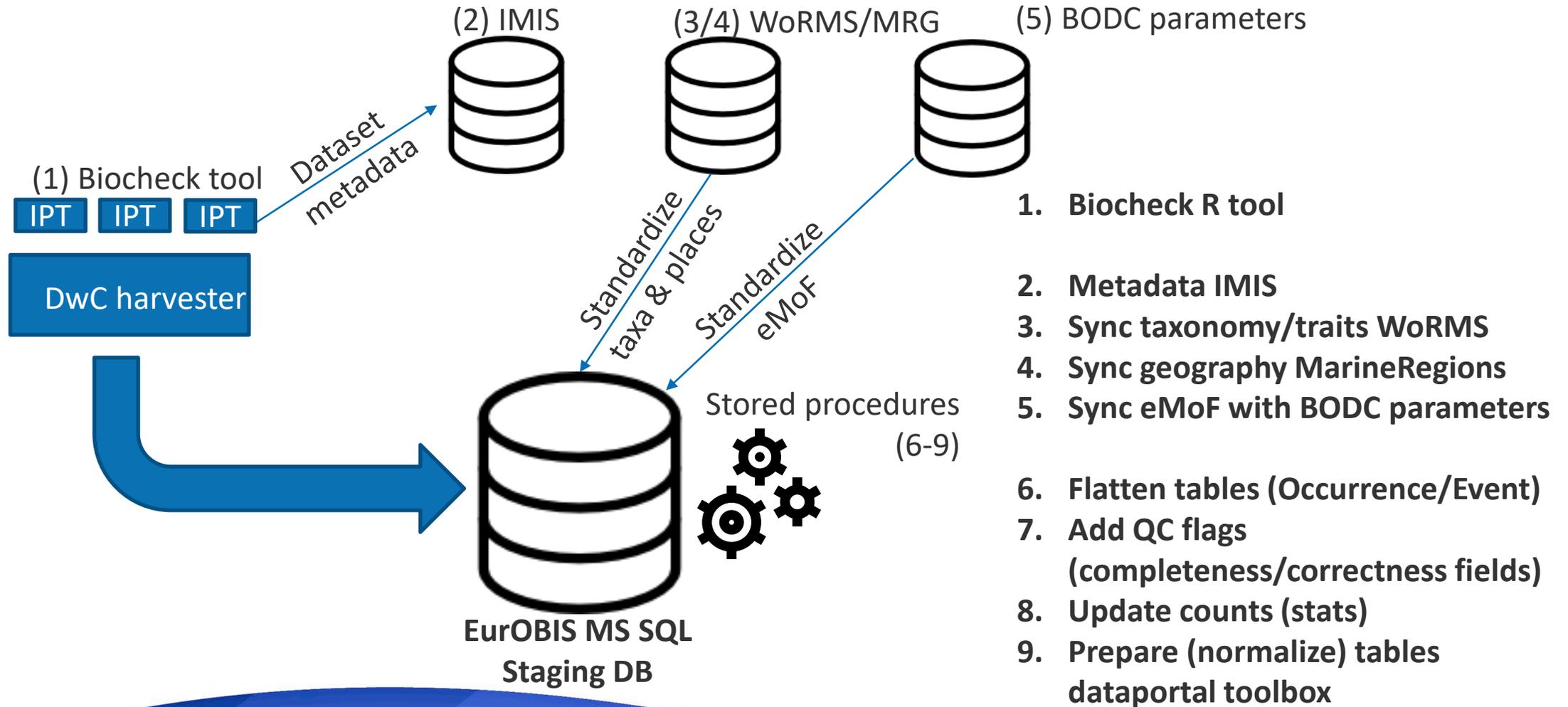
- Predefined filters** (checked)
- Taxon name:** Calanus finmarchicus
- Dataset:** Search by typing...
- Start Year:** 2000
- End Year:** 2024
- Traits:** Species group » zooplankton
- Parameter:** Search by typing...

Buttons for 'Reset' and 'Apply' are visible at the bottom of the filter panel.

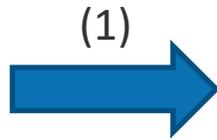
Overview deliverables (12)

Task	Action	Deliverable	Consortium Organisation	Timeline
Task 3: Develop procedures for machine-to-machine connections to data and data products	5.1: Extend interoperability and data types	5.1.1 Streamlining semantic interoperability	VLIZ, MARIS	M0-M20
		5.1.2 Integration of omics data into the data model		M16
		5.1.3 List of agreed standards and techniques		M24
	5.2: Procedures for machine-to-machine connections to data and data products	5.2.1 M2M communication plan and solutions, including new data types	VLIZ	M0-M24
Task 4: Contribute data, data products and content to EMODnet Central Portal that allows users to find, view and download data and data products	5.3: EMODnet Biology Technical Infrastructure maintenance and operational management	5.3.1 Operational web services	VLIZ	M0-M24
		5.3.2 Technology stack upgrades: microservices, CI/CD & testing		M24
		5.3.3 Technical maintenance of procedures for ingestion of data from the data providers		M0-M24
		5.3.4 Development and implementation of procedures to publish omics data		M24
	5.4: Contribute data, data products and content to EMODnet Central Portal that allows users to find, view and download data and data products	5.4.1 Synchronisation of all data and data products metadata to the EMODnet CP catalogue (GeoNetwork)	VLIZ	M0-M24
		5.4.2 All data and products available through the EMODnet CP		M2-M24
		5.4.3 Participation in the EMODnet TWG meetings		M0-M24
		5.4.4 Maintenance and development of API used to query EMODnet Biology layers available via the EMODnet CP viewer		M0-M24

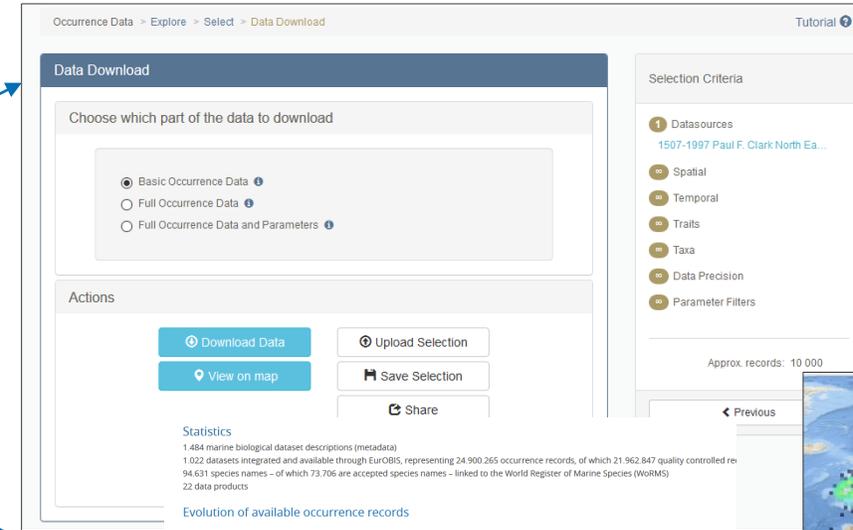
Reminder: harvest & standardization process (1/2)



Reminder: migration to production/PostgreSQL (2/2)



1. Migrate MS SQL to PostgreSQL
(Geoserver => Dataportal => Central Portal viewer filter)
2. Update statistics & graphs
3. Bulk export to IPT (OBIS/GBIF)
4. Update IMIS metadata URLs
5. Update reporting tool



Occurrence Data > Explore > Select > Data Download

Data Download

Choose which part of the data to download

Basic Occurrence Data

Full Occurrence Data

Full Occurrence Data and Parameters

Actions

Download Data

View on map

Upload Selection

Save Selection

Share

Selection Criteria

1 Datasources
1507-1997 Paul F. Clark North Ea...

Spatial

Temporal

Traits

Taxa

Data Precision

Parameter Filters

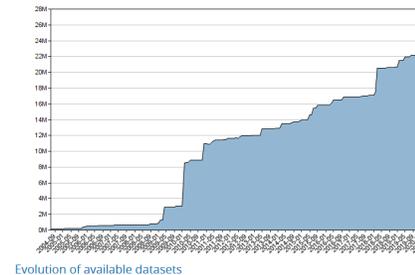
Approx. records: 10 000

Statistics

1 484 marine biological dataset descriptions (metadata)
1 022 datasets integrated and available through EurOBIS, representing 24 900 265 occurrence records, of which 21 962 847 quality controlled re
94 631 species names – of which 73 706 are accepted species names – linked to the World Register of Marine Species (WoRMS)
22 data products

Evolution of available occurrence records

(1)



(2)

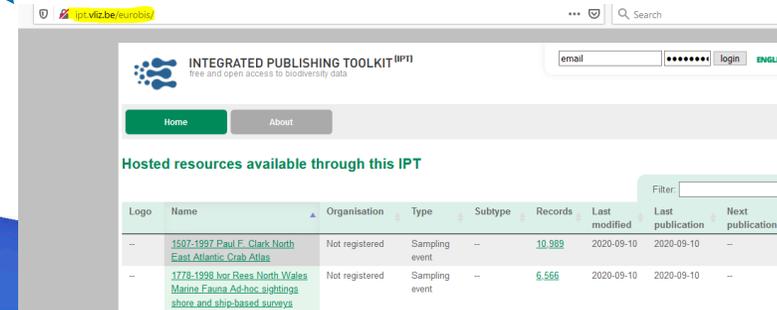


Filter layers

Predefined filters

Taxon name

Solea solea



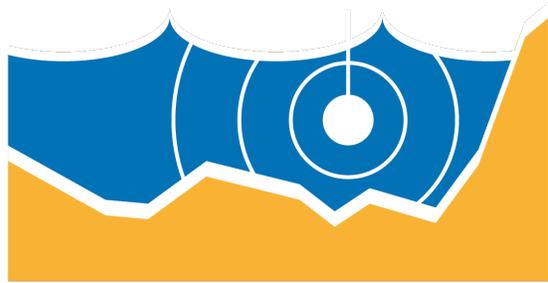
INTEGRATED PUBLISHING TOOLKIT (IPT)

Home About

Hosted resources available through this IPT

Logo	Name	Organisation	Type	Subtype	Records	Last modified	Last publication	Next publication
	1507-1997 Paul F. Clark North East Atlantic Crab Atlas	Not registered	Sampling event		10 989	2020-09-10	2020-09-10	
	1778-1998 Ivor Rees North Wales Marine Fauna Ad-hoc sightings shore and ship-based surveys	Not registered	Sampling event		6 566	2020-09-10	2020-09-10	

(3)



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emodnet.ec.europa.eu

Stay up-to-date with
the latest news



5 Consortium member Presentations



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Biology



EMODnet Biology annual meeting

VLIZ status update

VLIZ

12-13 May (Carthage, Tunisia)



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Activities within WP2

- Data publication
 - Publication of 172 datasets
 - VLIZ
 - EU funded projects
 - OBIS nodes
 - EMODnet Ingestion
- Data search
 - IPT updates watcher script
 - GBIF scanning script
 - SeaDataNet pipelines
- Biocheck QC tool [maintenance](#)
- Communication
 - Data Laundry Q/A sessions
 - OBIS-GBIF representation
 - Outreach
 - Workshop for EU funded projects
 - News items
 - Use cases
 - Twitter/Bluesky
- WP2 Deliverables

Activities within WP3

- Publication of (external) data products

Name	Who	Status	Notes
3D habitat suitability maps of the 30 main commercial fish species from the Atlantic Ocean	AZTI	Published in 2024	Mission Atlantic project
Density of Loggerhead Turtles in the Mediterranean Sea	US Navy	Published in 2024	
Modelled projections of habitat for commercial fish around North-western Europe under climate change, 2020 to 2060	CEFAS	Published in 2024	
Modelled projections of habitat for fish species feeding guilds around North-western Europe under climate change, 2010 to 2095	CEFAS	Published in 2024	
Decadal abundance of calanoid copepods within the North Atlantic		Published in 2024	Mission Atlantic project
Day and Night zooplankton abundance maps in the North Atlantic from 1960-2019	MBA	Published in 2024	Mission Atlantic project
Plankton Genomics Output	Ifremer	Pending	
Distribution maps of cetacean and seabird populations in the North-East Atlantic	Bangor University	Pending	
Potential catch biomass summed up along the water column for the 30 main commercial fish species from the Atlantic Ocean	AZTI	Pending	
Important Marine Mammal Area Knowledge Product	IMMA	Pending	IUCN MMPATF Important Marine Mammal Area
Harbour porpoise habitat suitability maps	Aarhus	Pending	GE4SEAS project/OBAMA-NEXT

- Publish consortium data products (see WP3 presentation)
 - Support for all WP3 members
- OpenSeaLab 4.0 Hackathon
 - Participated as coaches
 - Jupyter Notebook for UN Decade Webinar in January 2025: <https://github.com/EMODnet/EMODnet-Biology-UN-Decade-webinar>

Activities within WP4



- Submission [news items](#) to EMODnet newsletter
- Supported the publication of use cases (see WP4 presentation)
- Announcement of consortium partner's organised [events](#)
- Deliverables publication
 - <https://emodnet.ec.europa.eu/en/reports> (select Biology from the EMODnet component and Publication type = Deliverable)
 - Contributed to the drafting of various deliverables from WP2 and WP4
- Co-organisation of the workshop for EU Mission Ocean funded projects
- Participation in TG DATA meetings
- Participation (and presentation) in various workshops/webinars/conferences



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Biology



EMODnet Biology annual meeting

INRAE status update

Benjamin Weigel



12-13 May 2025 (Carthage, Tunisia)



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Activities within WP1

Member of the Coordination Board

- Providing status **reports and updates of WP3**
- Drafting of **Quarterly Progress Reports** concerning WP3 activities
QR25, QR26, QR27, QR28, QR29, QR30, QR31
- Drafting **Interim Report** concerning WP3 activities
- Drafting **Final Report** concerning WP3 activities



Activities within WP3

WP lead

- **coordinating WP** activities, tasks, and deliverables
- organizing, hosting and reporting of WP **Community Calls**
- **representing WP3** (e.g. EMODnet open conference, annual meetings, conferences)

Activities within WP3

- **Joint organisation and hosting (with WP4 lead) of**
Deliverable 3.1.1 Internal WP3 and WP4 Workshop
- **Writing and publication of Deliverable**



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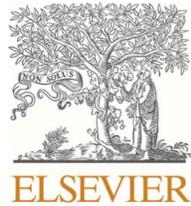
EMODnet Biology V
CINEA/EMFAF/2022/3.5.2/SI2.895681
Start date of the project: 10/05/2023 (24 months)
EMODnet Phase III
D3.1.1 Internal WP3 and WP4 Workshop

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Activities within WP3

Marine Policy 173 (2025) 106578



Contents lists available at [ScienceDirect](#)

Marine Policy

journal homepage: www.elsevier.com/locate/marpol



Realising the potential of interoperable data products to improve the outlook for marine biodiversity: Lessons from the European marine observation and data network



Thomas J. Webb ^{a,*}, Joana Beja ^b, Salvador Jesús Fernández Bejarano ^b, Elvira Ramos ^c, Samuel Sainz-Villegas ^c, Karline Soetaert ^d, Willem Stolte ^e, Charles Troupin ^f, Benjamin Weigel ^g

^a Ecology and Evolutionary Biology, School of Biosciences, University of Sheffield, Sheffield S10 2TN, UK

^b Flanders Marine Institute, Jacobsenstraat 1, 8400, Ostend, Belgium

^c IHCantabria - Instituto de Hidráulica Ambiental de la Universidad de Cantabria, Santander 39011, Spain

^d Department of Estuarine and Delta Systems, Royal Netherlands Institute for Sea Research (NIOZ), Yerseke, the Netherlands

^e Marine and Coastal Systems, Deltares, Delft, the Netherlands

^f GeoHydrodynamics and Environment Research, FOCUS Research Unit, University of Liège, Liège, Belgium

^g INRAE, EABX, 50 avenue de Verdun, Cestas 33612, France

Contribution to deliverables:

- **4.2.2 Questionnaire to inform about what data & products EMODnet Biology offers and to collect stakeholder needs**
 - Participation in preparation meetings and contributing to questionnaire creation
- **4.2.3 Workshop with RSCs to understand major needs**
 - Participation in planning meetings
 - Participation and presentation in RSC workshop



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Biology



EMODnet Biology annual meeting

National Institute for Oceanography and Applied Geophysics (OGS) status update

Nikola Holodkov, OGS
Marina Lipizer, OGS

12-13 May 2025 (Carthage, Tunisia)



The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) 2021/1139 of the European Parliament and of the Council of 7 July 2021 establishing the European Maritime, Fisheries and Aquaculture Fund.¹

Activities within WP2 - Data Management

OGS Data contribution:



Datasets

- Macrozoobenthos-North Adriatic-Gulf of Trieste, C1-LTER time-series 2014-2018
- Microzooplankton-North Adriatic-Gulf of Trieste, C1-LTER time-series 1987-1990
- Microzooplankton-North Adriatic-Gulf of Trieste, C1-LTER time-series 1998-2010
- Relative abundance of potentially pathogenic bacteria in treated wastewater and coastal water, Adriatic Sea time-series 2019-2020
- Phytoplankton in the North Adriatic, C1-LTER time-series 2010-2020

Citizen science

- **Gelatinous** validated sightings reported in the Mediterranean Sea from 2021-2022 by avvistAPP users
- **Dolphins** validated sightings reported in the Mediterranean Sea from 2021-2022 by avvistAPP users
- **Sea turtles** validated sightings reported in the Mediterranean Sea from 2021-2022 by avvistAPP users

avvistAPP: how citizens can contribute to the monitoring of marine animals with smartphones <https://doi.org/10.13120/h127-9v54>

Activities within WP3 - Products

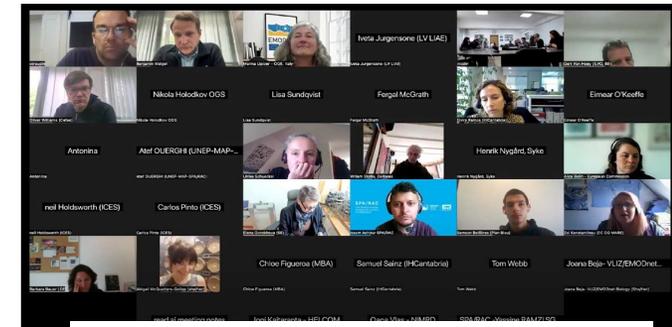
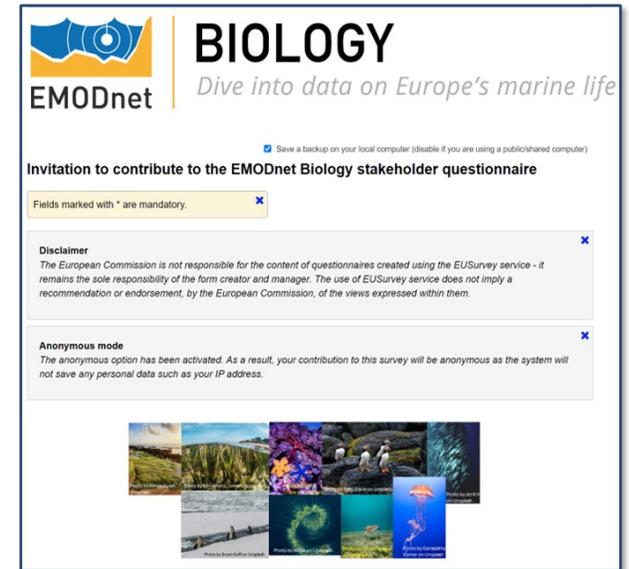
Participation to WP3-WP4 meetings to tune outreach & uptake

Activities within WP4 - Uptake and Outreach

Coordination of WP4 and realization of all deliverables indicated in the proposal

In particular:

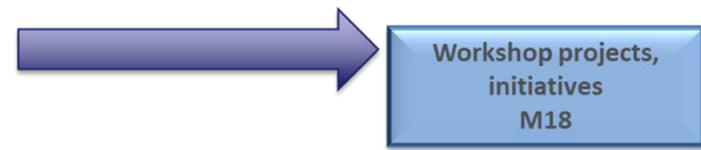
1. Stakeholder mapping for questionnaire, for workshops
2. Design, distribution and analysis of Stakeholder questionnaire (1)
3. Definition of Engagement plan
4. Organization of RSC workshop: April 18, 2024



