



# STUDY FOR REPORTING OBLIGATIONS FOR OCEAN OBSERVATION



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**BELGIUM**

# **Study for reporting obligations for ocean observation**

## **Final Report**

CINEA/EMFAF/2021/3.4.9/SI2.876379

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## Summary

This report gives an overview of the work completed in the All Ocean Observations Study (CINEA/EMFAF/2021/3.4.9/SI2.876379). The work carried out in All Ocean Observations is closely related to the upcoming European Union's initiative : 'Ocean Observation - Sharing Responsibility'.

### Report details

<b>Date:</b>	08-12-2023
<b>Lead partner:</b>	EuroGOOS
<b>Contributors:</b>	SSBE; ICES; SHOM; SMHI; ETT; GEOMAR
<b>Coordinating author:</b>	Joseph Nolan (EuroGOOS)
<b>Contributing authors:</b>	Inga Lips (EuroGOOS), Alicia Blanco (EuroGOOS), Emilie Breviere (SMHI), Lise Cronne (ICES), Abed El Rahman Hassoun (GEOMAR), Dina Eparkhina (EuroGOOS), Neil Holdsworth (ICES), Kate Larkin (SSBE), Francesco Misurale (ETT), Antonio Novellino (ETT), Toste Tanhua (GEOMAR), Megan Tijssens (SSBE)

### Contract details

**Title:** Study for reporting obligations for ocean observation

**Short-form title:** All Ocean Obs

**Contract number:** CINEA/EMFAF/2021/3.4.9/SI2.876379

**Dates:** August 2022 to November 2023

**Contracting authority:** European Climate, Infrastructure and Environment Executive Agency (CINEA)

**Coordinator:** European Global Ocean Observing System, AISBL (EuroGOOS)

### Consortium

The tender is being completed by a consortium led by EuroGOOS AISBL. This consortium actively participates and contributes to the activities of the community, engaged in ocean observing, data collecting and distributing, and developing new applications to facilitate knowledge and information sharing. The consortium members combine long-standing expertise and experiences in collecting and managing marine data and data products together with expertise in the provision of discovery, access and viewing services following INSPIRE implementation rules, international standards (ISO, OGC) and stakeholder engagement. The consortium includes international organisations and national ocean observing implementers.

Partner	Short name	Country
European Global Ocean Observing System, AISBL	EuroGOOS	Belgium
Seascope Belgium	SSBE	Belgium
International Council for the Exploration of the Sea	ICES	International
French hydrographic and oceanographic office	SHOM	France
Swedish Meteorological and Hydrological Institute	SMHI	Sweden

ETT S.p.A.	ETT	Italy
GEOMAR Helmholtz Centre for Ocean Research Kiel	GEOMAR	Germany

## 1. SUMMARY OF WORK COMPLETED AND DELIVERABLES

### WP1 Current Practice in Observation Reporting

**Lead partner:** SMHI

**Contributing partners:** GEOMAR, ICES, SHOM

WP1 provided an overview of the current reporting procedures and identified the similarities and differences between the practices. Activities encompassed an extensive methodic literature review carried out to collect information on how EU Member States and other bodies are reporting their marine observations to regional, European and international bodies. The websites of the considered reportings were finely examined and official documents from the bodies/instruments were inspected. Interactions with key individuals also took place to understand the general process. In order to extract adequate information from all that documentation, a table was drafted containing the points of interest to hold while screening the literature found. The points of interest fell under 9 categories: to who, duty, by who, where, why, how, what, when and other.

13 regional, European and international reporting procedures to which Member States and other bodies are reporting marine observations, were considered:

- [Data Collection Framework for Fisheries](#) (DCF)
- [European Fisheries Control Regulation](#) (EFCR)
- [Marine Strategy Framework Directive](#) (MSFD)
- [Water Framework Directive](#) (WFD)
- [Regional Hydrographic Commissions](#) (RHCs)
- [OSPAR Convention for the Protection of the Marine Environment of the North-east Atlantic](#) (OSPAR)
- [Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area](#) (HELCOM)
- [Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean](#) (UNEP-MAP)
- [Ocean Acidification International Coordination Centre](#) (OA-ICC)
- [Intergovernmental Oceanographic Commission](#) (IOC-UNESCO)
- [Global Ocean Observing System](#) (GOOS)
- [World Meteorological Organisation](#) (WMO)
- [OceanOPS](#)

Tables containing detailed information specific to each of the 13 reporting procedures considered were produced. That information was organised and distilled considering only pertinent categories to produce the summary searchable table. That key result from WP1 was further analysed to isolate common and different features.