EMODnet Biology Stakeholder inventory

Date of information delivery	Contacting partner*	Stakeholder information		Stakeholder Role	Geograph. Relevance	Geographic focus	Additional information	Organization Name*	Address	Country	Contact person name*
		Institution role	Type of Institution								
10/6/2023	OGS	Regional Sea convention	International Institution	Coordinators	sea-basin	Mediterranean		UNEP-MAP-PAP/RAC	Kraj Sv. Ivana 11, HR-210	Croatia	Marko Prem
10/6/2023	OGS	NGO	Network		sea-basin	Mediterranean		MedPAN		France	Marie Romani
27/7/2023	NIMRD	Regional Sea convention	International Institution	Coordinators	sea-basin	Black Sea		Commission on the Protection of the Black Sea	256, Maslak Mahallesi, E Turkey	Turkey	Irina Makarenko
27/7/2023	NIMRD	NGO	Network	Lobbyists	sea-basin	Black Sea		Black Sea NGO Network (BSNN)	11, Ivan Drasov St., 9000 Varna	Bulgaria	Emma Gileva
27/7/2023	NIMRD	Observing system/moni	National Institution	Experts/providers	national	Black Sea		Institute of Oceanology, Bulgarian Academy of Sciences (IO-OAS)	40, Parfi may St., PO Box 152 9000 Varna	Bulgaria	Kremena Stefanova
27/7/2023	NIMRD	Data infrastructure	National Institution	Coordinators	national	Black Sea		Institute of Marine Sciences, Middle East Technical University (IMS-MFTI)	Erzincan-Merkez 39000 Yozgat P.O.Box 28, 55731	Turkey	Barış SALHOĞLU
27/7/2023	NIMRD	Experts	NGO	Lobbyists	international	Black Sea		International Center for Black Sea Studies (ICBS)	Erzincan-Merkez 39000 Yozgat P.O.Box 28, 55731	Greece	Georgia Chantzi
27/7/2023	NIMRD	Regional Sea convention	International Institution	Funders/sponsors	international	Black Sea		General Fisheries Commission for the Mediterranean (GFCEM) - Working Group on the Mare Nostrum NGO	19600 Burgas International Convention Center Office 725, Tomis Blvd., bk 150,	Bulgaria	Huseyin Ozbilgin
27/7/2023	NIMRD	NGO	NGO	Experts/providers	national	Black Sea		GeoEcoMar	304, Mamaia Blvd., RO-900581 Constanta	Romania	Marian Paiu
27/7/2023	NIMRD	Observing system/moni	University/Research	Experts/providers	national	Black Sea		GeoEcoMar	304, Mamaia Blvd., RO-900581 Constanta	Romania	Dan Vasiliu
27/7/2023	NIMRD	Experts	University/Research	Experts/providers	national	Black Sea		Ovidius University	124, Mamaia Blvd., RO-900527 Constanta	Romania	Marius Skolka
27/7/2023	NIMRD	Decision makers	National Institution	Implementers	national	Black Sea		National Administration of Romanian Waters (ANAR)	Sector 1, RO-010018, Bucharest	Romania	Elena Tuchiu
27/7/2023	NIMRD	Decision makers	National Institution	Decision makers	national	Black Sea		Ministry of Environment, Waters and Forests	12, Blvd. Libertății, Sector 5, Bucharest	Romania	Gheorghe Constantin
27/7/2023	NIMRD	Observing system/moni	National Institution	Implementers	national	Black Sea		Ministry of Environment, Waters and Forests	12, Blvd. Libertății, Sector 5, Bucharest	Romania	Otilia Mihail

KEY



Activities within WP4 - Uptake and Outreach

5. Design, distribution and analysis of additional questionnaire
6. Organization of workshop for EU projects (11.2024)
7. Preparation of Informative materials (del. 4.1.2, 4.1.3, 4.1.4)

NEWS ARTICLE | 04 Sep 2024

EMODnet Biology launches new survey targeting EU funded projects working on biodiversity

EMODnet Biology has launched a survey aimed at EU-funded projects working on biodiversity to gather valuable feedback and insights. This information will help the EMODnet Biology consortium plan an online workshop in mid-November. The workshop will provide an overview of EMODnet Biology, the resources available to data providers, and explore how the consortium can support projects in submitting their outputs—particularly data and products for (re)hosting in EMODnet.



NEWS ARTICLE | 28 Nov 2024

EMODnet Biology workshop for European Research and Innovation, and Mission: Restore our Ocean and Waters biodiversity projects

EMODnet Biology hosted an online workshop on 19-20 November, with more than 40 representatives from EU projects, EU project officers and DG MARE. The focus was on projects that collect biodiversity data or create products based on these data.



EMODnet Biology
CINEA/EMFAF/2022/3.5.2/SI2.895681
Start date of the project: 10/05/2023 - 09/05/2025 - (24 months)
EMODnet Phase V
4.1.2 Informative material based on 4.2.2 (questionnaire)
Reporting period: 10/05/2023 - 09/05/2024



EMODnet Thematic Lot n° V- Biology
CINEA/EMFAF/2022/3.5.2/SI2.895681
Start date of the project: 10/05/2023 (24 months)
Centralisation Phase
Informative material based on the 4.3.1 outcomes
(Workshop for EU Mission Ocean Projects) [D4.1.4]

The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) No 508/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund.





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EMODnet Biology annual meeting

Aarhus University status update

Jonas Rømer, Hans Jakobsen. Aarhus University, Ecoscience

12-13 Maj 2025



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Activities within WP2-5

Delivering Danish National Benthos Monitoring Data

I only joined the project recently. Take over from a colleague and provide data technical expertise. First task, to prepare and deliver Benthos monitoring data from Danish national databases to emodnet biology.

- Reviewing our databases and involving the right specialists to explain the data.
- Rewriting sql scripts to extract data. We have migrated some of our databases to a new system.
- Working with VLIZ, Ruben Perez, Cyril Radermecker, others - thanks for assistance!

- We now work with Darwin Core Archives DwC-A
 - Integrated Publishing Toolkit (IPT).
 - Easy to use with GUI and various tools

Dwc-A: We are better prepared to deliver future updates and new datasets for this and other projects. Integrated Publishing Toolkit

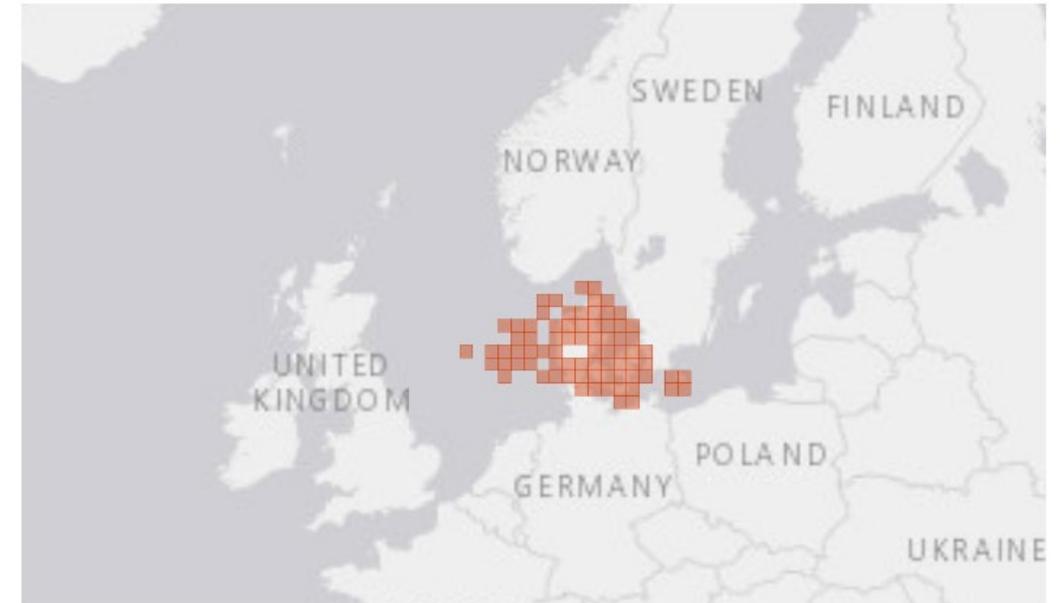
Activities within WP2-5

Dataset: Danish benthic marine monitoring data from ODAM

Data from 1911-2024. <https://obis.org/dataset/ec9df3b9-3b2b-4d83-881b-27bcbcd57b95> :



DISTRIBUTION





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Cefas status update

Oliver Williams, Centre for Environment, Fisheries and Aquaculture Science

12 May 2025



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Activities within WP2

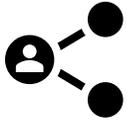
Continue towards Business as Usual Data Flows



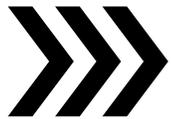
- Engage and train Cefas Scientists on EMODnet



- Raise awareness of EMODnet and Darwin Core – within Cefas and at UK Level



- (In partnership with DASSH) - continue to promote Darwin Core as a Biodiversity Data exchange format, allowing easy flow of data to EMODnet



- Help facilitate flows of future Benthic and Plankton Monitoring Data Cefas > DASSH > EMODnet – watch this space!

Activities within WP3

Modelled projections of habitat for fish species feeding guilds around North-western Europe under climate change, 2010 to 2095

- Bayesian Additive Regression Tree model annual predictions for habitat suitability of marine fish species across a range of body sizes and belonging to different feeding guilds from 2010 to 2095
- Can be used in combination with OBIS data to inform and compliment research on a range of domains including fisheries, food webs and ecosystem assessments.
- <https://emodnet.ec.europa.eu/geonetwork/srv/eng/catalog.search#/metadata/6d617269-6e65-696e-666f-000000008598>





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EMODnet Biology annual meeting

Deltares status update

Willem Stolte, Luuk van der Heijden

12-13 May 2025 (Tunisia)



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Activities within WP2

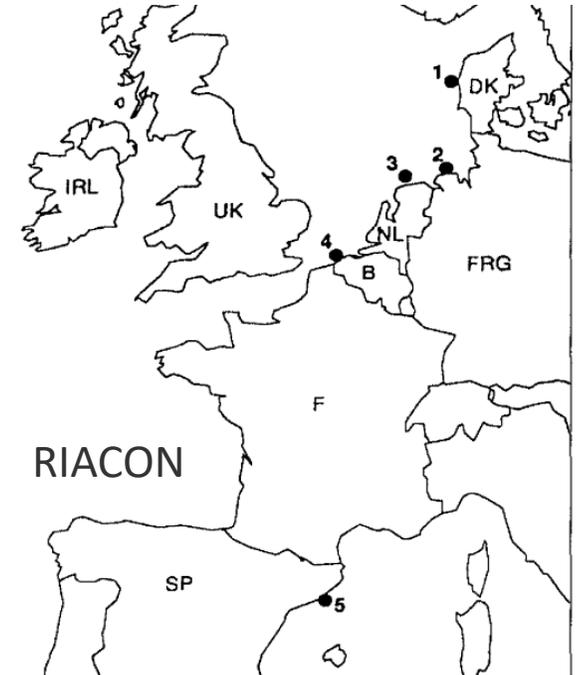
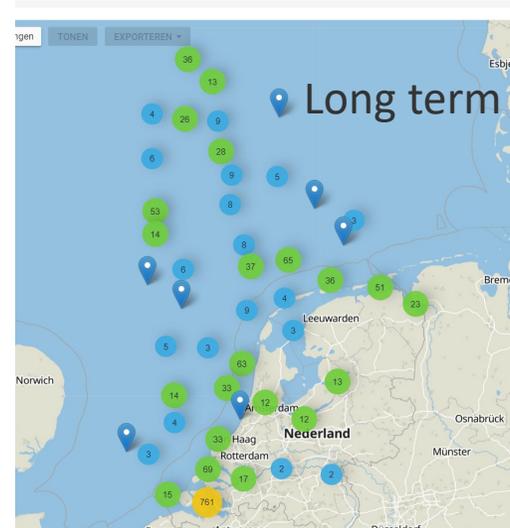
Biological datasets

Existing datasets Dutch EEZ (North Sea and Wadden Sea)

1. Long term phytoplankton – update (to 2022) and extension (also estuaries)
2. Long term macrobenthos – Update dataset(1989 - 2024) now also including estuaries. (only occurrences at this moment)

New datasets (project monitoring)

3. Natuurlijk Veilig: benthos
4. Natuurlijk Veilig: RIACON (benthos)
5. Natuurlijk Veilig: Castricum & Egmond (surf zone benthos)
6. Benthos Zuid-Westelijke Delta – now included in (2)
7. Benthos Waddenzee – now included in (2)



Activities within WP3

Habitat suitability maps of reef-forming species

- *Sabellaria spinulosa*
- *Modiolus modiolus*
- *Lanice conchilega*
- *Ostrea edulis*



www.ospar.org



https://en.wikipedia.org/wiki/Lanice_conchilega



https://en.wikipedia.org/wiki/Modiolus_modiolus

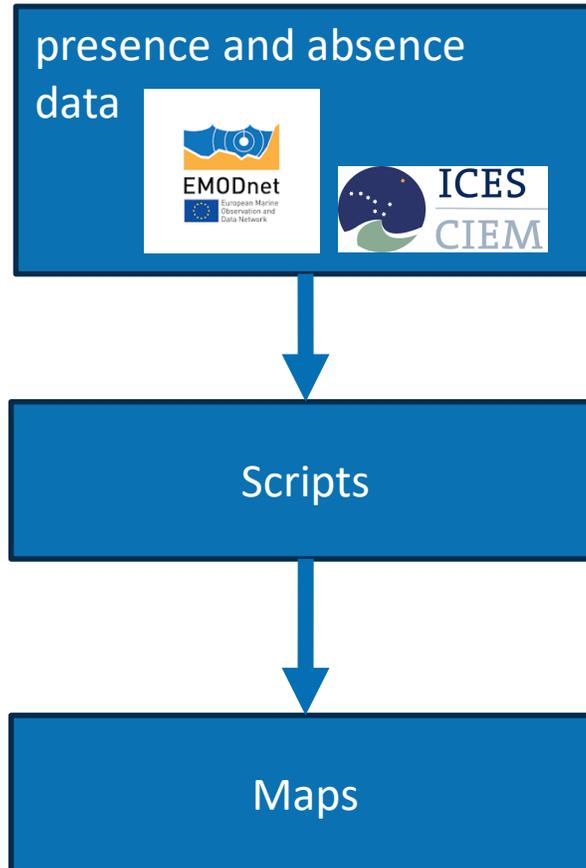


<https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.71177>

Full report:
P.M.J.Herman, and F.F. van Rees. 2022. "Mapping Reef Forming North Sea Species."
Delft. <https://pub.kennisbank.deltares.nl/Details/fullCatalogue/1000020826>.

Activities within WP3

Habitat suitability maps of reef-forming species



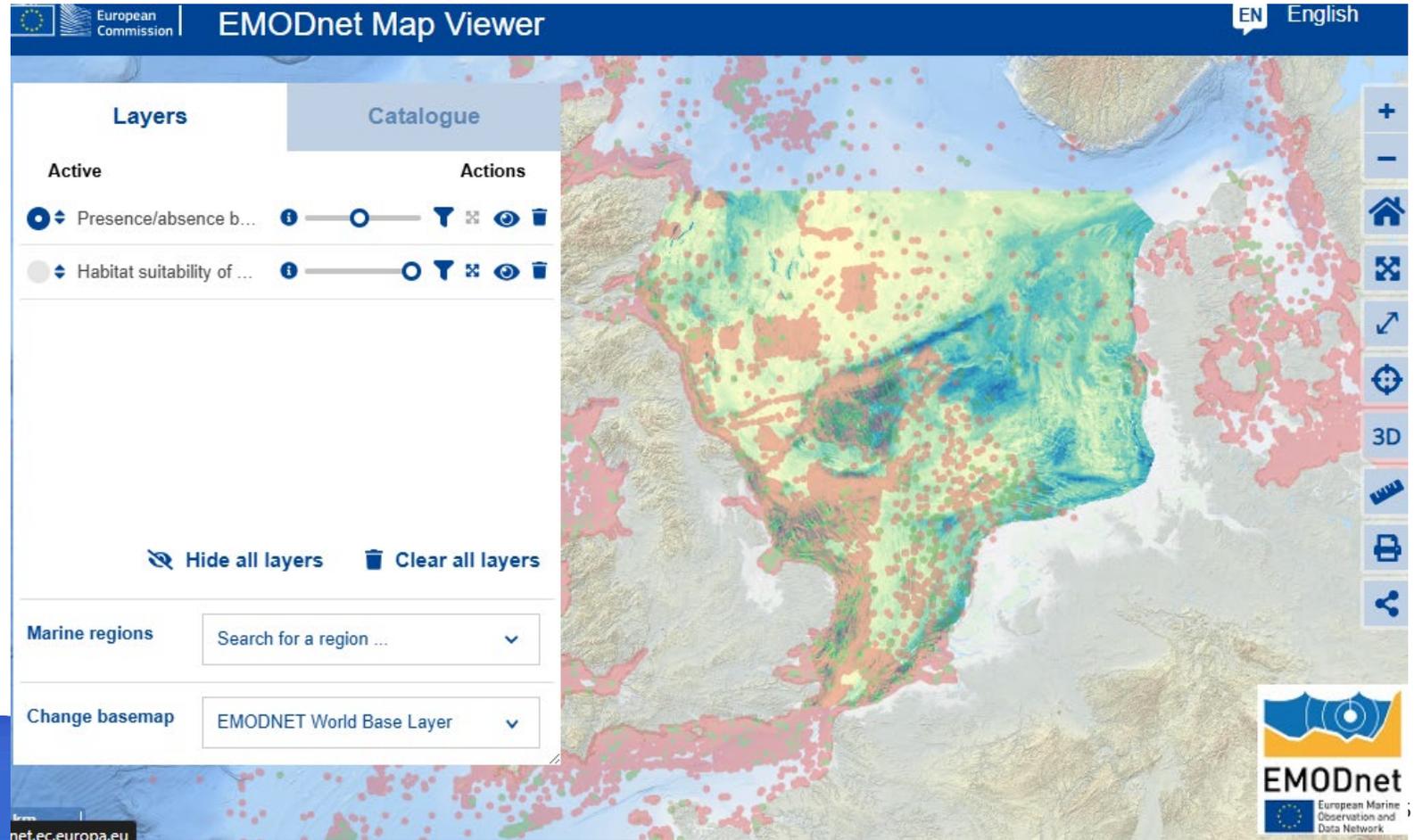
Environmental layer	Source
Depth at 178 m resolution	EMODnet
Bathymetric Position Index 5 km	vdReijden2018
Bathymetric Position Index 10 km	vdReijden2018
Bathymetric Position Index 75 km	vdReijden2018
Bottom shear stress from currents	DCSM-FM
Mean Salinity	Copernicus
Mean Temperature	Copernicus
Temperature Difference over the year	Copernicus
Fraction gravel in sediment	Stephens2015
Fraction Mud in sediment	Stephens2015
Fraction Sand in sediment	Stephens2015
Intensity beam trawling for plaice	vdReijden2018
Intensity beam trawling for sole	vdReijden2018
Intensity otter trawling for mixed species	vdReijden2018

Activities within WP3

Habitat suitability maps of reef-forming species

Status

- Scripts made suitable for EMODnet Biology
- Correct output format
- Uploaded to EMODnet Viewer



Activities within WP3

Other ideas for products

Existing products to be added to EMODnet map viewer

- Wind farm sensitivity maps for birds in the North Sea (and underlying products).

Owner: Wageningen Marine Research, Netherlands

- *Status: Easy to incorporate in viewer (WMS/WFS). Metadata still needed. Possibly new version*

Wal, J T Van der, et al. 2010. "Spatial Deployment of Offshore Wind Energy in Europe (WINDSPEED). Calculation Rules for the DSS."

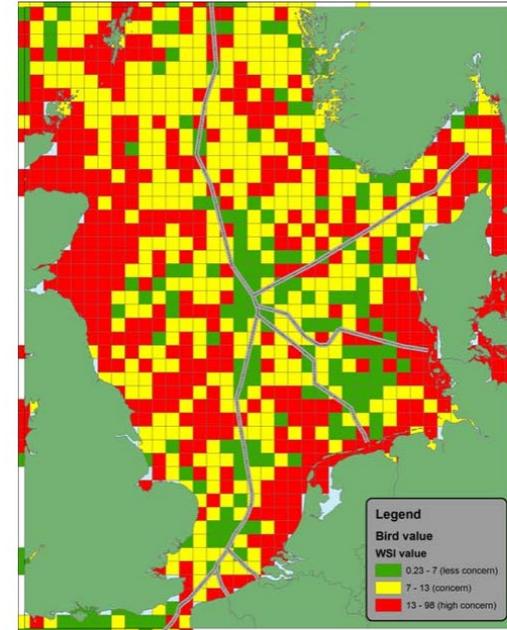
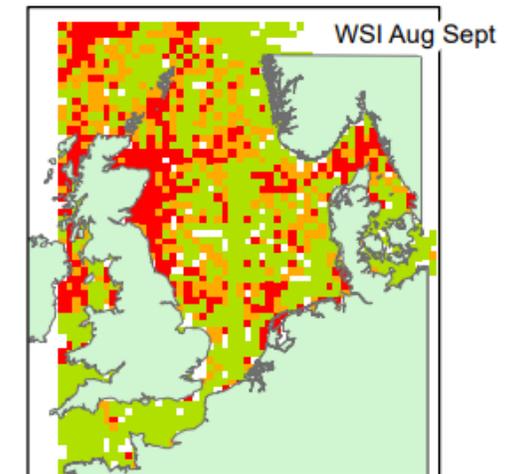
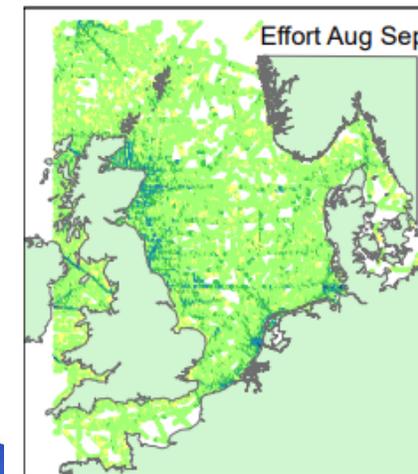


Figure 9 Windturbine Sensitivity Index map of the Windspeed study area for Birds. Details on this map can be found in Appendix 1 (Leopold and Dijkman, 2010) to this report

Windturbine sensitivity all birds included

ESAS ship surveys 1979-2009



Activities within WP4

Uptake and outreach



Regular knowledge exchange with

- Greater North Sea Basin Initiative (GNSBI)
 - EMODnet (Biology) maps used in their viewer
- Northern European Basins project (NESBp)
- Offshore wind ecological programme (WOZEP)
- The 'Nature Strengthening and Species Protection Monitoring Survey' (MONS) – North Sea Agreement
- North Sea Energy Program (<https://north-sea-energy.eu/nl/home/>)
- Dutch National Marine Information and Data Centre
- Ministry of Infrastructure and Water Management



EMODnet

European Marine
Observation and
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Biology



EMODnet Biology annual meeting

HCMR's status update

Dimitra Mavraki, Data Manager, Environmental Scientist, MSc
Ioannis Rallis, Environmental Biologist, PhD candidate
Melina Loulakaki, Computer Scientist

12-13 May 2025 (Carthage, Tunisia)



The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) 2021/1139 of the European Parliament and of the Council of 7 July 2021 establishing the European Maritime, Fisheries and Aquaculture Fund.¹

Activities within WP2

New and updated Datasets

New Datasets

Molluscs from two rocky shores (infralittoral zone) of the North coast of Crete, collected for the NaGISA project 2007-2008

Tunisian Polychaetes by 2022

List of marine species observed during diving in Monastir area, Tunisia, 2023

Biodiversity of the upper-mesophotic octocoral habitats at Sporades Archipelago (Aegean Sea)

TunSea, 2023. Cryptogenic, Rare and Non-indigenous marine species in Tunisian coastline, recorded by Citizen Scientists

Quantitative data of a molluscan community living in Posidonia oceanica at the south coast of Crete, Greece, 2017

Citizen Science based jellyfish observations along the Israeli Mediterranean coast in 2011-2024

Yellow legged Gull nesting in Kuriat Island in 2022, Tunisia

Seagrass meadow and macrofauna communities in Southern coast of Algerian Basin (El Mellah Lagoon), 2019

Marine impactful cryptogenic and alien species in the Greek Seas: A georeferenced dataset (1893-2020)

Historical Datasets

Expedition of Melita 1892, Molluscs collected on the coasts of Tunisia and Algeria

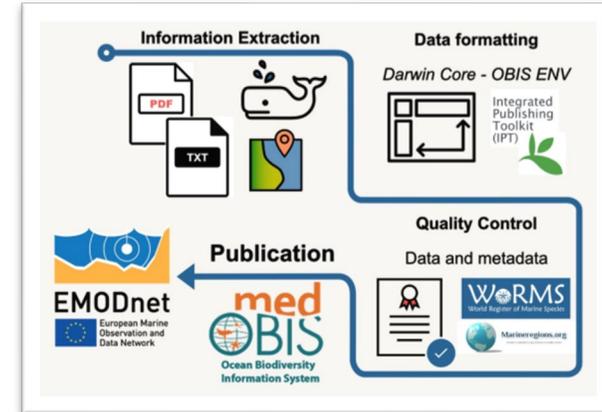
"Pola" Expedition: Mollusks, in the Eastern Mediterranean and the Adriatic Sea, 1890-1894

Updated Datasets

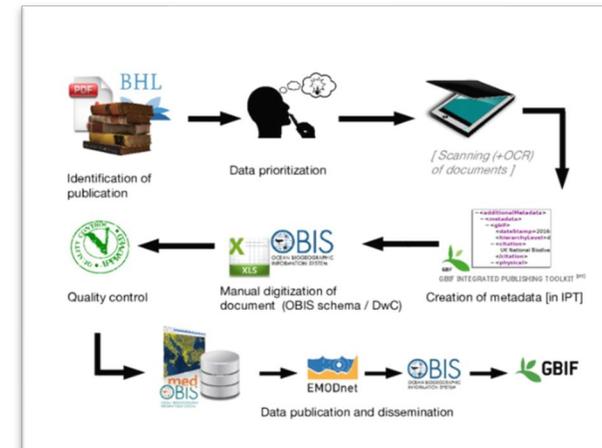
Polychaetes and Amphipodes from major ports in Greece in 2020-2021

Syllidae (Polychaeta) from the North Mediterranean Coast of Egypt

Benthic communities and environmental parameters in three Mediterranean ports (Sardinia, Crete, Tunisia)



MedOBIS workflow for New Datasets



MedOBIS workflow for Historical Datasets

Activities within WP2

Autumn Data School, Lecce November 2023



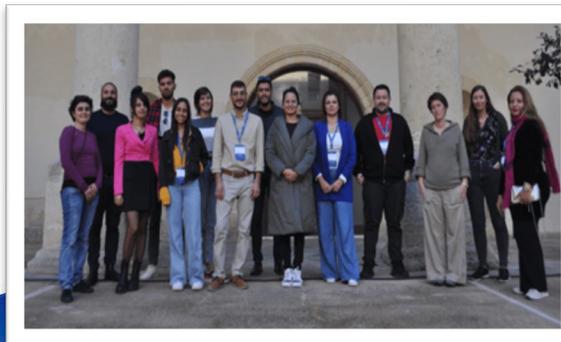
- medOBIS team took on the responsibility of organising, with the support from VLIZ and LifeWatch ERIC, a dedicated Data Workshop gathering researchers mainly from the southern part of the Mediterranean, which is one of the marine areas with the most important data gaps in the Mediterranean basin.
- The Workshop took the form of an “Autumn Data School”. The first two days were organized as a DATAthon , while the third day focused on teaching participants how to use Citizen Science platforms, such as Zooniverse and the LifeWatch Citizen Science Platform.
- According to the poll conducted during the Autumn Data School, researchers from North African countries highlighted the critical importance of sharing data management practices to facilitate data collection and dissemination.
- Report “EMODnet Thematic Lot n° V – Biology D2.4.3 Report on the availability of data following the workshops” available at https://emodnet.ec.europa.eu/sites/emodnet.ec.europa.eu/files/public/reports/D2.4.3_Report_on_availability_data_workshop_0.pdf

Activities within WP2

Workshops / Conferences / Hackathon/ Internal meetings

- Autumn Data School, November 2023, Lecce, Italy
- 3rd EMODnet Open Conference, November 2023, Brussels, Belgium
- International Ocean Data Conference –II (IODC-II), March 2023, Paris, France
- 5th International Congress on Applied Ichthyology, Oceanography, and Aquatic Environment (HydroMediT 2024), June 2024, Mytilene, Greece
- Marine Biodiversity and the ONE HEALTH framework, August 2024, Crete, Greece
- 2nd International Joint Conference MARBLUE 2024, October 2024, Constanta, Romania
- Open Science Athens, December 2024, Athens, Greece
- EMODnet OPEN SEA LAB 4.0, Virtual Hackathon, March 2025 (2nd price)
- International Ocean Data Conference - III (IODC-III), March 2025, Santa Marta, Colombia

and several Institutional Meetings






Text mining advances in the framework of EMODnet Biology

Savvas Paragkiamian¹, Melina Loukakaki¹, Lydia Kalitzaki¹, Nikos Minadakis¹, Georgi Sarafidou¹, Evangelos Pallas¹, Vasilis Gerovasiliou¹, Dimitra Mavrali¹

¹Hellenic Centre for Marine Research (HCMR), Institute of Marine Biology, Biotechnology and Aquaculture (IMBBC), Heraklion, Crete, Greece

²Advance Services, Heraklion, Crete, Greece

The evaluation and development of text mining tools in the field of marine biology assists the curation workflow, enhances existing web platforms and showcases the important steps required for advancing data and metadata standards.

Platforms such as OBIS and WoRMS are populated with standardized data, yet the majority of biodiversity data and associated metadata is available in documents, contemporary and historical. For example, OBIS holds around 225 datasets published before 1960 yet Biodiversity Heritage Library holds more than 1600 digitised documents containing more than 100 taxa that await curation. Multiple initiatives within the EMODnet Biology project have produced diverse applications of text mining (i.e. the extraction of entities from text - Named Entity Recognition (NER) to assist curators and evaluate which information is recognizable by computers (Figure 1).

Figure 1: The medOBIS workflow of curators.

Data archaeology and rescue (within Phase II of EMODnet Biology) pinned the steps required to extract information from history documents to the final upload to MedOBIS platform. These are:

1. Digitisation (Hardcopy, Imaging, Upload)
2. Transcription (OCR and OCR correction)
3. Information Extraction (NER, Standards)
4. Publication (Quality control, Upload)

Expanding this work, the DECO workflow (Phase III) chained multiple tools and steps to extract multiple types of ecological entities (Figure 2), such as species names, environments, which are well defined and standardized (Figure 3).

Figure 2: The automated DECO workflow. From an scanned document to taxa names with alpha IDs and environments with ENVO terms.

Figure 3: Named Entity Recognition is established for the identification of taxon names (a) and environments (b) and their synonyms from text. Species traits (c) and their synonyms from text. Species traits identification remains a challenge for text mining tools.

In Phase IV, we focused on traits to investigate the state of machine learning and deep neural networks advancements to extract traits information for species from text, as well as sampling devices and methodologies (Figure 4).

Traits refer to the characteristics of a species, including its morphology, anatomy, physiology, biochemistry, and phenology. Other initiatives of EMODnet which concern traits include Benthic occurrences, habitat maps, and species traits. EMODnet Biology, through the Benthic traits, which analyse and/or provide the means to analyse trait data.

Figure 4: Traits model training. A selection of Marine Data Archive Documents were annotated (a) with WoRMS traits vocabulary. Three models were evaluated (b).

WoRMS database has ~73,000 taxa with traits information, grouped in 68 distinct categories. Here, we used the WoRMS traits to train four deep neural models, evaluate their precision and recall performance against a curated set of abstracts. From these BioBERT showcased the most promising results, yet further work is needed for the standardization and nomenclature of traits to make them more retrievable.

Figure 5: The DECO workflow. From an scanned document to taxa names with alpha IDs and environments with ENVO terms.

Expanding this work, the DECO workflow (Phase III) chained multiple tools and steps to extract multiple types of ecological entities (Figure 2), such as species names, environments, which are well defined and standardized (Figure 3).

8. Digging up the oceans' past: A Citizen Science project for Historical Scientific Papers

EMODnet Biology has been actively involved in the critical task of rescuing historical biodiversity data, which holds immense value as it offers a unique glimpse into past ecosystems, challenging to replicate. Simultaneously, Citizen Science plays a significant role both at fostering environmental awareness and at contributing valuable data to the scientific community. In an innovative endeavor within the EMODnet Biology framework, a coordinated pilot effort was initiated to involve citizens in rescue of historical data. This pioneering project, titled "digging up the oceans' past" was developed by the Data Management Team of the Hellenic Centre for Marine Research. It was based on the 1908 document "Danish Oceanographical Expedition to the Mediterranean and adjacent seas". This project was developed and hosted on the Zooniverse Platform, the world's largest collection of online citizen science projects, and garnered the participation of 23 volunteers who conducted a total of 73 data classifications. The derived results were used for the curation of the dataset, which is now available through the MedOBIS IPT platform. Additionally, it provided an opportunity to engage and inform citizen scientists about the EMODnet Biology project enabling contributions from people outside the project consortium. We firmly believe that such projects will yield even more profound insights into ocean conservation and the wider society in the near future.

The Biodiversity Heritage Library (BHL) currently offers an extensive collection of historical datasets related to marine species, comprising over 1600 documents, each encompassing data on 100 or more taxa. This abundance of resources presents a substantial potential for future data rescue activities.

Poster Theme:
EMODnet innovations in data, data products and services

Lead Author:
Georgi Sarafidou, HCMR, g.sarafidou@hcmr.gr

Co-authors:
Savvas Paragkiamian, HCMR, Dimitra Mavrali, HCMR




The LIFE MareNatura project joins forces for the sustainable conservation of threatened EU marine priority species in the Mediterranean Sea

Mavrali D., Koupidis P.
¹Institute of Marine Biology, Biotechnology and Aquaculture (IMBBC), Hellenic Centre for Marine Research (HCMR), Heraklion, Crete, Greece

International Ocean Data Conference III, March 2025, Colombia

The LIFE MareNatura project (2023 - 2028) aims to mitigate the threats that affect nine of the most threatened EU priority species of seabirds, marine turtles and marine mammals. These species are: the Mediterranean Monk seal, the Loggerhead turtle, the Green turtle, the Scaevola, the common nargise, the corker's leaved whelk, the Common holothur, the Southern shrewmure, and the Audubon's gull.

The project covers an extensive marine area from the Aegean to the Ionian Sea and the Thracian Adriatic, and with a budget of ~11M€, constitutes the largest project for the protection of the European marine biodiversity ever implemented in Greece.

For more information visit <https://www.lifemare-natura.eu/>

Extensive field surveys will be conducted using advanced monitoring techniques such as telemetry (satellite transmitters mounted on the animals), visual recordings from boats and aircraft, hydrophone recordings for sonar tracking of whales and dolphins, and species detection through environmental DNA (eDNA). These data will be compiled to create a scientifically validated list of the most critical areas for the conservation of these species. Additionally, economic activities that could adversely impact the target species will be mapped throughout the study area. By integrating all research data and applying advanced spatial planning methods, new Marine Protected Areas will be identified and proposed for inclusion in the Natura 2000 network.

Conservation of priority species of marine organisms in Greece and Italy

The Data Management Plan (DMP) of the project, addresses the relevant aspects of making collected data FAIR, including how it will be accessible, curated and re-used. This DMP follows the principle "to open as possible, as closed as necessary" for its data and in parallel acknowledges that project's results should live beyond the project's lifecycle. In this framework, MedOBIS, which is the Mediterranean node of OBIS, is expected to play a crucial role for publishing in a FAIR and standardized way all the different data types resulting from the great amount of field activities that are expected to take place through the project.

The main mission of MedOBIS is to build and maintain an alliance that collaborates with scientific communities of the Mediterranean Sea to facilitate free and open access to marine biodiversity data.

MedOBIS accepts data files in any format and publishes the data following specific standardization and quality control procedures, in full compliance with FAIR principles (Findability, Accessibility, Interoperability, and Reusability of data).

Project beneficiaries

Co-funded by the European Union under Horizon Europe and the A&L Levelling

EMODNET BIOLOGY: An IPT service available for the Mediterranean Region

Mavrali D., Bepi I., Vardopoulou L., Peris Peris Z.

¹Hellenic Centre for Marine Research (HCMR), Institute of Marine Biology, Biotechnology and Aquaculture (IMBBC), Hellenic Centre for Marine Research (HCMR), Heraklion, Crete, Greece

²Advance Marine Heritage - ICL, Heraklion, Crete, Greece, Mytilene

HydroMediT 2024 5th International Congress on Applied Ichthyology, Oceanography, and Aquatic Environment

Keywords: OBIS, DECO, MedOBIS, data availability, Mediterranean Region

https://www.emodnet-bio.org/

medOBIS In Numbers

Domains	70
Time Range	1840-2023
Occurrence records	75,000
Taxa	4,000
Top the Class	
Tetrapoda	(54,7%)
Polychaeta	(24,8%)
Vertebrata	(16,5%)
Mollusca	(3,8%)

The challenge

The number of datasets with published data in OBIS have continually increased, with over 1000 datasets records, with a total number of biological occurrence records of more than 40 million and increasing. Here, we aimed to assess the information reflected alongside the biological data, of more than 10 million.

Despite the efforts on restoring data, the total number of published biological occurrence data for the Mediterranean Region remains low, in comparison with other marine regions.

This data gap is partly linked to uneven demographic development, geographic difficulties nearby to the southern part of the Mediterranean, high unemployment rates among individuals with relevant education (primary level), or in the limited awareness on open science best practices.

The answer

By acknowledging this marine data gap in the Mediterranean, a dedicated OBIS node was created in 2023 with support of the European project BIO2MED and IMBBC, whose the main goal is to foster the inclusion of Marine Biology, Biotechnology and Aquaculture of the Hellenic Centre for Marine Research.

The main mission is to build and maintain an alliance that collaborates with scientific communities of the Mediterranean Sea to facilitate free and open access to marine biodiversity data.

MedOBIS accepts data files in any format and publishes the data following specific standardization and quality control procedures, in full compliance with FAIR principles (Findability, Accessibility, Interoperability, and Reusability of data).

Information Extraction
Data Normalisation
Data Publishing
Quality Control
Data and metadata

IMBBC
UNIVERSITY OF MARINE BIOLOGY
BIOTECHNOLOGY AND AQUACULTURE

medOBIS
EMODnet
LIFEWATCH



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Biology



EMODnet Biology annual meeting

WP2 ICES

Carlos & Maria, ICES

12 May 2025 (Carthage, Tunisia)



The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) 2021/1139 of the European Parliament and of the Council of 7 July 2021 establishing the European Maritime, Fisheries and Aquaculture Fund.¹

WP2 List of Datasets

ICES Biological datasets

- Stomach content data
- Database of Trawl Surveys (DATRAS)
- Marine Environment (DOME) – Community data
- Marine Environment (DOME) – Contaminants and Biological Effects Data
- Joint Cetacean Database Programme (JCDP)
- Eggs And Larvae Datasets
- Vulnerable Marine Ecosystems (VME)
- European Seabirds At Sea (ESAS)



Main objective for WP2

Deliver the data in DwC format

To deliver the data, the following tasks were performed across all datasets:

- Identify Occurrences and Events
- Create database views to convert ICES formats to DwC (Events, Occurrences, and EMOFs)
- Develop APIs for each dataset to deliver data in the required DwC format
- Extract the transformed data
- Upload the files to the IPT server
- Register the datasets and confirm successful upload
- Await feedback and address any required adjustments



Possible solutions

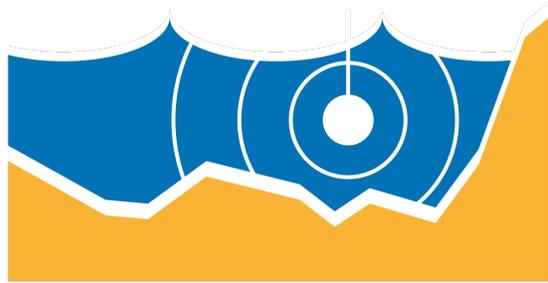
Using the GBIF IPT server

- GBIF offered to receive data directly
- By using a web service, we can point to a text file on the server.