A conclusion of WP1 is that the landscape of marine observations' reporting procedure is complex and dense, with this understanding in mind, it paved the way for the project. In order to deepen the understanding of the marine observations reporting landscape, WP1 put forward some suggestions that may be considered, such as fixing one criterion before investigating similarities and differences, for example, comparing reporting procedures within

one component in particular (e.g. ocean acidification), or one area (e.g. Baltic Sea) or the reporting performed to all bodies/instruments by one country. With one criterion predetermined, a more in-depth analysis could be performed and similarities and differences could be better identified.

It was also noted that some reporting procedures have not been investigated, but could be key depending on what is assessed, for example, reporting to the European Commission under the Habitats and Birds Directives, the Nitrates Directive, the Bathing Water Directive and the North East Atlantic Fisheries Commission (NEAFC), reporting to networks such as European Marine Observation and Data Network (EMODnet) and EU programmes such as Copernicus Marine Environment Monitoring Service, and reporting under articles 245 and 246 of UNCLOS.

#### **Deliverables:**

#	WP	Deliverable title	Responsible partner
D3	WP1	Report on similarities, differences and the degree of detail between reports from different bodies or EU Member States	SMHI

### **WP2 Standards for Observation**

**Lead partner:** GEOMAR and SHOM

**Contributing partners:** SSBE, ICES, SMHI

Standards, best practices and guidelines followed to sample and measure/analyse physical, biogeochemical, biological, cross-disciplinary and bathymetric/geological parameters by the EU ocean observing community and internationally were identified. All GOOS Essential Ocean Variables (EOVs) and their sub-variables were taken into consideration in the assessment.

To cover all available standards, the search engines of the International Organisation for Standardisation (ISO; [iso.org](http://iso.org)), the European Committee for Standardisation (CEN; [cencenelec.eu](http://cencenelec.eu)) and the European and International Standards Online Store ([en-standard.eu](http://en-standard.eu)) were used. For best practices, guidelines and manuals, the Ocean Best Practices System repository was used to identify widely accepted and used documents within the EU ocean observation community ([Ocean Best Practices](http://Ocean Best Practices)). As the consortium is composed of experts who are already part of the EU ocean observing community, it was possible to investigate all types of ocean observations thanks to the available expertise.

The analysis investigated the scope of application of the identified documents and their specific usefulness related to societal needs in order to highlight the importance of adopting ocean observation standards/best practices, locally, regionally and globally.

#### **Deliverables:**

#	WP	Deliverable title	Responsible partner
D4	WP2	Summary report on the use of global, European or sea-basin standards in observation of physical, chemical, biological, geological or bathymetrical parameters	SHOM/ GEOMAR

### **WP3 Reporting Template for Observation Campaigns**

**Lead partner:** EuroGOOS

**Contributing partners:** SHOM, SMHI, ETT



A prototype template for reporting national observation campaign plans has been developed, considering also the information obtained in WP1 and WP2. The information needs from different bodies (e.g., maritime and environmental agencies, meteorological, hydrological or oceanographic institutes) were analysed (with the work in WP1) and assessed to ensure the broad relevance of planned reporting template in improving planning of ocean observations and coordination/collaboration at national, regional and EU level. Existing observation reporting initiatives were also explored and taken into consideration.

The reporting template was co-developed and tested with the representatives of two countries (Sweden and France) to ensure the inclusion of relevant information and user-friendliness in reporting the activities. The validation of the reporting template was further conducted through a stakeholder consultation workshop (WP6) and through a series of detailed consultations with the Contracting Authority. The acceptance of the template by the stakeholders was assessed at the workshop in June 2023 (WP6) based on their feedback and recommendations for improvements. The collected feedback and obtained recommendations were carefully analysed and used to further develop the template before its finalisation and acceptance by the Contracting Authority.

The template has been developed with interoperability and existing standards in mind. As part of the handover of products at the project's conclusion, the template will be delivered in Inspire XML (ISO19115/ISO19139) compatible SeaDataNet Common Data Index (CDI) XML format, for visualisation of reported data on a digital map (WP5).