Advantages

- Automatic submissions
- No file size limits
- Enable more frequent updates





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ICES
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<https://www.ices.dk>

emodnet.ec.europa.eu

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Biology



EMODnet Biology annual meeting

IEO-CSIC status update

Alejandro Isla
IEO-CSIC, Gijón. Spain

12-13 May 2025
(Carthage, Tunisia)



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Activities within WP2

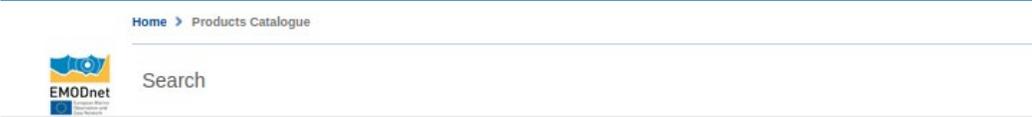
Datasets provided during Phase V

Dataset	Parameter	# records	Time coverage	Geographic coverage	Status
RADIALES NW Spain Zooplankton	Abundance and biomass	> 500	2021-2023	Cantabrian Sea (Southern Bay of Biscay)	Update
RADIALES NW Spain Ichthyoplankton	Abundance	> 5000	2005-2019	Cantabrian Sea (Southern Bay of Biscay)	New
FAMOSO Zooplankton	Abundance and biomass	> 500	2009	Gul of Lion (NW Mediterranean)	New
PELACUS Seabirds	Sightings	> 32000	2007-2022	NW Iberian Peninsula waters & Bay of Biscay	New
PELACUS Cetacean	Sightings	~ 1000	2007-2022	NW Iberian Peninsula waters & Bay of Biscay	New

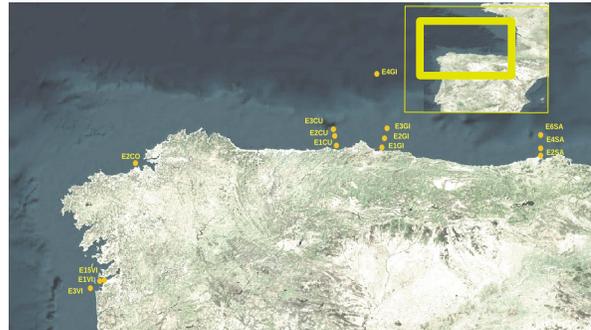
Activities within WP2

Datasets provided during Phase V

European Marine Observation and Data Network (EMODnet)



Zooplankton abundance and biomass from the RADIALES time series programme (N-NW Spain)



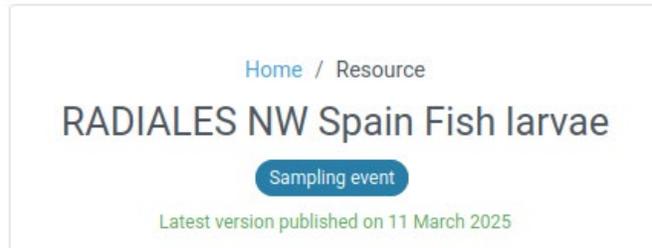
Phase IV
Phase V (update)



Activities within WP2

Datasets provided during Phase V

https://ipt.vliz.be/ieo/resource?r=rad_ictiopl

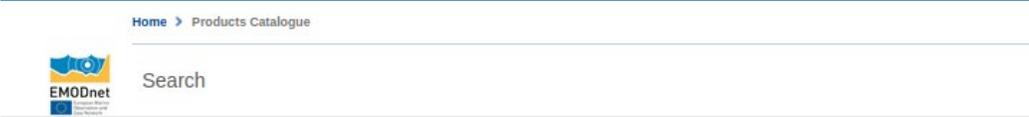


Occurrence records	5370
Species level	82 %
Taxa	129
Species	107
Time range	2005 - 2019

Activities within WP2

Datasets provided during Phase V

European Marine Observation and Data Network (EMODnet)



FAMOSO Zooplankton



Occurrence records	534
Abundance	374
Biomass	160
Taxa *	10
Time range	2009

* Major groups: Copepoda, Euphausiacea, ...

Activities within WP2

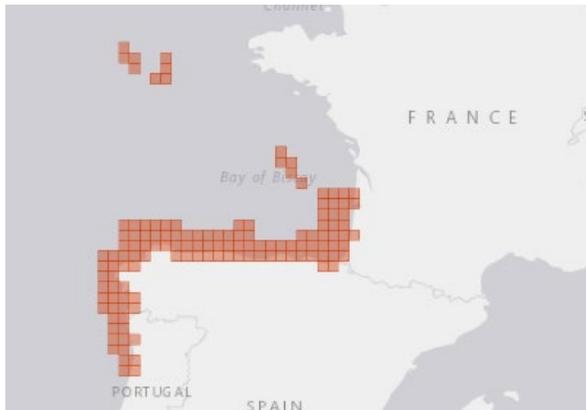
Datasets provided during Phase V

European Marine Observation and Data Network (EMODnet)

Home > Products Catalogue

EMODnet Search

 Seabirds sightings of PELACUS surveys: Continental shelf of Galicia and Bay of Biscay - Database of the Spanish Institute of Oceanography (IEO-CSIC)



Occurrence records	32369
Species level	91 %
Taxa	50
Species	39
Time range	2007 - 2022

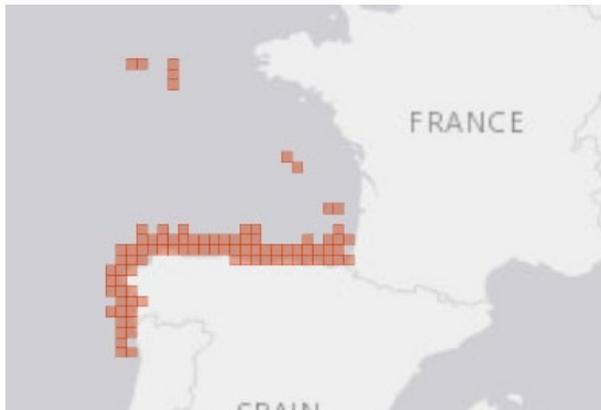
Activities within WP2

Datasets provided during Phase V

European Marine Observation and Data Network (EMODnet)



 Cetacean sightings of PELACUS surveys: Continental shelf of Galicia and Bay of Biscay - Database of the Spanish Institute of Oceanography (IEO-CSIC)



Occurrence records	951
Species level	91 %
Taxa	16
Species	11
Time range	2007 - 2022

Activities within WP2

Datasets to be delivered during Phase V Extension

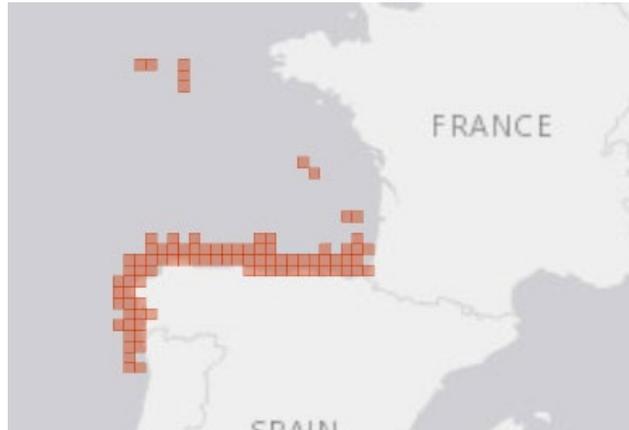
Quantity Primary Data EXTENSION

Dataset	# records	Time coverage	Status
RADIALES Zooplankton abundance and biomass	> 3000	1999-2024	Update
PELACUS Cetacean and seabirds sightings	~ 2000	2023-2024	Update
MEDIAS Cetacean and seabirds sightings	~ 2000	2021-2024	New

Activities within WP2

Datasets to be delivered during Phase V Extension

Dataset	# records	Time coverage	Status
PELACUS Cetacean and seabirds sightings	~ 2000	2023-2024	Update

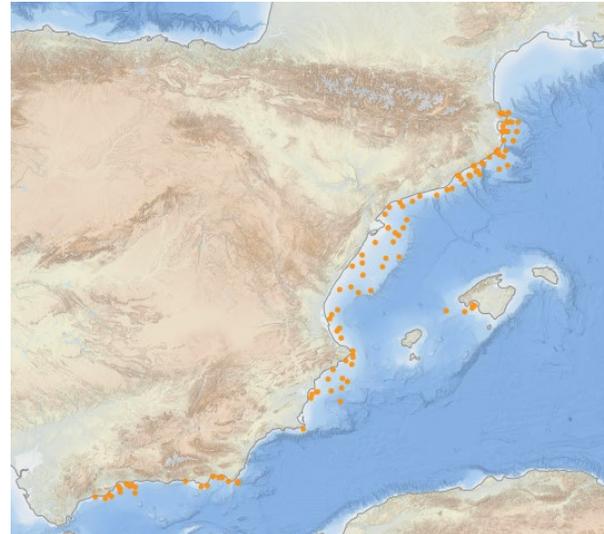


Álvarez-González M, Vázquez JA, Saavedra C
IEO-CSIC, Vigo (Spain)

Activities within WP2

Datasets to be delivered during Phase V Extension

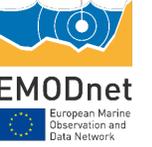
Dataset	# records	Time coverage	Status
MEDIAS Cetacean and seabirds sightings	~ 2000	2021-2024	New



Álvarez-González M, Vázquez JA, Saavedra C
IEO-CSIC, Vigo (Spain)

Activities within WP2

Datasets providers



IEO-CSIC, Gijón (RADIALES, FAMOSO)

Isla A, González-Quirós R, Rodríguez JM, Latasa M, Scharek R

IEO-CSIC, Vigo (PELACUS)

Álvarez-González M, Vázquez JA, Saavedra C

Thank you



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EMODnet Biology annual meeting

Ifremer status update

Jérôme Detoc, Clémence Cotten, Ifremer

16-17 April 2025 (Constanta, Romania)



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Activities within WP2

1st experience as a data provider

- Ifremer was involved in Emodnet biology a few year ago but via another department (Oceanography and Ecosystem Dynamics Department).
- For the end of this phase, Ifremer's Research Infrastructures and Information Systems Department decided to take over Ifremer's participation in Emodnet biology
- Feed-back:
 - Data set provided : [Biological samples from the french oceanographic fleet's deep-sea cruises](#)
 - Standardization to DwC format was carried out manually by following the MOOC "Contributing datasets to EMODnet Biology" in order to fully understand the format and requirements of Emodnet biology :
 - Good experience to really take the time to understand the DwC format thanks to Emodnet's financement and the help provided by the VLIZ team
 - Working through GBIF's national IPT has enabled us to be autonomous in our publications.
- Next years, our objective is to transfer this knowledge of the format of data managers to developers in order to create a tool for automatically formatting Ifremer's basic data in DwC that can be managed in Emodnet.



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Biology



EMODnet Biology annual meeting

IHCantabria status update

Elvira Ramos, Samuel Sainz, Araceli Puente, José A. Juanes, IHCantabria

12-13 May 2025 (Carthage, Tunisia)



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Activities within WP2

Data management

Dataset	Status	Geographic coverage	Temporal range	# records
 Littoral Monitoring Network of Cantabria (Fishes)	● New	Cantabria (N Spain) Atlantic region	2009 - 2023	769
 Littoral Monitoring Network of Cantabria (Invertebrates)	● Update		2022 - 2023	783
 Cover of Intertidal Macroalgae along the N and NW Coast of the Iberian Peninsula	● Update	N and NW Coast of the Iberian Peninsula	2023	>5000



Activities within WP2

Data management

Dataset	Status	Geographic coverage	Temporal range	# records
 Littoral Monitoring Network of Cantabria (Fishes)	New	Cantabria (N Spain) Atlantic region	2009 - 2023	769 ✓
 Littoral Monitoring Network of Cantabria (Invertebrates)	Update		2022 - 2023	783 ✓
 Cover of Intertidal Macroalgae along the N and NW Coast of the Iberian Peninsula	Update	N and NW Coast of the Iberian Peninsula	2023	>5000 ✓

Home About

Home / Resource

Littoral Monitoring Network of Cantabria (Fishes)

Sampling event

Latest version published on 26 March 2024

Home About

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Littoral Monitoring Network of Cantabria (Invertebrates)

Sampling event

Latest version published on 22 April 2024

Download the latest version of this resource data as a Darwin Core Archive (DwC-A) or the resource metadata as an EML file

[Data as a DwC-A file](#)
[Metadata as an EML file](#)
[Metadata as an RTF file](#)

[download 108 records in English \(17 KB\) - Update frequency: unknown](#)
[download in English \(13 KB\)](#)
[download in English \(9 KB\)](#)

Home About

Home / Resource

Cover of Intertidal Macroalgae along the N and NW Coast of the Iberian Peninsula

Sampling event

Latest version published on 13 February 2025

resource metadata as EML or RTF:
Update frequency: unknown

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[download 1,003 records in English \(185 KB\) - Update frequency: unknown](#)
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Publication date: 13 February 2025
Published by: No organisation
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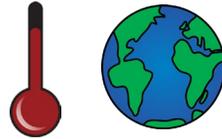
Activities within WP3

Data product: (1) Community Temperature Index (CTI)

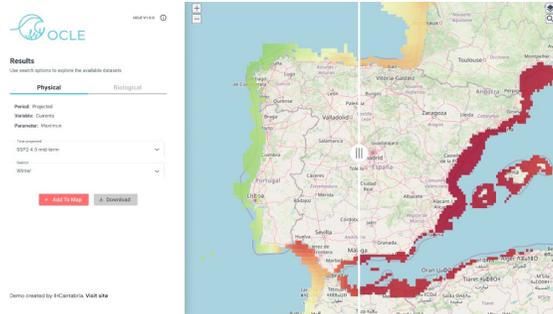
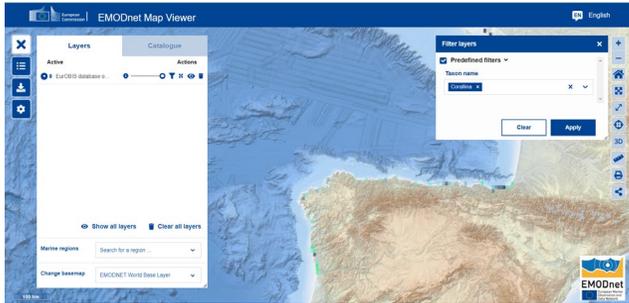
INITIAL DATA



Macroalgae distribution



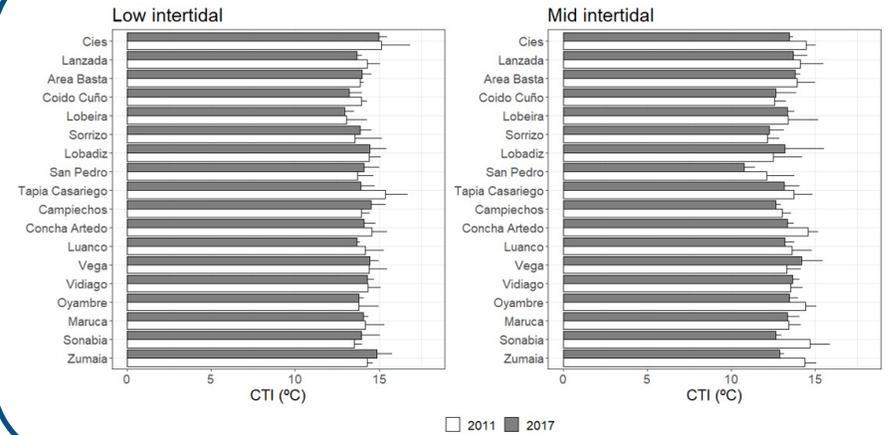
SST



METHODOLOGY

$$CTI = \sum_{i=1}^{i=n} \frac{STI_i w_i}{\sum w_i}$$

RESULT

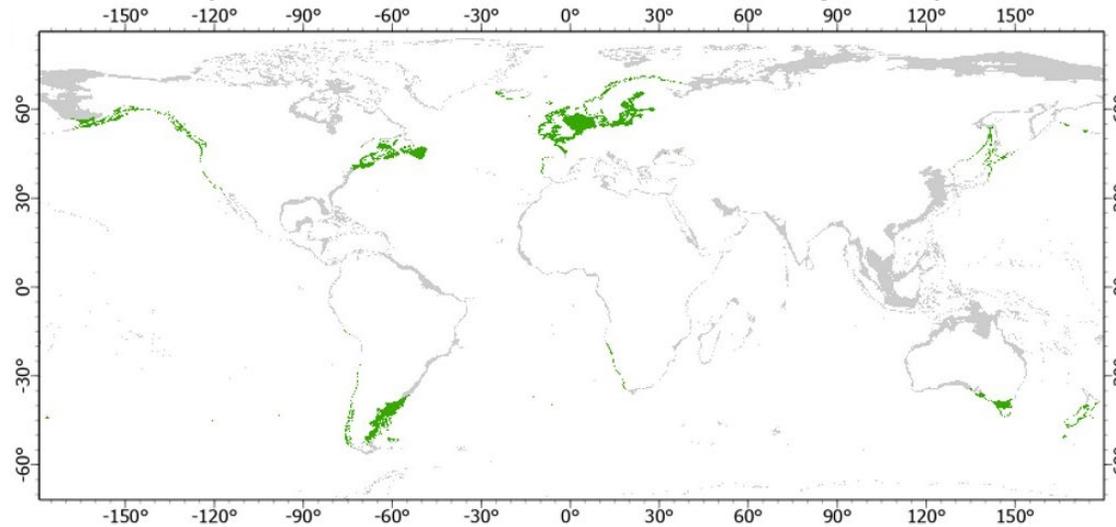


Activities within WP3

Data product: (2) Species Thermal Affinities

- Intermediate Step: Species Distribution Modeling (MaxEnt) for Each Species Using Maximum and Minimum SST
- Result: **Thermal Affinities of 85 Species**

Example: Thermal distribution of *Ahnfeltia plicata*



Activities within WP3

Data product: (1) Community Temperature Index (CTI) & (2) Species Thermal Affinities

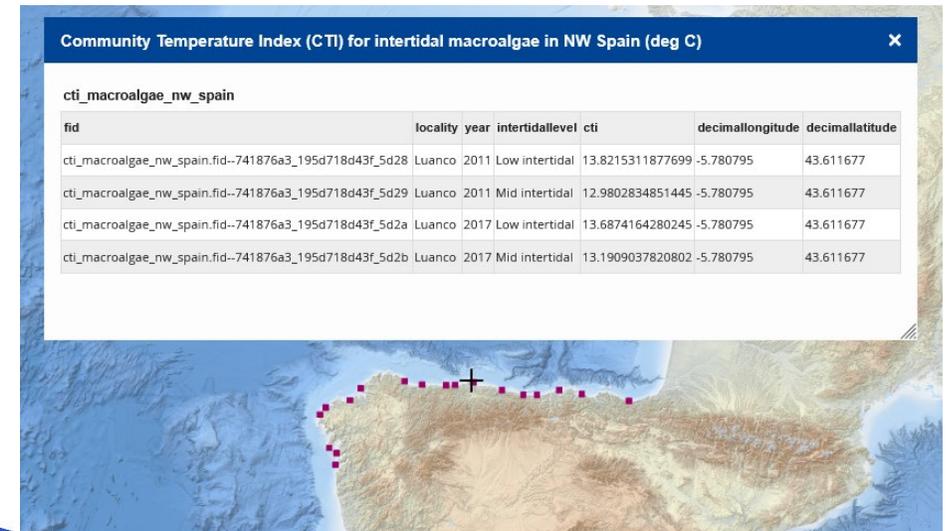
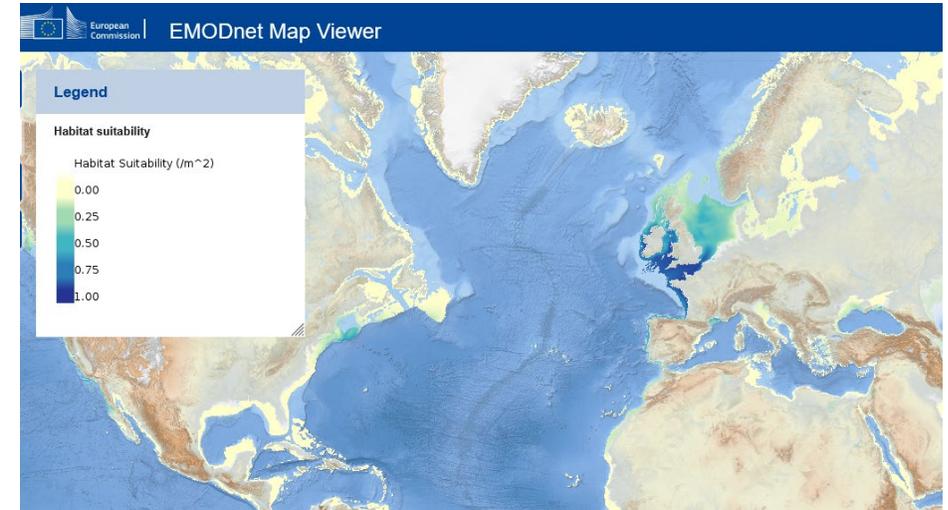


The screenshot shows the GitHub repository page for 'EMODnet-Biology-CTI-macroalgae'. The repository is public and has 1 branch and 0 tags. The commit history shows several commits, with the most recent being 'Update README.md' by JoBeja last month. The repository contains folders for 'analysis', 'data', 'docs', 'product', and 'scripts', as well as files like '.gitignore', 'EMODnet-Biology-invasive-macroalgae-sdm.R...', and 'README.md'. The README file is open, showing the title 'Community Temperature Index (CTI) for intertidal macroalgae in NW Spain.' and an introduction section.

Community Temperature Index (CTI) for intertidal macroalgae in NW Spain.

Introduction

Ocean warming is expected to drive quick shifts in marine species distributions modifying coastal communities. Previous research has shown how the southern Bay of Biscay is particularly affected and the canopy-forming subtidal



Activities within WP4

Uptake and outreach

- Update connectivity maps and identification of stakeholder community. ✓
- Workshop targeting the Regional Sea Conventions. ✓



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Biology



EMODnet Biology annual meeting

ILVO status update

Felien Festjens

12-13 May 2025 (Carthago, Tunis)



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Activities within WP2

ILVO data

- Update of 7 existing datasets
 - Macrobenthos (3)
 - Epibenthos & fish (4)
- Addition of 5 new genomic datasets
 - eDNA (4)
 - bulkDNA (1)

Name	Organization	Type	Subtype	Records	2025	2023	2021
Macrobenthos monitoring at long-term monitoring locations, period 2001-ongoing	No organisation	Sampling event	--	1,917		1498	-
Macrobenthos monitoring in function of the aggregate extraction activities	Test Organisation #1	Sampling event	--	2,285		1921	1510
Macrobenthos monitoring in function of dredge disposal activities	Test Organisation #1	Sampling event	--	2,092		1757	1110
Epibenthos and demersal fish monitoring at long-term monitoring stations in the Belgian part of the North Sea	No organisation	Sampling event	--	454		419	306
Epibenthos and demersal fish monitoring in function of aggregate extraction	No organisation	Sampling event	--	290		257	182
Epibenthos and demersal fish monitoring in function of wind energy development	No organisation	Sampling event	--	332		278	-
Epibenthos and demersal fish monitoring in function of dredge disposal monitoring	No organisation	Sampling event	--	394		351	239



(Event records, not occurrences)

DNA ILVO datasets to EMODnet Biology V

gbif-uuif	title	published_by	comments
https://www.gbif.org/dataset/652ac1af-3907-4fd3-a509-2151a00bcc2	eDNA from water column to characterise fish and invertebrate communities from 30 sites in the Belgian Part of the North Sea -COI	INBO IPT	extra dataset
https://www.gbif.org/dataset/8afcc57c-5d2b-4349-add6-29bfc33ed5cb	Vertical and horizontal environmental DNA (eDNA) patterns of fish in a shallow and well-mixed North Sea area	INBO IPT	extra dataset
https://www.gbif.org/dataset/8fd84a4f-bbed-490b-9ca4-c0a3d0aea079	eDNA from water column to characterise fish and invertebrate communities from 30 sites in the Belgian Part of the North Sea -12S	INBO IPT	extra dataset
https://www.gbif.org/dataset/8ddac24b-e022-46df-8883-11e4f222142b	12S eDNA from seawater samples collected within the coastal zone of the Belgian part of the North Sea	MDT	replacement of unsubmitted dataset: "16S metabarcoding data of sediment in function of sand extraction"
https://www.gbif.org/dataset/537ba214-794b-4d7e-9a8b-60e196cab40	BulkDNA macrobenthos from sandextraction sites in the Belgian part of the North Sea	MDT	renamed from original title: "COI metabarcoding of bulk macrobenthos samples in function of aggregate extraction"

Activities within WP2

ILVO data

Macrobenthos monitoring at a longline mussel infrastructure	3300	2020-2022	Belgium
Macrobenthos monitoring in the IJzer estuary	1000		2018 Belgium
Macrobenthos monitoring in function of impact assessment of pulse fi:	2400	2018-2019	Belgium

- To come (phase II):
 - Update of the existing datasets
 - 2-3 new datasets of macrobenthos, finished standalone projects
 - Group current genetic datasets under 3 general datasets as is done for macrobenthos & fish
- Note: updates of the existing datasets are subject to the availability of the Belgica or other research vessel, which is uncertain at the moment → hence third new dataset in case of lack of new trawling data

Activities within WP4

Outreach

Phase I:

- Contributed to the 2 outreach workshops (Regional seas + EU projects)

Phase II:

ILVO responsibility (proposed in new workplan, to be finalised at meeting)

- ILVO & ICES: Inventory of biodiversity data in ODIMS-OSPAR (also verifying what is in ICES & EMODnet Biology) (this may also, at the end, lead to a proposal to establish a data flow (maybe part of WP2) (ask for suggestions of alternatives).

ILVO & SYKE: 1 workshops for EU funded projects linked with events of international relevance (to jointly evaluate when is the best time): Same as in phase I? What end product?



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IMR status update



12-13 May 2025 (Cathage, Tunisia)



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Activities within WP3

Updates of datasets 2025

- MAREANO Beamtrawl
 - Occurrence model
 - Added 2500 occurrences
 - Total 32446 occurrences
 - Data until end 2021
- MAREANO Grab
 - Occurrence model
 - Added 5000 occurrences
 - Total 62407 occurrences
 - Data until end 2021
- MAREANO Sledge
 - Occurrence model
 - Added 900 occurrences
 - Total 19521 occurrences
 - Data until end 2021

Activities within WP3

Updates of datasets 2025

- Red King Crab
 - Event model
 - Added 195 occurrences
 - Total 8052 occurrences
 - Data until end 2024
- IMR Fish
 - Event model
 - Added 35496 occurrences
 - Total 502927 occurrences
 - Data until end 2024



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Biology



EMODnet Biology annual meeting

MARIS status update

Peter Thijsse, MARIS

12-13 May 2025 (Carthage, Tunisia)



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Activities within WP2

Data management, supporting actions 2.1, expanding data flow

- Maintenance of the API to facilitate the flow of SeaDataNet BioODV datasets to EMODnet Biology system
 - Ready, in use by VLIZ
 - Several API improvements during the year (plus support)
- This facilitates expansion of the amount of data published by partners (and non-partners) via SeaDataNet CDI (continuous progress)
 - Could e.g. be increased after work in Data Ingestion or other initiatives.
 - Also restricted data, released for EMODnet Bio products could be released this way.

Activities within WP5

Technical infrastructure - Supporting work in Action 5.1: Extend interoperability and data types

- **Participation of Semantic Interoperability working group (led by VLIZ) for biological data**
 - To increase the use of vocabularies, and map existing vocabs (in EuroBIS/DarwinCore) to other vocabularies
 - Make use of commonly gained experience (DCAT/RDF) in FAIR-EASE and other projects.
 - Expanded Sparql endpoints serving RDF LOD for SeaDataNets EDMO (organisations) and EDMERP (projects) with LDES feeds. (BODC did the same for SeaDataNets NERC Vocabulary Services)
 - Linked data event stream: signaling updates of the feeds
 - Meetings taken place for knowledge exchange/solution alignment and check action progress
 - Services now all upgraded.
 - Work will be continued in next period (also towards CSR and CDI).



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EMODnet Biology annual meeting

Marine Biological Association status update

Chloe Figueroa Ashforth, Data Manager

12-14 May 2025 (Carthage, Tunisia)



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Activities within WP2

Data submissions



3rd party data flowing through the MBA to EMODnet:

- **Sea Watch Foundation Marine Megafauna Sightings (1930 to 1970): batch_1**
 - Accepted
- **Sea Watch Foundation Marine Megafauna Sightings: 1971 to present**
 - Submitted
- **Data associated with 'A 17-year time-series of fungal environmental DNA from a coastal marine ecosystem reveals long-term seasonal-scale and inter-annual diversity patterns', DOI: 10.17031/6530ebf28a2e7**
 - Submitted, pending corrections

Activities within WP4

- **D4.3.1 Workshop for EU Mission Ocean Projects in November**

Relevant projects:

- **DTO-Bioflow**
 - WP2 – Increasing the flow of relevant biodiversity data
 - WP3 – Enabling sustained flows of biodiversity monitoring data into the DTO
 - WP4 – Demonstrator use cases for an end-to-end approach for biodiversity monitoring
- **MARCO BOLO**
 - WP1 – Data digitisation and access, and delivering Essential Biodiversity Variables
 - WP6 – Stakeholder engagement and community integration



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EMODnet Biology annual meeting

National Institute for Marine Research and Development “Grigore Antipa”, Constanta, Romania

Oana VLAS, NIMRD

May 12th to May 13th 2025, Carthage, Tunisia



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Activities within WP2

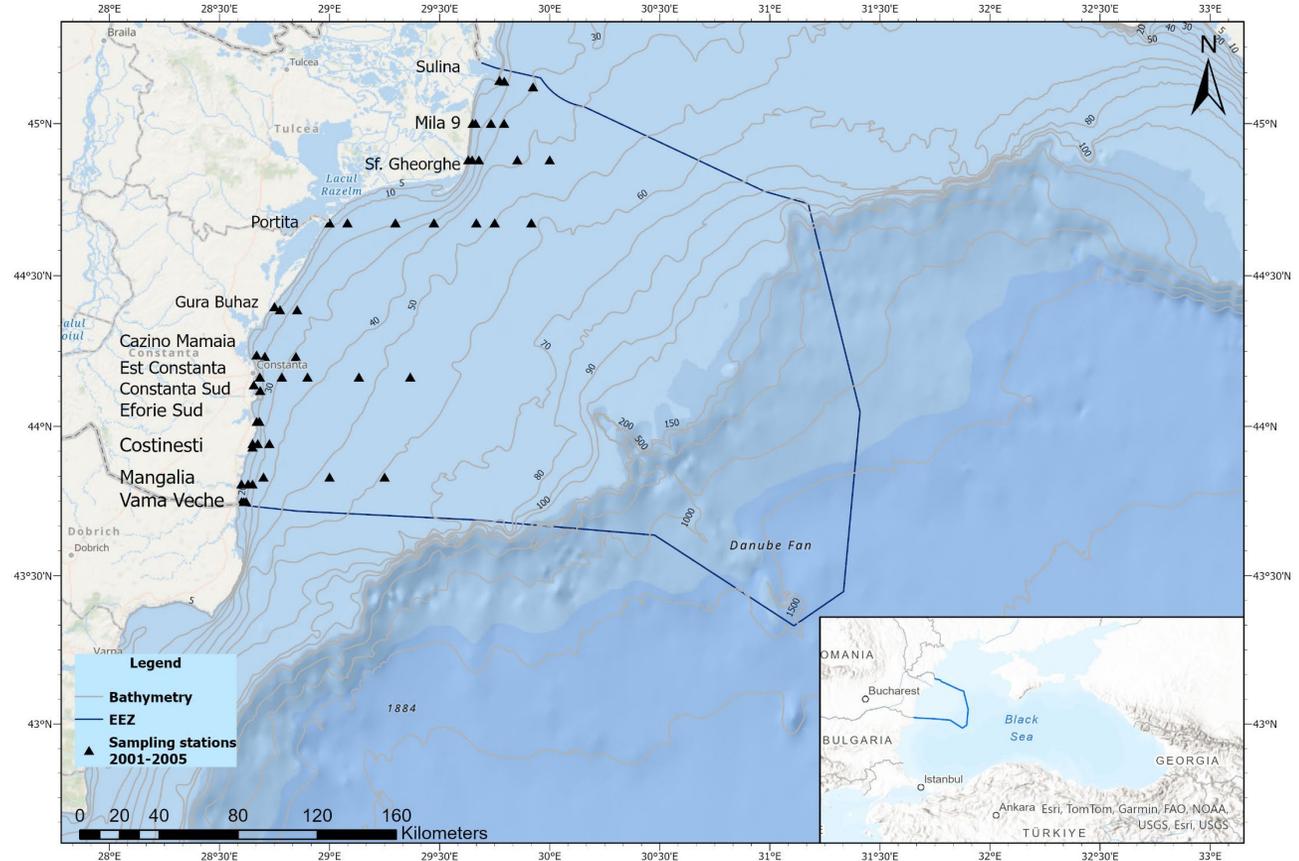
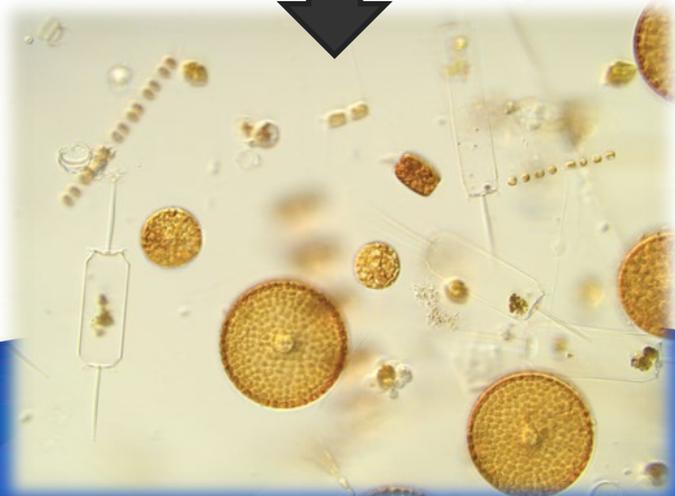
Black Sea Phytoplankton Data

Team: E. Pantea, O. Vlas, L. Boicenco

Dataset: Romanian Black Sea Phytoplankton data from 2001 to 2005

- The dataset covers **5 years**
- **990 samples** were collected from **55 stations**
- The total number of records for this dataset is **18011**

Data source: microscopic identification of samples.



Type of data: abundance (cells/L) and biomass (mg/m³) data for each individual phytoplankton taxa.

Activities within WP2

Black Sea Phytoplankton Data

Team: E. Pantea, O. Vlas, L. Boicenco



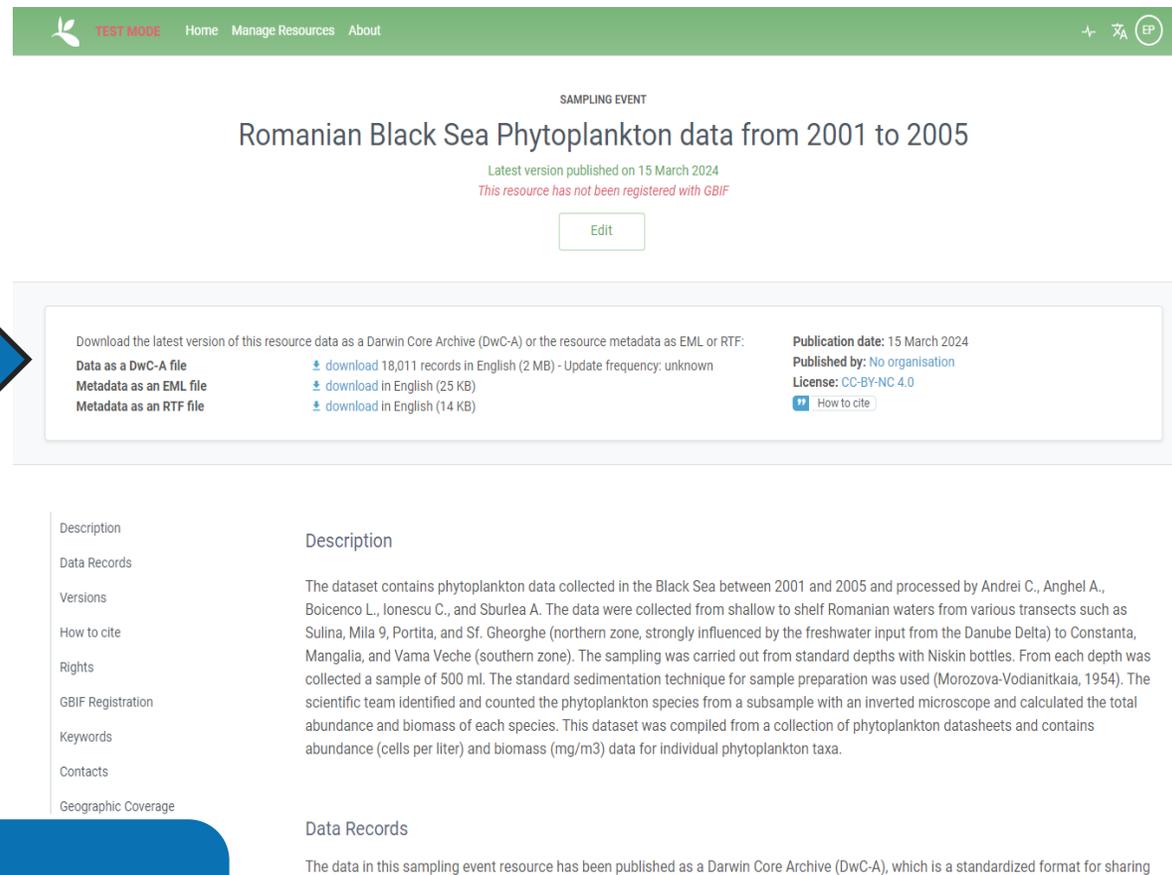
Brief description of work carried out:

Dataset formatted according to Darwin Core terms

IPT resource of the dataset created and published

Metadata file created

Quality check done (Biocheck Tool) and errors corrected.



SAMPLING EVENT

Romanian Black Sea Phytoplankton data from 2001 to 2005

Latest version published on 15 March 2024
This resource has not been registered with GBIF

Edit

Download the latest version of this resource data as a Darwin Core Archive (DwC-A) or the resource metadata as EML or RTF:

Data as a DwC-A file	download 18,011 records in English (2 MB) - Update frequency: unknown	Publication date: 15 March 2024
Metadata as an EML file	download in English (25 KB)	Published by: No organisation
Metadata as an RTF file	download in English (14 KB)	License: CC-BY-NC 4.0

[How to cite](#)

Description

The dataset contains phytoplankton data collected in the Black Sea between 2001 and 2005 and processed by Andrei C., Anghel A., Boicenco L., Ionescu C., and Sburlea A. The data were collected from shallow to shelf Romanian waters from various transects such as Sulina, Milla 9, Portita, and Sf. Gheorghe (northern zone, strongly influenced by the freshwater input from the Danube Delta) to Constanta, Mangalia, and Vama Veche (southern zone). The sampling was carried out from standard depths with Niskin bottles. From each depth was collected a sample of 500 ml. The standard sedimentation technique for sample preparation was used (Morozova-Vodianitkaia, 1954). The scientific team identified and counted the phytoplankton species from a subsample with an inverted microscope and calculated the total abundance and biomass of each species. This dataset was compiled from a collection of phytoplankton datasheets and contains abundance (cells per liter) and biomass (mg/m3) data for individual phytoplankton taxa.