The template gathers information relating to ocean observing campaigns, including basic information (organisational, campaign), deployments, maintenance and retrieval of fixed or autonomous platforms during campaigns, the types observations to be made/the main purpose of the campaign, variables (including EOVs) to be measured during the campaign, and MSFD descriptors, and associated information on data availability, information on available opportunities for additional measurements or deployments, regulatory/policy context or purpose of the campaign, and other information, e.g. relating to fossil fuel use and funding/costs.

#### **Deliverables:**

#	WP	Deliverable title	Responsible partner
D5	WP3	A draft design of the reporting template in XML schema format	EuroGOOS
D6	WP3	An instruction manual in HTML format	EuroGOOS

#### **WP4 Data collection**

**Lead partner:** ICES

**Contributing partners:** SHOM, SMHI, ETT

The work started in October 2022 and concluded in March 2023. It involved two EU Member States (France and Sweden) and catalogued their planned marine observations from relevant French and Swedish Competent Authorities using 2022 as the reference year. This included National implementation plans for the Data Collection Framework (DCF), the Marine Strategy Framework Directive (MSFD), the Water Framework Directive (WFD), etc.

A searchable and structured table, with a presentation summary and narrative, was compiled (Deliverable D7). The main findings include that the approach varies between Member States in the implementation of monitoring programmes (highly devolved in France, mainly centralised in Sweden). In both countries, the obligations to EU Directives and Regional Sea Conventions are fully or mainly fulfilled through these monitoring plans. Even for national experts working within their own structures, it is not an easy task to identify and collate information on monitoring programmes (it is siloed).

**Deliverables:**

#	WP	Deliverable title	Responsible partner
D7	WP4	Comprehensive set of observation plans from each of the two non-landlocked selected EU Member states, including at least one plan from each type of national body	ICES

**WP5 Prototype online map-viewer and design of a web page**

**Lead partner:** ETT

**Contributing partners:** EuroGOOS, SSBE, SHOM, SMHI

The main goal of WP5 was to establish a web portal hosting a prototype online map viewer (digital map) for displaying ocean observation plans. The map viewer was developed to provide users with a tool for improved planning and implementation of observation and monitoring programmes, as well as for understanding the timing and location of proposed observations by others.

During the project, WP5 focused on the development of the online web portal. The following activities were carried out:

- Design and implementation of the general software architecture;
- Development of the deployed database based on the specifications provided by WP3;
- Collaboration with the contracting authority to test and fine-tune the web interface and database; Implementation of APIs to gather external information, enhance the user experience, and facilitate online form submissions;
- Development of APIs to extract data from XLSX files submitted by users through a dedicated access point on the portal;
- Implementation of the final visual design to ensure compliance with EU guidelines for website accessibility;
- During the stakeholder meeting, personal credentials were provided to all invited stakeholders to test the infrastructure and provide feedback on usability and integrations;
- The portal was adjusted based on the significant feedback received from stakeholders during the meeting;
- Following feedback from the Contracting Authority, the database was reorganised into a fully relational database that also hosts external directories and vocabularies;

MISSIONS
PLANNER

**EL54FR073N**  
Jul 5, 2023 - Jul 15, 2023

**Campaign name** min lat/ing  
Demo Centre for Marine Research - 3051 20  
24.070071

**Vessel name** max lat/ing  
Aegeo 25  
39.437141  
30.010407

[View Mission](#)

**qqww11**  
Jul 21, 2023 - Jul 29, 2023

**Campaign name** min lat/ing  
Université de Paris-Sud 20  
11, Lab. de Sedimentologie et de Geochemie 40

**Vessel name** max lat/ing  
Grot 25  
45

[View Mission](#)

**BITS**  
Feb 21, 2023 - Jul 2, 2023

**Campaign name** min lat/ing  
The Swedish Agency for 53.2043

As planned, the portal presents a dynamic map with active areas to show the planning of future observations. On the left side of the page, the planned observations are listed. On the top of the page, the user can find features to download the selected data, filter/search the available planning per programme, timing, area, etc., and, if enabled, upload new plans. To explore planning details, the user can select the active area and open the planning page.

ALL OCEANS OBS

100% + - [Reprojecta](#)

Login

[← BACK](#)

Public

**EL54FR073N**

**Vessel Name**  
Aegeo

**Body Responsible Organization**  
Demo Centre for Marine Research - 3051

**Start Date**  
Jul 5, 2023

**End Date**  
Jul 15, 2023

**Min longitude** 24.070071      **Min latitude** 33.845518

**Max longitude** 30.010407      **Max latitude** 39.437141

**CAMPAIGN DESCRIPTION**  
Marine mammals monitoring, underwater noise

Team	Arrival/Departure	Platform Deployed	Platform Maintenance	Platform Retrieval
<b>Campaign leader name</b> Name2 Familyname2	<b>Port of departure</b> Pireus	<b>ID</b> n/a	<b>maintenance id</b> n/a	<b>retrieval id</b> n/a
<b>Organization</b> Demo Centre for Marine Research - 3051	<b>Date of port departure</b> 2023-07-05T00:00:00	<b>Location</b> n/a	<b>location</b> n/a	<b>location</b> n/a
<b>Email</b> name2.familyname2@dcmr.eu	<b>Port of arrival</b> Pireus	<b>Date</b> 2023-07-06T00:00:00	<b>date</b> n/a	<b>date</b> n/a
<b>Phone</b> +30 123456789 - +30 123456790	<b>Date of port arrival</b> 2023-07-15T00:00:00			

**Physical Parameters**

- Temperature of the water column - TEMP For more information on best practices [🔗](#)
- Salinity of the water column - PSAL For more information on best practices [🔗](#)
- Acoustic noise in the water column - NOYS For more information on best practices [🔗](#)

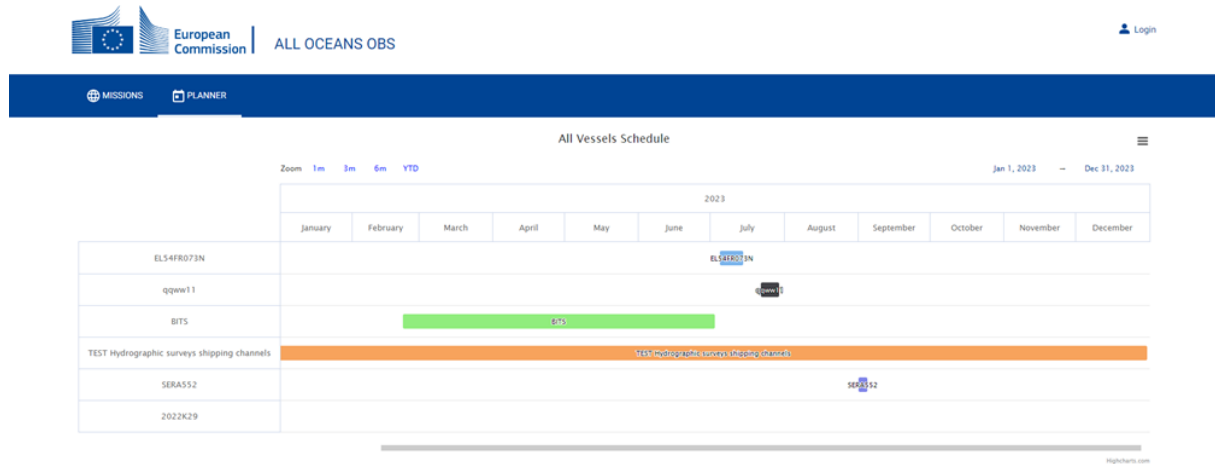
**Cross-disciplinary Parameters**  
n/a

**Biogeochemical Parameters**

- Dissolved oxygen parameters in the water column - DOXY For more information on best practices [🔗](#)
- Total dissolved inorganic carbon (TCO2) concentration in the water column - TCO2 For more information on best practices [🔗](#)

**Other Parameters**  
n/a

Details of the campaign schedule are available when the user selects the calendar icon (top right).



The dynamic map-viewer will show information about locations, timing, parameters, etc. of running and planned observational campaigns.

To upload new plans, once logged in, the users can choose between two ocean observation metadata update tools: a web form (HTML) and a XML upload feature. The web form guides the user to input metadata according to the defined template, while dictionaries and standard vocabularies are linkable and discoverable. To update the plans, the system can manage files as defined in WP3, or guide the user towards the needed information collection:

The screenshot shows the 'Online Form' for campaign submission. The form is divided into two main sections: 'Upload Submission' and 'Online Form'.