Data Records

The data in this sampling event resource has been published as a Darwin Core Archive (DwC-A), which is a standardized format for sharing

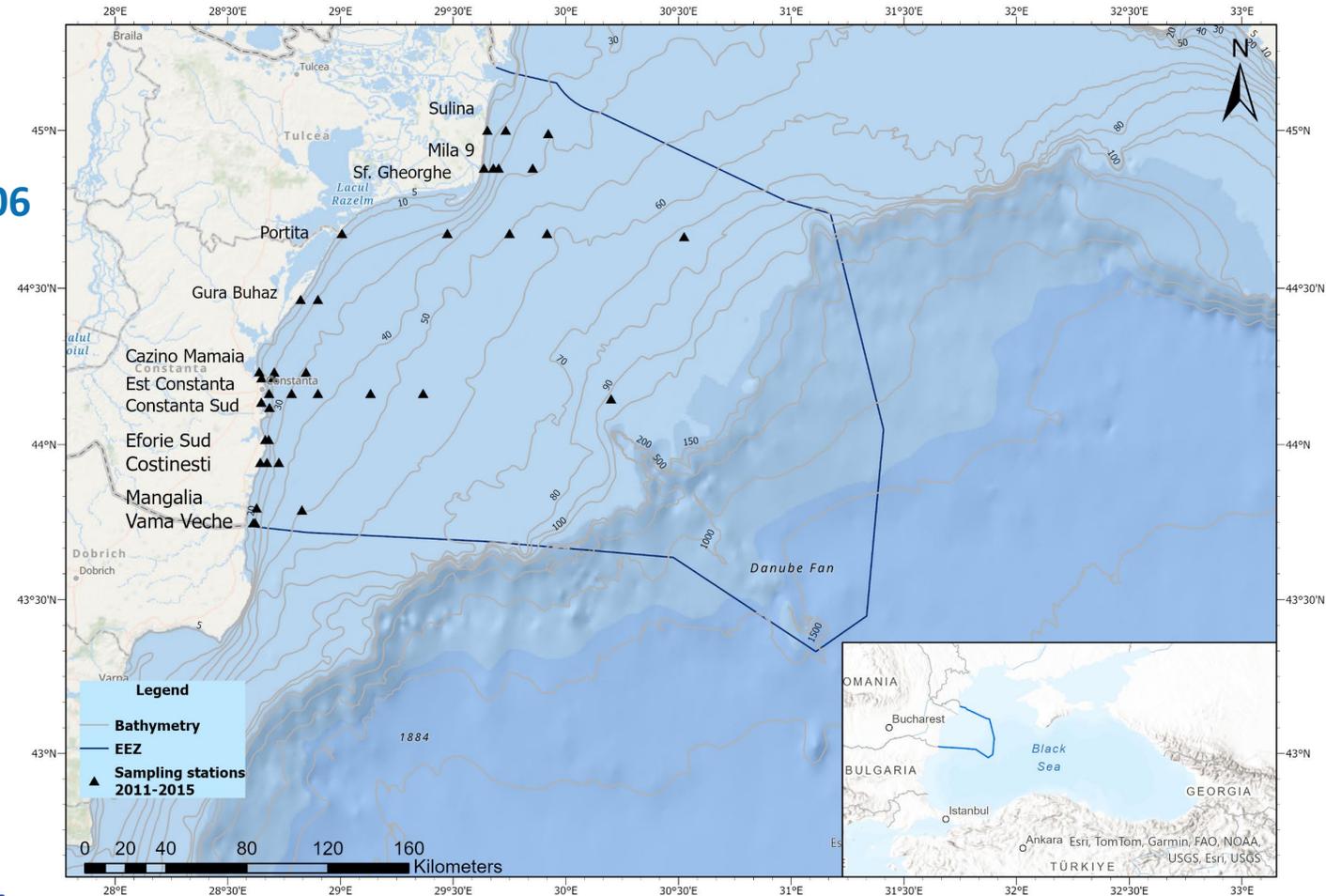
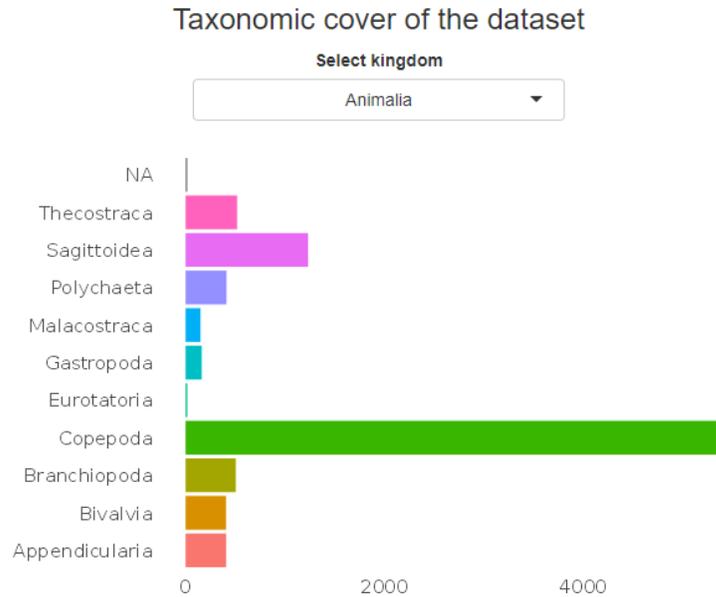
Acknowledgment: In the process of publishing the dataset, we received support from VLIZ (Ruben Perez)

Activities within WP2

Black Sea Zooplankton Data 2011 to 2015

Zooplankton team: G. E. Harcotă, E. Bişinicu, C. Tabarcea, F. Timofte

- The dataset covers **5 years**
- **257 samples** were collected from **43 stations**
- The total number of records for this dataset is **9406**



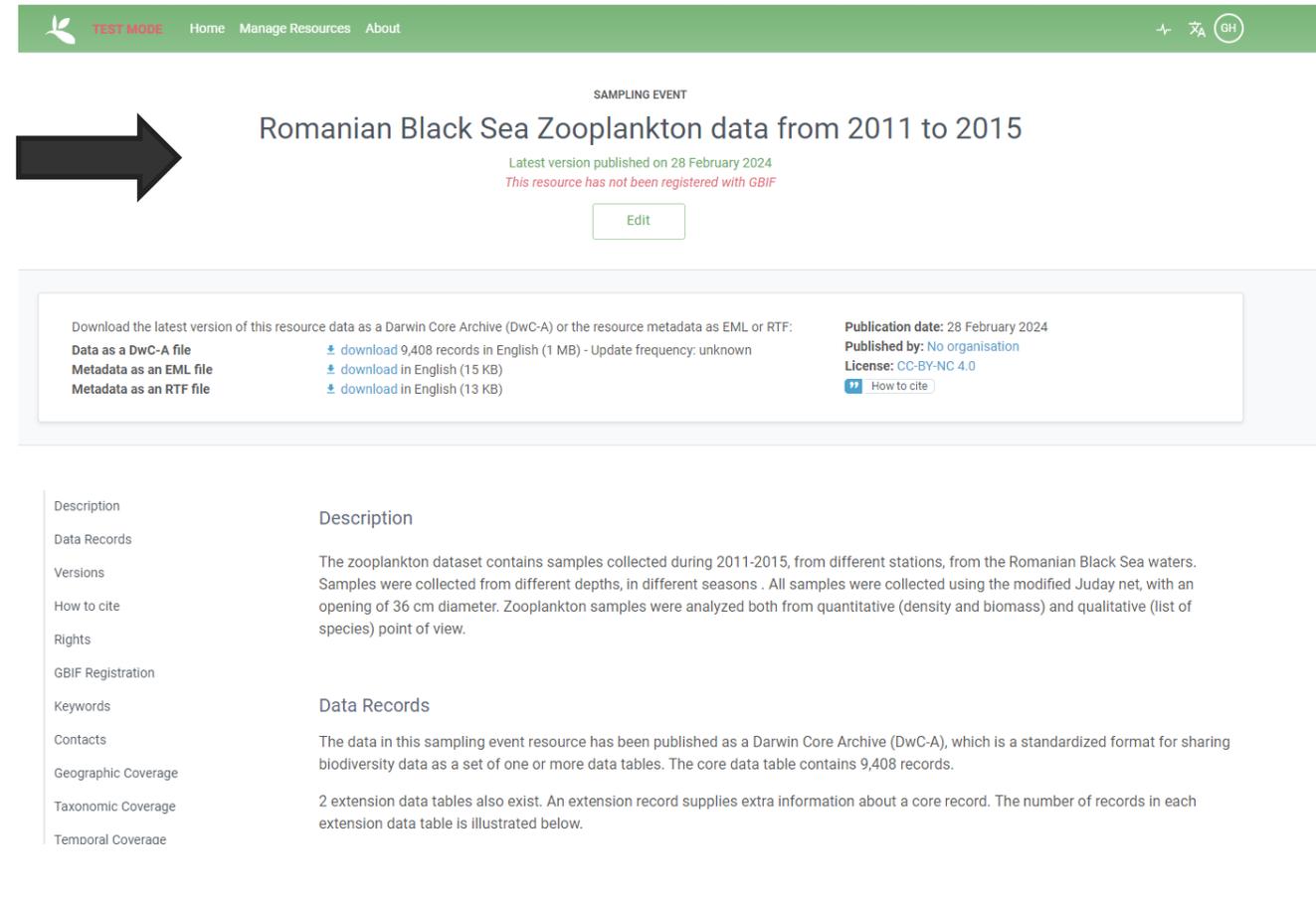
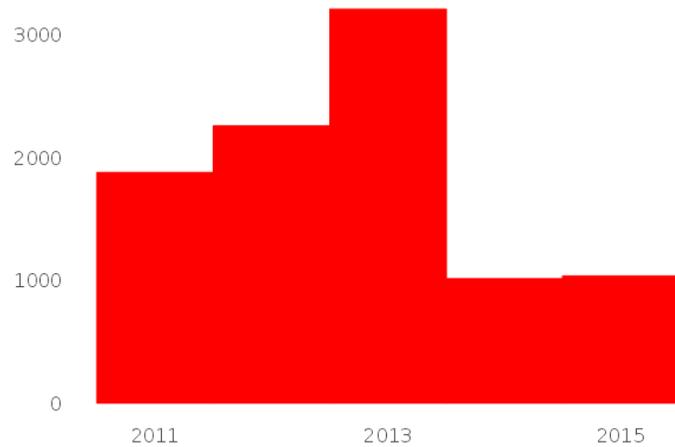
Activities within WP2

Black Sea Zooplankton Data 2011 to 2015

Zooplankton team: G. E. Harcotă, E. Bişinicu, C. Tabarcea, F. Timofte



Temporal cover of the dataset



TEST MODE Home Manage Resources About

SAMPLING EVENT

Romanian Black Sea Zooplankton data from 2011 to 2015

Latest version published on 28 February 2024
This resource has not been registered with GBIF

Edit

Download the latest version of this resource data as a Darwin Core Archive (DwC-A) or the resource metadata as EML or RTF:

Data as a DwC-A file	download 9,408 records in English (1 MB) - Update frequency: unknown	Publication date: 28 February 2024
Metadata as an EML file	download in English (15 KB)	Published by: No organisation
Metadata as an RTF file	download in English (13 KB)	License: CC-BY-NC 4.0

[How to cite](#)

Description

The zooplankton dataset contains samples collected during 2011-2015, from different stations, from the Romanian Black Sea waters. Samples were collected from different depths, in different seasons. All samples were collected using the modified Juday net, with an opening of 36 cm diameter. Zooplankton samples were analyzed both from quantitative (density and biomass) and qualitative (list of species) point of view.

Data Records

The data in this sampling event resource has been published as a Darwin Core Archive (DwC-A), which is a standardized format for sharing biodiversity data as a set of one or more data tables. The core data table contains 9,408 records.

2 extension data tables also exist. An extension record supplies extra information about a core record. The number of records in each extension data table is illustrated below.

- Description
- Data Records
- Versions
- How to cite
- Rights
- GBIF Registration
- Keywords
- Contacts
- Geographic Coverage
- Taxonomic Coverage
- Temporal Coverage

Activities within WP2

Problem solved

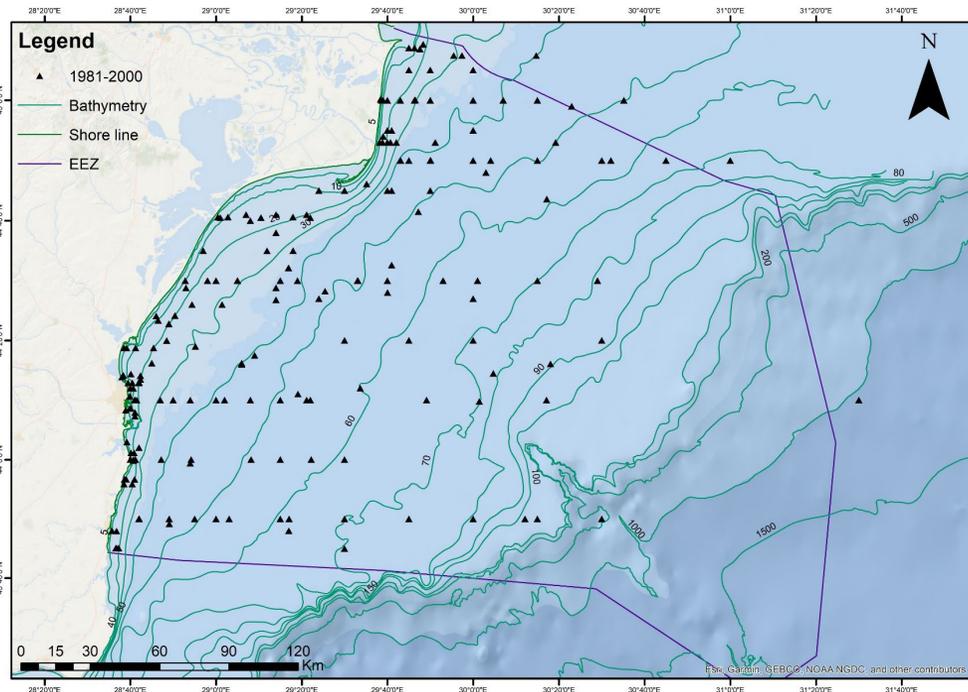


1981-2000



Missing coordinates

- ✓ The coordinates problem was solved by searching for the missing coordinates in the institute's archives.
- ✓ This consisted of identifying the stations, data, and areas where the samples were collected.





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EMODnet Biology annual meeting (NIOZ - NWO) status update

NIOZ, Karline Soetaert

May 2025 (Tunis)



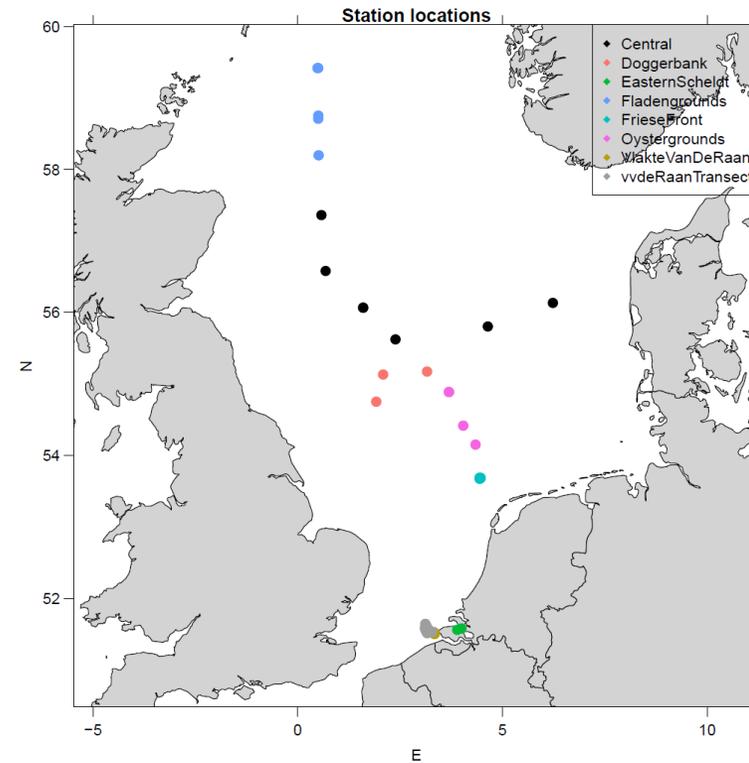
The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) 2021/1139 of the European Parliament and of the Council of 7 July 2021 establishing the European Maritime, Fisheries and Aquaculture Fund.¹

Activities within WP2

Uploading new data from the Northsea

- Macrofauna density and biomass

- Friese Front
- N-S Transect
- Vlake van de Raan
- Sandwave area



Activities within WP2

Uploading new data from the Northsea



Marine Environmental Research

journal homepage: <http://www.elsevier.com/locate/marenvrev>



Experimental bottom trawling finds resilience in large-bodied infauna but vulnerability for epifauna and juveniles in the Frisian Front

Justin C. Tiano^{a,c,*}, Karin J. van der Reijden^b, Sarah O'Flynn^a, Olivier Beauchard^a, Sietse van der Ree^b, Jelmer van der Wees^b, Tom Ysebaert^{a,d}, Karline Soetaert^{a,c}

DOI: 10.1111/maec.12657

ORIGINAL ARTICLE

marine ecology WILEY

Small-scale macrobenthic community structure along asymmetrical sand waves in an underwater seascape

Chiu H. Cheng¹ | Bas W. Borsje² | Olivier Beauchard^{1,3} | Sarah O'Flynn¹ | Tom Ysebaert^{1,4} | Karline Soetaert¹



Biogeosciences, 19, 2583–2598, 2022
<https://doi.org/10.5194/bg-19-2583-2022>
© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.

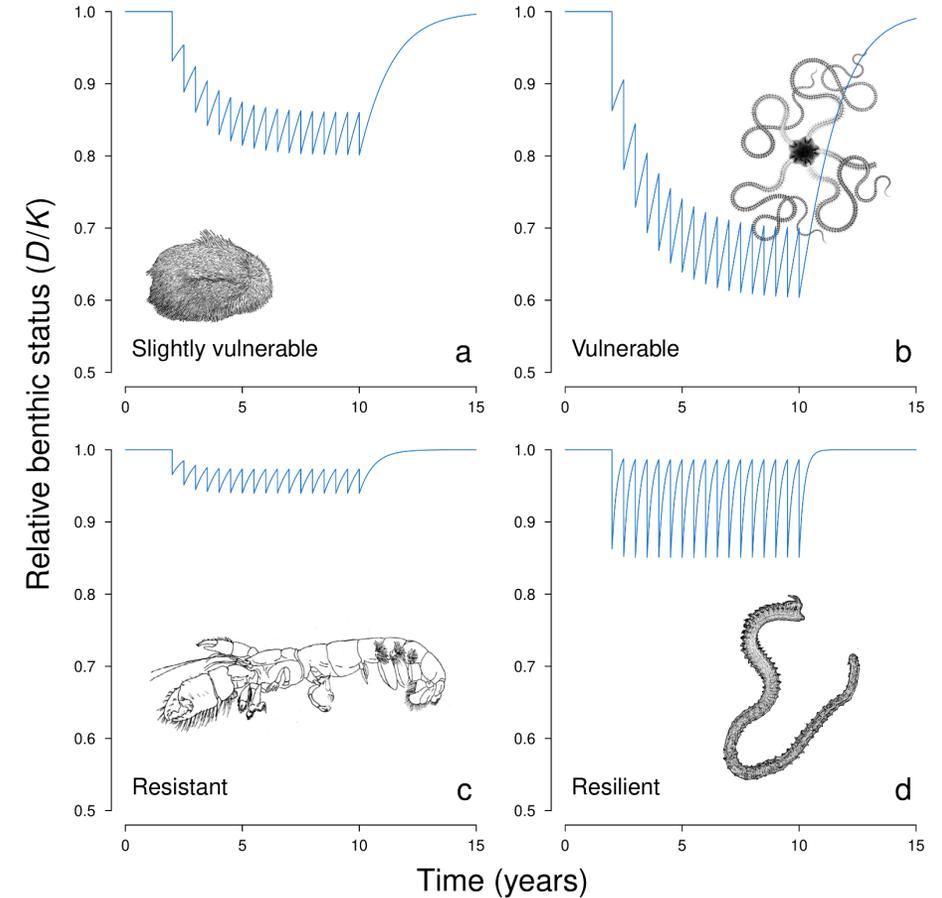


Trawling effects on biogeochemical processes are mediated by fauna in high-energy biogenic-reef-inhabited coastal sediments

Justin C. Tiano^{1,2}, Jochen Depestele³, Gert Van Hoey^{2,3}, João Fernandes^{4,5}, Pieter van Rijswijk¹, and Karline Soetaert^{1,2}

Activities within WP5

- Finalising R package “Bfiat”
(predicting benthos response to trawling)
- Preparing model outputs for the North Sea



Activities within WP5

NewsItem

NEWS ARTICLE | 07 May 2025

EMODnet Biology publishes a New software tool to model the impact of bottom trawling on the benthos

Bottom trawl fisheries are recognised to be a global threat to marine biodiversity and an important driver of sea floor ecosystem change. We provide a toolbox that enables the prediction of trawling impact on benthic organism densities, and to assess the species' vulnerability to trawling.