**Upload Submission:** Includes a file upload area with instructions: 'Drag and drop a compatible file' and 'Or choose the file from file manager'. A 'Download Form File' button is also present.

**Online Form:** Features a progress bar with three steps: 1. Organization, 2. Simplified Areas, and 3. save. The form includes the following fields:

- BASIC INFORMATION (ORGANISATIONAL):**
  - GENERAL CAMPAIGN INFO:** 'Insert Campaign Name \*' (text input).
  - 'Active the publication on the map? \*' (radio buttons: Yes, No).
  - 'What is the campaign status? \*' (radio buttons: Draft, Final).
- BODY RESPONSIBLE FOR CAMPAIGN:**
  - 'Select A Country \*' (dropdown menu).
  - 'Insert Organisation Name \*' (text input).
  - 'Insert Organisation EdmoCode' (text input).
  - 'Is the responsible body a national competent authority? \*' (radio buttons: Yes, No).

A note at the bottom right states: 'Please use edmo code. For all edmo code click here'.

Upload Submission

Drag and drop a compatible file  
 Or choose the file from file manager

Download Form File

Online Form

Organization 2 3 save

**BASIC INFORMATION (CAMPAIGN)**

**GENERAL INFO CAMPAIGN**  
 Insert campaign time period  
 Enter A Date Range

Description Of The Campaign

Add New Area

1\* area of the campaign

Back Next

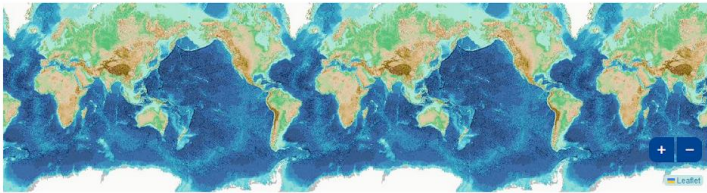
Please use coordinates in decimal degrees format

Min Longitude  
0

Min Latitude  
0

Max Longitude  
0

Max Latitude  
0



Fixed sampling stations/locations and transects

Regulatory or other context

Specific parameters planned to be measured

platforms

Back Next

The user can manage and update campaigns by accessing the personal 'My submission' page:

Draft Missions

qqww11  
 Jul 21, 2023 - Jul 29, 2023


**Campaign name**  
 Université de Paris-Sud 11, Lab. de Sedimentologie et de Geochimie

	min lat/long	max lat/long
	20 40	25 45

**Vessel name**  
 Grot

View Mission

Already Submitted Missions




EL54FR073N  
 Jul 5, 2023 - Jul 15, 2023

**Campaign name**  
 Demo Centre for Marine Research - 3051

	min lat/long	max lat/long
	33.840518 24.070071	39.427141 30.016407

**Vessel name**  
 Aegeo

View Mission



SERA552  
 Sep 1, 2023 - Sep 5, 2023

**Campaign name**  
 Demo Liguria - 5046

	min lat/long	max lat/long
	30.775441 145.518997	33.391227 147.795556

**Vessel name**  
 Planula IV

View Mission

For the time being, the portal is hosted on a staging system to facilitate new developments and tests until the final release.

**Deliverables:**

#	WP	Deliverable title	Responsible partner
D8	WP5	Prototype online map-viewer (digital map)	ETT

**WP6 Workshop and validation of reporting template and online map-viewer by stakeholders****Lead partner:** SSBE**Contributing partners:** EuroGOOS

WP6 delivered a stakeholder consultation, including a workshop and a survey. Mapping of key stakeholders was completed in Spring 2023. Several WP6 meetings were held, as well as meetings with CINEA and DG MARE to finetune the stakeholder workshop objectives and finalise the list of stakeholders to be invited to attend. It was agreed that invitations for the workshop include stakeholders from key expert groups with a focus on representatives from EU Member States, as well as Iceland and Norway:

- European GOOS National Focal Points;
- Hydrographic offices (e.g. SHOM)
- MSFD WG DIKE
- National correspondents for data collection (DCF)
- National representatives in ocean observing coordination activities; e.g. EOOS Operations Committee, marine Research Infrastructures
- Consortium partners

Additional relevant experts (RSCs, EC, CINEA, JRC, other EU institutions (e.g. EEA), International (e.g. GOOS, OceanOPS).