Manuscript submitted for publication

Activities within WP5

<https://github.com/EMODnet/Bfiat>

<https://emodnet.github.io/Bfiat/>

Bfiat

Karline Soetaert and Olivier Beauchard

Netherlands Institute for Sea Research

lifecycle experimental

Introduction

Bfiat (Bottom Fisheries Impact Assessment Tool) is an R-package that estimates the impact of bottom trawling on sediment inhabiting organisms, and on sediment ecosystem functions.

It contains data-driven mechanistic models that describe how species density is being reduced by bottom trawling, and then recovers till the next fishing event.

3 package vignettes (manuals)

- General
- Impact on benthos density in Northsea
- Impact on ecosystem functioning

functions github

On this page

Software.

Data requirements

Running the fishing impact model

The bioturbation and bio-irrigation potential

References



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EMODnet Biology annual meeting

University of Bremen (PANGAEA) status update

Astrid Wittmann, University of Bremen
(now AWI-PANGAEA)

12-13 May 2025 Carthage, Tunisia



Center for Marine
Environmental Sciences
University of Bremen



University
of Bremen



PANGAEA
Data Publisher for Earth &
Environmental Science.



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Activities within WP2

Converting from PANGAEA to EurOBIS data model

Contributed 5 published PANGAEA datasets

- Four datasets on counts of Atlantic top predators, **ca. 2,100 events, 288,600 occurrences total**
- One global dataset on seagrass occurrences, cover and biomass, compiled from the literature **ca. 1,300 events, 13,500 occurrences** (incl. subcomponents), **14,000 emof** (excl. subcomponent relations)

Challenges

- Atlantic top predators: Replacing some common names with taxonomic terms, then new matching with WoRMS taxonomy
- Seagrasses dataset
 - > 370 literature references
 - Manual assignment of BODC terms in emof table
 - Parent-child relation of occurrenceIDs of subcomponents

Semi-automatic approach using Python scripts

- Pangaeapy
 - PanDataSet: retrieve dataset from PANGAEA
 - PanDarwinCoreArchiveExporter: write PANGAEA metadata to eml.xml
- Pyworms: taxon match and retrieve lsids
- Pandas & Plotly express: restructure, map DwC terms, write meta.xml, plot events

➤ **Successfully transformed biodiversity data of 5 datasets to DwC-A as planned**





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SMHI status update

Anders Torstensson, Mikael Hedblom, SMHI

12-13 May 2025 (Tunis, Tunisia)



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Activities within WP2

Status update on the mobilization of data from SHARK (SMHI)



Description of dataset	events	Coverage	Status	IPT
SHARK - National and regional marine environmental monitoring of Picoplankton in Sweden since 2002	3 569	Baltic Sea, Kattegat, Skagerrak	Update	2024-01-17
SHARK - National environmental monitoring of Grey seal in Sweden since 1989	28 580	Baltic Sea, Kattegat, Skagerrak	Update	2024-07-08
SHARK - National environmental monitoring of Harbour seal in Sweden since 1988	21 710	Baltic Sea, Kattegat, Skagerrak	Update	2025-04-07
SHARK - National marine environmental monitoring of Bacterioplankton in Sweden since 1989	19 780	Baltic Sea	Update	2023-06-21
SHARK - National marine environmental monitoring of Phytoplankton in Sweden since 1983	13 818	Baltic Sea, Kattegat, Skagerrak	Update	2024-07-10
SHARK - National marine environmental monitoring of Ringed seal in Sweden since 1995	17 708	Baltic Sea	Update	2025-04-07
SHARK - National marine environmental monitoring of Zoobenthos in Sweden since 1971	3 706	Baltic Sea, Kattegat, Skagerrak	Update	2025-04-10
SHARK - National marine environmental monitoring of zooplankton in Sweden since 1979	7 667	Baltic Sea, Kattegat, Skagerrak	Update	2024-06-17
SHARK - Regional marine environmental monitoring, recipient control and monitoring projects of Phytoplankton in Sweden since 1985	23 656	Baltic Sea, Kattegat, Skagerrak	Update	2024-07-10
SHARK - Regional marine environmental monitoring, recipient control and monitoring projects of Zoobenthos in Sweden since 1972	501	Baltic Sea, Kattegat, Skagerrak	Update	2025-04-10
SHARK - Regional marine environmental monitoring and monitoring projects of Epibenthos in Sweden since 1994	78 499	Baltic Sea, Kattegat, Skagerrak	Update	2024-06-25
SHARK - National marine environmental monitoring of Epibenthos in Sweden since 1992	56 174	Baltic Sea, Kattegat, Skagerrak	Update	2024-06-25
SHARK - National environmental monitoring of Harbour Porpoise in Sweden since 2015	40 900	Baltic Sea, Kattegat	New	2024-05-06
SHARK - National environmental monitoring of Jellyfish in Sweden since 2007	1 007	Skagerrak	New	2024-02-07
SHARK - National marine environmental monitoring of Seal pathology in Sweden	4 524	Baltic Sea, Kattegat, Skagerrak	Additional	2024-05-07
SHARK - Phyto- and Microzooplankton Data Collected by Imaging FlowCytobots (IFCB) in Swedish and Adjacent Waters	17 731	Baltic Sea, Kattegat, Skagerrak	Additional	2025-02-28

Metadata for all datasets have been updated during Phase V

Activities within WP2

Dissemination of Marine Data under Swedish Law (2016:319)

- The legal process for handling data dissemination permits under Swedish law (2016:319) regarding **geographic information** in the SHARK database remains unclear.
- While the investigation is ongoing, SMHI has **restricted access** to marine data in certain geographical areas:
 - **Data outside Swedish maritime territory** (beyond 12 nautical miles) has been **approved for distribution**.
 - **Data within Swedish maritime territory** is still **under review** to determine what can be released.
- **Impact on data submissions during Phase V:**
 - Two zoobenthos datasets submitted after December 2024 have been **significantly reduced**:
 - National monitoring: **8.9%** of event records retained
 - Regional monitoring: **0.8%** of event records retained
- Further information is expected during **Phase VI** of the investigation.



Activities within WP2

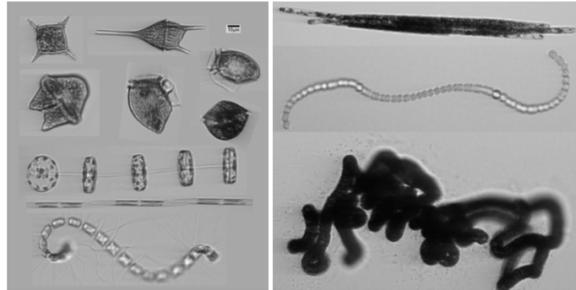
Integration of high-resolution plankton imaging data through the DTO-BioFlow project



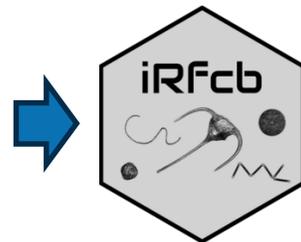
High frequency observations of plankton diversity and biomass including HAB
> 5 million images of plankton



Imaging FlowCytobot (IFCB) on R/V Svea, plankton samples every 25 minutes

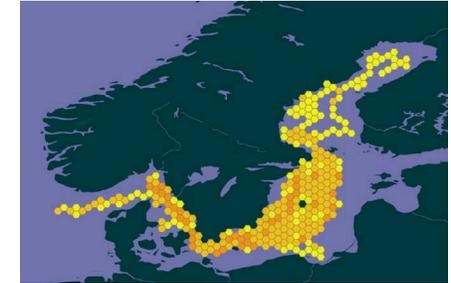


AI assisted identification of plankton



NODC Sweden
SHARK Data Pipeline

IFCB suggested data standard includes Darwin core



EMODnet
GBIF
EurOBIS/OBIS

Activities within WP3

Zooplankton alpha diversity in the greater Baltic Sea area

Datasets:

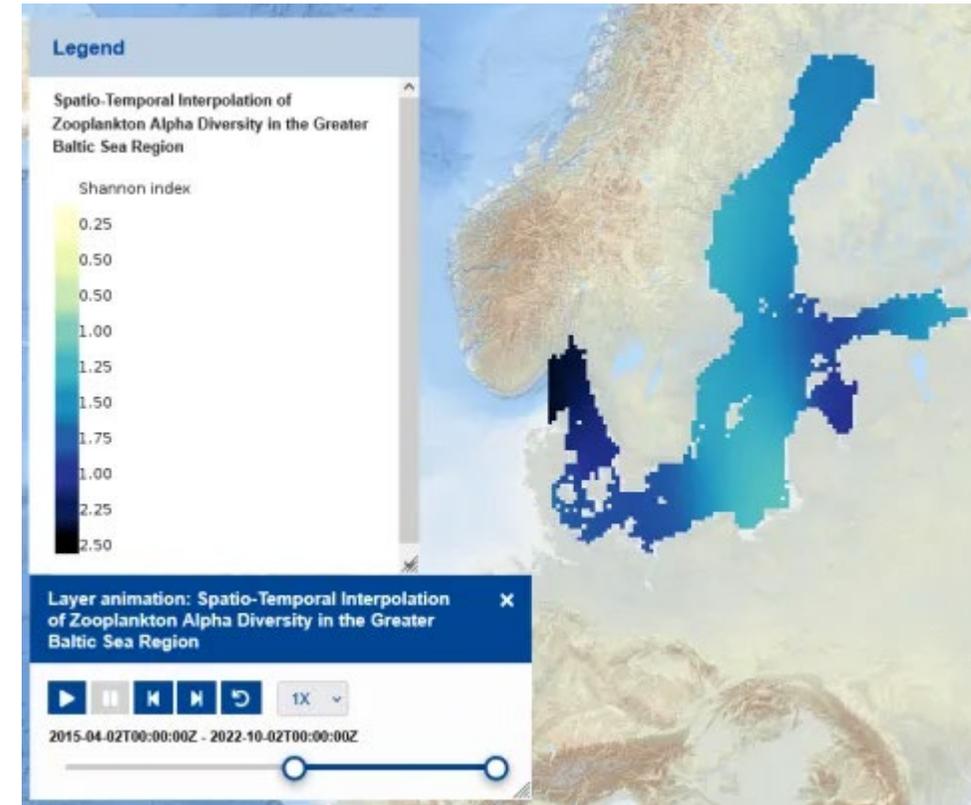
- SHARK - National marine environmental monitoring of zooplankton in Sweden since 1979
- Finnish Baltic Sea zooplankton monitoring

Data processing:

- 2006–2022
- Rarefy abundances of mesozooplankton
- DIVAnd Interpolation
- Land and error mask

Product:

- 3-dimensional (lat, lon, season) raster
- Zooplankton Shannon index





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EMODnet Biology annual meeting

Finnish Environment Institute (Syke) status update

Henrik Nygård & Sirpa Lehtinen, Syke



Suomen ympäristökeskus
Finlands miljöcentral
Finnish Environment Institute

12-13 May 2025 (Carthage, Tunisia)



The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) 2021/1139 of the European Parliament and of the Council of 7 July 2021 establishing the European Maritime, Fisheries and Aquaculture Fund.¹

Activities within WP2

Dataset updates in Phase V

- Zoobenthic data, dataset "Finnish Baltic Sea benthic monitoring, POHJE database"
 - Update submitted in January 2024
 - Temporal coverage: 1964-2023, Geographical coverage: Baltic Sea
 - Now including >124 000 occurrences, >386 000 eMoF records
- Zooplankton data, dataset "Finnish Baltic Sea zooplankton monitoring"
 - Update submitted in February 2024
 - Temporal coverage: 1964-2023, Geographical coverage: Baltic Sea
 - Now including >59 000 occurrences, >390 000 eMoF records
- Phytoplankton data, dataset "Finnish Baltic Sea phytoplankton monitoring, KPLANK database"
 - Update submitted in October 2024
 - Temporal coverage 1963-2023, Geographic coverage: Baltic Sea
 - Now including >322 000 occurrences, >999 000 eMoF records

Activities within WP2

Planned dataset submissions in Phase V extension

Dataset updates:

- Zoobenthic data, dataset "Finnish Baltic Sea benthic monitoring, POHJE database"
 - ~3 000 new occurrence records per year (+abundance, biomass etc.)
- Zooplankton data, dataset "Finnish Baltic Sea zooplankton monitoring"
 - ~600 new occurrence records per year (+abundance, biomass, developmental stages etc.)
- Phytoplankton data, dataset "Finnish Baltic Sea phytoplankton monitoring, KPLANK database"
 - ~10 000 new occurrence records per year (+biomass, carbon content, trophic type etc.)

New dataset:

- Algaline semiquantitative phytoplankton data
 - Samples collected with a ferry-box system 1993-2011 from the Baltic Sea
 - ~150 000 occurrence records

Activities within WP4

Uptake and outreach

- 4.3.1. Workshop with European research projects on data sharing
 - Preparation of questionnaire and analysis of the results
 - 2-day workshop + reporting

Phase V extension:

- Task 6: *Ensure the involvement of Regional Sea Conventions RSC*
- Task 7: *Contribute to the implementation of the EU legislation and broader initiatives for open data.*



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EMODnet Biology annual meeting

ULiège status update

Charles TROUPIN

12-13 May 2025 (Carthage, Tunisia)



The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) 2021/1139 of the European Parliament and of the Council of 7 July 2021 establishing the European Maritime, Fisheries and Aquaculture Fund.

1. New "sea bird" product for more than 200 species
2. Pluto notebook interface to prepare interactively gridded maps
3. Interface to call DIVAnd in R



1. Download and extraction of data locally
2. Setting of parameters (user)
3. DIVAnd interpolation (loop on the thesis)
4. Writing of final netCDF
5. Creation of plots

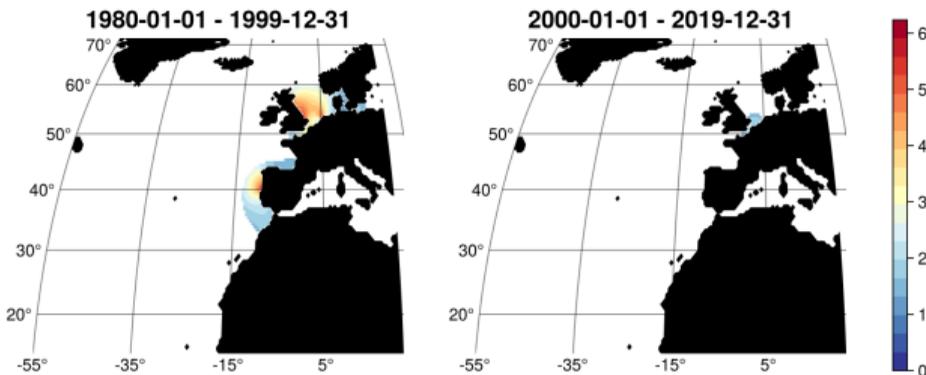
Available in <https://emodnet.ec.europa.eu/geoviewer/>

 <https://github.com/EMODnet/EMODnet-Biology-Interpolation-SeaBirds>
(file `create_bird_products.jl`)

Julia + Pluto.jl + 

Provide more interactivity to users:

-  Selection of species
-  Setting of time periods for comparison



 <https://github.com/EMODnet/EMODnet-Biology-Interpolation-SeaBirds>
(same repository, file `create_bird_products_pluto.jl`)



Users can now perform DIVAnd interpolation in R but it is not (yet) a R package!

 <https://github.com/EMODnet/EMODnet-Biology-DIVAnd-RR> Ian



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University of Sheffield status update

Tom Webb, University of Sheffield

12-13 May 2025 (Carthage, Tunisia)



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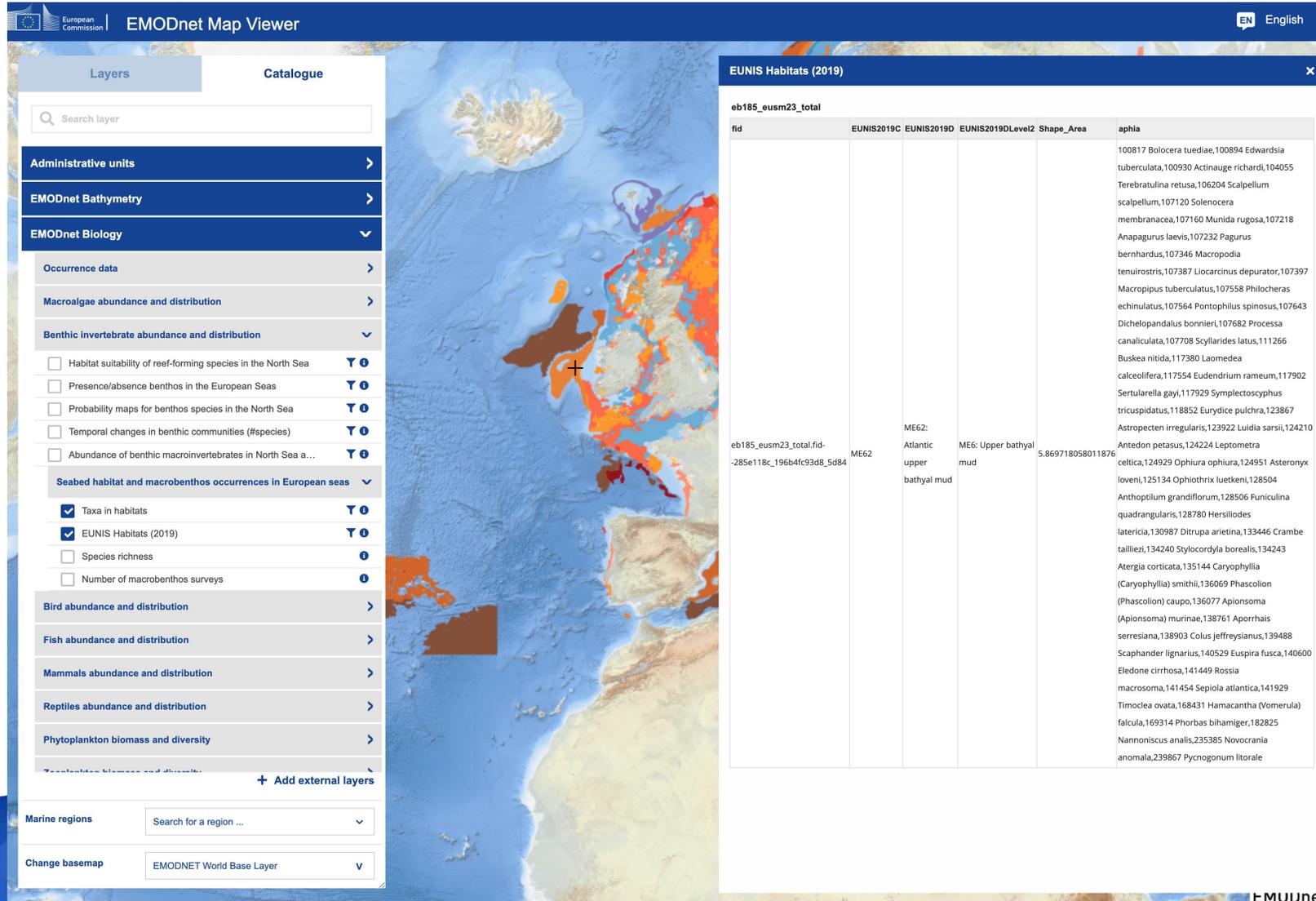
Activities within WP3

Macrobenthos occurrences by EUNIS habitat types

- A new data product was created which links macrobenthic species occurrences to seabed habitat
- This uses two existing EMODnet products:
 - Macrobenthos presence-absence in European seas (EMODnet Biology)
 - European Broad Scale Seabed Habitat Map (EUSeaMap) (EMODnet Seabed Habitats)
- The product enables users to obtain:
 - For each EUNIS habitat classification, or for each habitat patch (~0.5km grid cell), the number of benthic samples, and number and identity of benthic macroinvertebrates with recorded occurrences
 - For each benthic macroinvertebrate species, a list of EUNIS habitat types in which it has been recorded to occur, together with its relative prevalence within each type

Activities within WP3

Macrobenthos occurrences by EUNIS habitat types – via <https://emodnet.ec.europa.eu/geoviewer/>



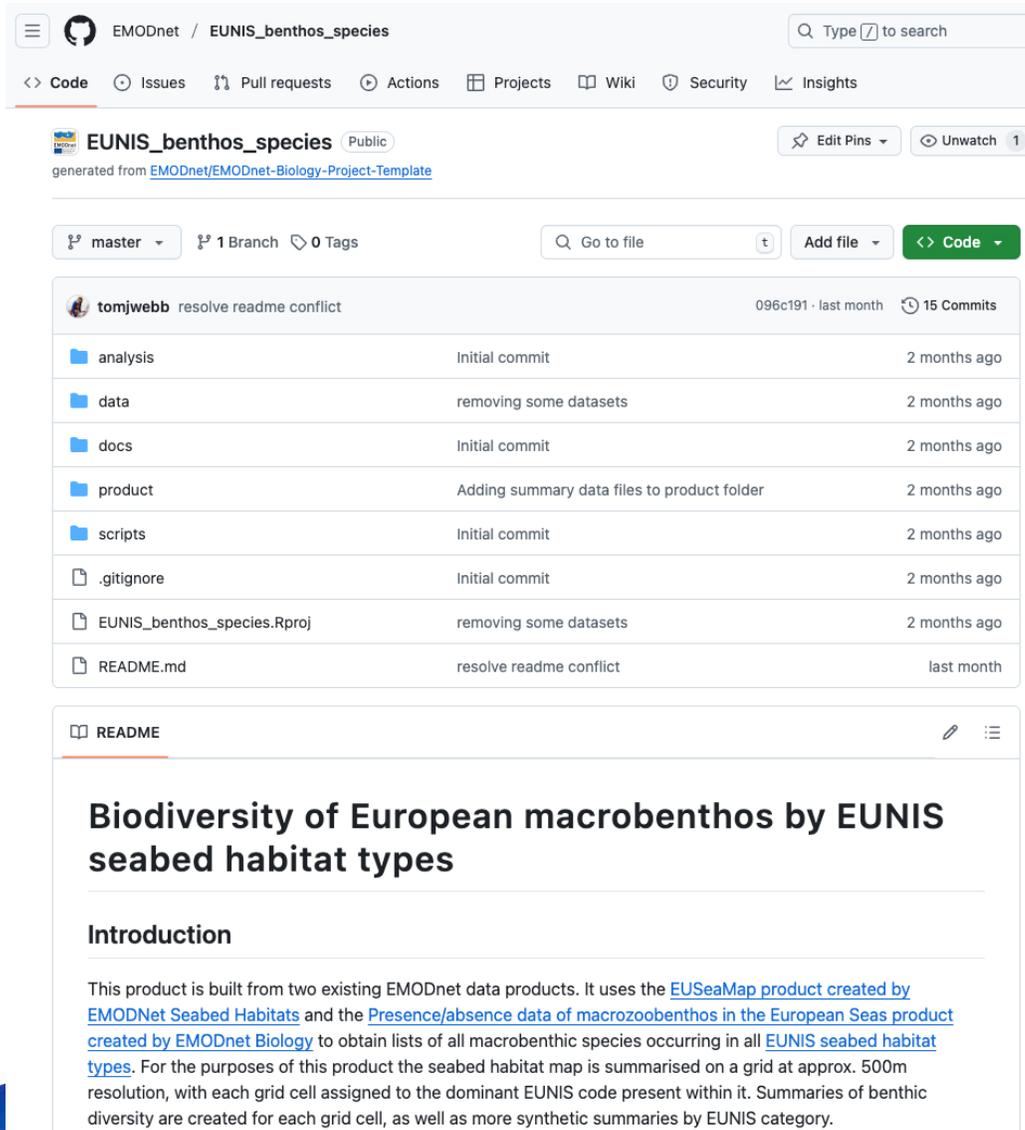
The screenshot displays the EMODnet Map Viewer interface. On the left, a 'Layers' panel is visible, showing various data layers categorized by 'Administrative units', 'EMODnet Bathymetry', 'EMODnet Biology', 'Occurrence data', 'Macroalgae abundance and distribution', 'Benthic invertebrate abundance and distribution', 'Seabed habitat and macrobenthos occurrences in European seas', 'Bird abundance and distribution', 'Fish abundance and distribution', 'Mammals abundance and distribution', 'Reptiles abundance and distribution', and 'Phytoplankton biomass and diversity'. The 'Seabed habitat and macrobenthos occurrences in European seas' category is expanded, showing 'Taxa in habitats' and 'EUNIS Habitats (2019)' as selected layers. The 'EUNIS Habitats (2019)' layer is highlighted in blue. Below the layers panel, there are search fields for 'Marine regions' and 'Change basemap'.

The main map area shows a satellite-style view of the North Sea region, with a red crosshair indicating a specific location. A data table titled 'EUNIS Habitats (2019)' is overlaid on the right side of the map, displaying the following data:

fid	EUNIS2019C	EUNIS2019D	EUNIS2019DLevel2	Shape_Area	aphia
eb185_eusm23_total					100817 Bolocera tuediae,100894 Edwardsia tuberculata,100930 Actinauge richardi,104055 Terebratulina retusa,106204 Scalpellum scalpellum,107120 Solenocera membranacea,107160 Munida rugosa,107218 Anapagurus laevis,107232 Pagurus bernhardus,107346 Macropodia tenuirostris,107387 Liocarcinus depurator,107397 Macropipus tuberculatus,107558 Philocheras echinulatus,107564 Pontophilus spinosus,107643 Dichelopandalus bonnierii,107682 Processa canaliculata,107708 Scyllarides latus,111266 Buskea nitida,117380 Laomedea calceolifera,117554 Eudendrium rameum,117902 Sertularella gayi,117929 Symplectoscyphus tricuspoidatus,118852 Eurydice pulchra,123867 Astropecten irregularis,123922 Luidia sarsii,124210 Antedon petasus,124224 Leptometra celtica,124929 Ophiura ophiura,124951 Asteronyx loveni,125134 Ophiothrix luetkeni,128504 Anthoptilum grandiflorum,128506 Funiculina quadrangularis,128780 Hersilliodes latericia,130987 Ditrupa arietina,133446 Crambe tailliezi,134240 Stylocordyla borealis,134243 Atergia corticata,135144 Caryophyllia (Caryophyllia) smithii,136069 Phascollion (Phascollion) caupo,136077 Apionsoma (Apionsoma) murinae,138761 Aporrhais serresiana,138903 Colus jeffreysianus,139488 Scaphander lignarius,140529 Euspira fusca,140600 Eledone cirrhosa,141449 Rossia macrosoma,141454 Sepiola atlantica,141929 Timoclea ovata,168431 Hamacantha (Yomerula) falcula,169314 Phorbas bihamiger,182825 Nannoniscus analis,235385 Novocrania anomala,239867 Pycnogonum litorale
eb185_eusm23_total.fid-285e118c_196b4fc93d8_5d84	ME62		ME6: Upper bathyal upper bathyal mud bathyal mud	5.869718058011876	

Activities within WP3

Macrobenthos occurrences by EUNIS habitat types – via GitHub

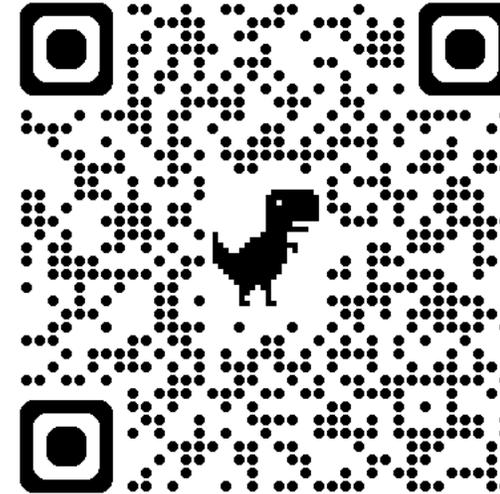


The screenshot shows the GitHub repository page for 'EUNIS_benthos_species'. The repository is public and was generated from the 'EMODnet/EMODnet-Biology-Project-Template'. It has 1 branch (master) and 0 tags. The commit history shows a series of updates by tomjwebb, including initial commits for folders like 'analysis', 'data', 'docs', 'product', and 'scripts', as well as updates to files like '.gitignore', 'EUNIS_benthos_species.Rproj', and 'README.md'. The README file is open, showing the title 'Biodiversity of European macrobenthos by EUNIS seabed habitat types' and an introduction section.

Biodiversity of European macrobenthos by EUNIS seabed habitat types

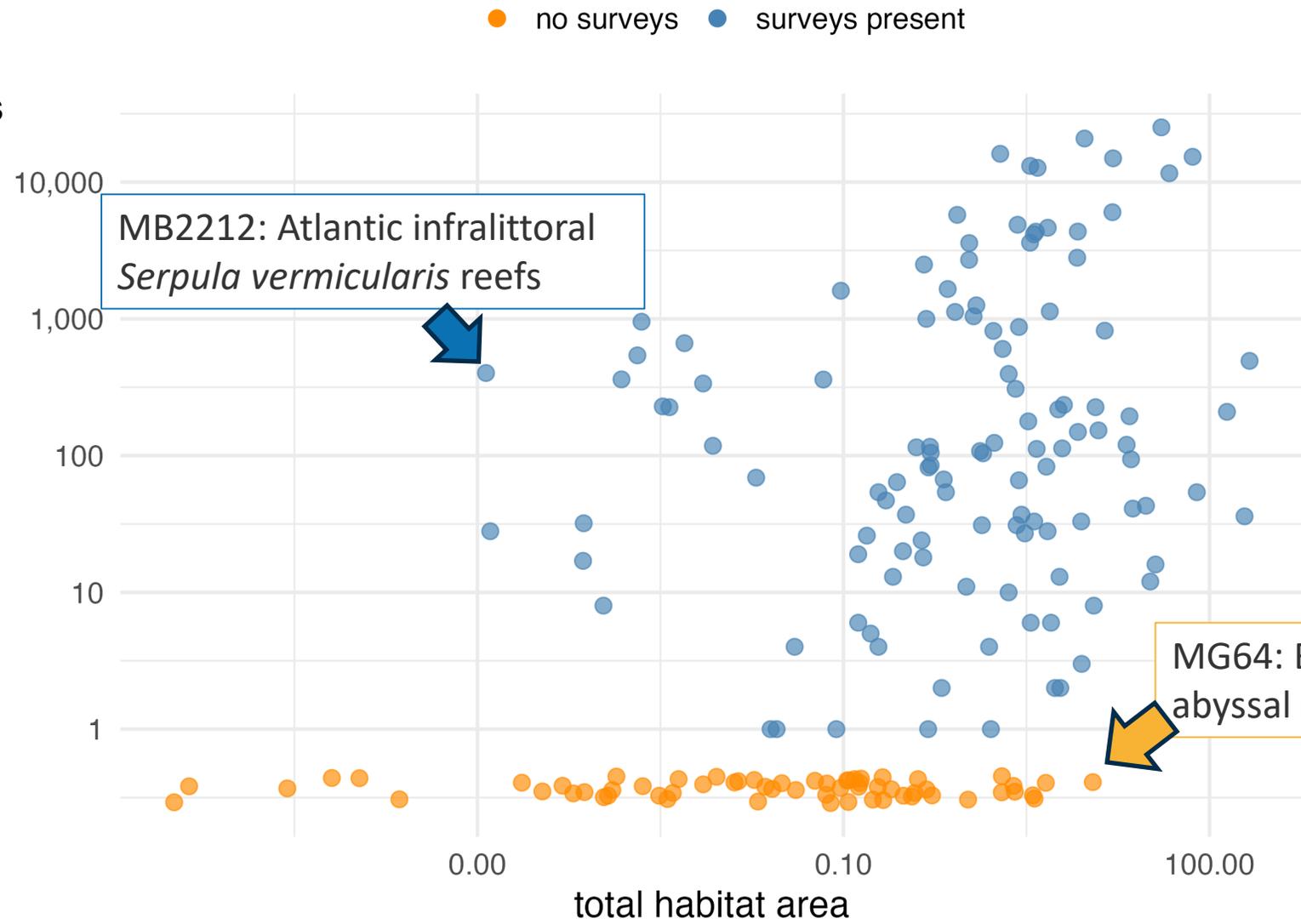
Introduction

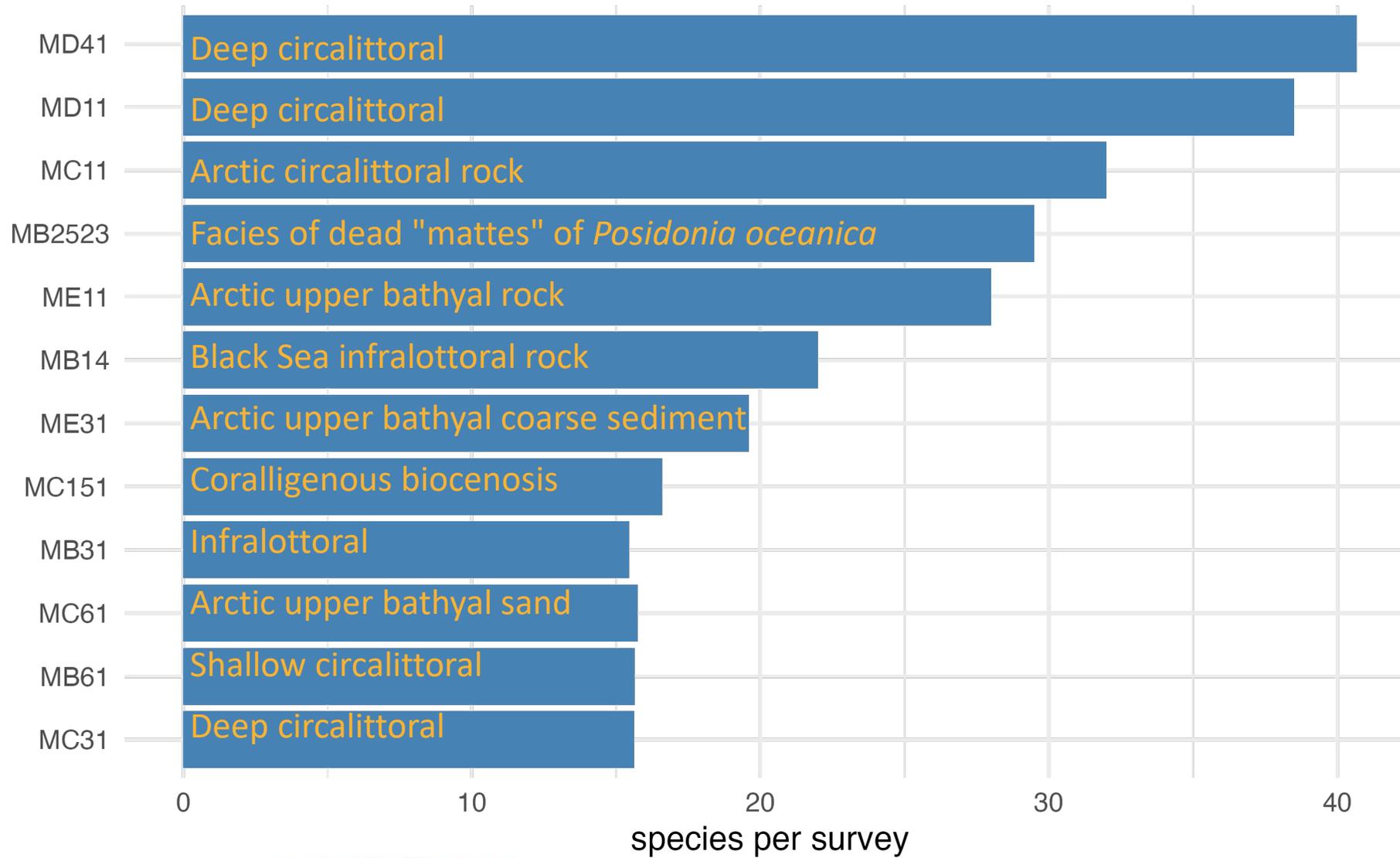
This product is built from two existing EMODnet data products. It uses the [EUSeaMap product created by EMODNet Seabed Habitats](#) and the [Presence/absence data of macrozoobenthos in the European Seas product created by EMODnet Biology](#) to obtain lists of all macrobenthic species occurring in all [EUNIS seabed habitat types](#). For the purposes of this product the seabed habitat map is summarised on a grid at approx. 500m resolution, with each grid cell assigned to the dominant EUNIS code present within it. Summaries of benthic diversity are created for each grid cell, as well as more synthetic summaries by EUNIS category.



https://github.com/EMODnet/EUNIS_benthos_species

number of surveys





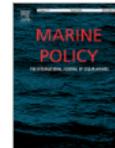
Activities within WP3

Realising the potential of Biology data products: Update on deliverable from Phase IV

- Our paper *Realising the potential of interoperable data products to improve the outlook for marine biodiversity: Lessons from the European marine observation and data network* was published Open Access in Marine Policy in March 2025
- This was a collaborative effort across WP3 members
- Please read, share, and cite! <https://doi.org/10.1016/j.marpol.2024.106578>

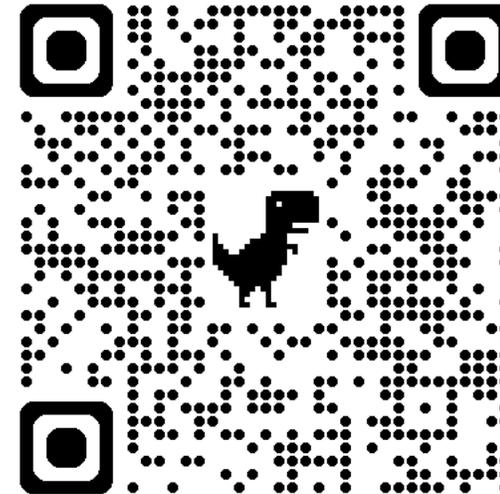


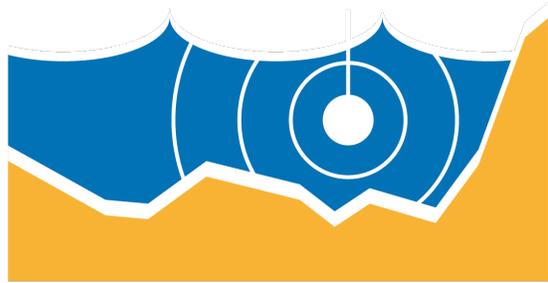
Marine Policy
Volume 173, March 2025, 106578



Realising the potential of interoperable data products to improve the outlook for marine biodiversity: Lessons from the European marine observation and data network

Thomas J. Webb ^a  , Joana Beja ^b, Salvador Jesús Fernández Bejarano ^b, Elvira Ramos ^c, Samuel Sainz-Villegas ^c, Karline Soetaert ^d, Willem Stolte ^e, Charles Troupin ^f, Benjamin Weigel ^g





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