Stakeholder engagement activities were focused primarily on ocean observation and marine monitoring implementers who would be undertaking the data collection and/or ocean observing infrastructure deployment and maintenance, the contracting authorities and focal points for ocean observation reporting at national, regional and European levels, including national ocean observation committees that are currently under development in many EU states, in the context of the EC Ocean Observation initiative, as well as relevant pan-European and global initiatives.

In May 2023, the SSBE and EuroGOOS co-organised a stakeholder workshop at the European Maritime Day to highlight the broad requirements for the coordination of ocean observing activities in Europe. The draft report on the scope of the reporting template for observation campaigns was also produced by EuroGOOS.

The stakeholder online workshop took place on 20 June 2023 to inform, exchange and collect stakeholder feedback on a prototype ocean observation plans template and map viewer, designed to optimise the sharing of national ocean observation/monitoring plans.

Over 125 key stakeholders were invited (111 registered, 20 out of 22 EU coastal Member States), with key stakeholder groups outlined above. The workshop had a plenary dialogue, break-out discussions, online whiteboard (Mural) and a post-workshop survey for collecting the feedback.

A stakeholder feedback survey was also produced, co-designed by SSBE, EuroGOOS and EC DG MARE, and sent to all registered participants together with test links for the prototype template and map viewer straight after the workshop, for a response within 2 weeks. There was a low response (8) on the survey. In agreement with EC, the stakeholder survey was kept open during the summer 2023, with additional responses provided to EC DG MARE before the survey was closed on 6 September 2023.

D12 provides feedback from workshop participants that was produced straight after the workshop, taken from the online Mural whiteboard that was launched during the workshop. D13 produced a summary of the stakeholder feedback and recommendations on the prototype template and map viewer, collected at the stakeholder workshop (including the Mural whiteboard) and the survey. D13 was published as an article on the EC Maritime Forum, to disseminate the key consultation outputs to the wider community.

#### **Deliverables:**

#	WP	Deliverable title	Responsible partner
D9	WP6	Draft report on the scope of the reporting template	EuroGOOS
D10	WP6	List of selected involved representatives from organisations responsible for ocean observation reporting	SSBE
D11	WP6	One-day workshop in-person virtual/ hybrid workshop	SSBE
D12	WP6	Collection of feedback from workshop participants	SSBE
D13	WP6	Summary of the workshop proceedings	SSBE

#### **WP7 Scale-up of the adoption of the reporting template**

**Lead partner:** EuroGOOS

**Contributing partners:** SSBE, ICES, SHOM, SMHI, ETT, GEOMAR

WP7 provided a set of key recommendations in the hypothesis that a reporting template would be adopted and there is a willingness to move forward with its use. In this case, a scaling up of the template would of course be desirable, including means to engage the EU Member States in using it and ensure access to the data and information needed to report. Scaling up would be required to achieve a long-term vision of coordinated and fit-for-purpose ocean observations conducted in the EU Member States, while also having an impact on the activities of the Associated States and beyond. The success of the template and viewer would be seen in the communities who use them.

D14 presents recommendations on the scaling up of the reporting template for all EU Member States across three main aspects:

- Implementers and users of the template;
- Technical improvements and user-friendliness;
- Stakeholder engagement and communication.

The ultimate goal would be to deploy a template used by all EU Member States conducting data collection activities in the marine environment, and for the use of this tool to exceed those who have an obligation to deliver observing reports. The aspiration is to have a template which is easy to use and useful for the Member States who submit data, third countries and other states who can see each other's reports, the European institutions, and any other

relevant stakeholders. User-friendly design, opportunity to update and retrieve information, and data and metadata standards should be regularly reviewed and updated, as well as the user tutorials (documentation, videos, webinars).

D14 points out that the purpose and usability of the reporting template need to be clearly communicated in the rolling out and scaling up the use of the template. A potential obligation to report will not be enough for a successful uptake. Community engagement will be required to ensure the template is completed with the most comprehensive information, while the Member States understand and exploit the benefits. The scaling up should be cognisant of both implementers and users of the template, who encompass big stakeholder groups. Engagement and outreach should be targeted accordingly.

Furthermore, interagency communication between EU institutions will allow enlarging the user base, exploiting the results for policy making, and raising awareness of the breadth and importance of ocean observing activities.

In the rolling out and scaling up of the template, key success indicators should point at the ease of use and usefulness for both the Member States who submit data, as well as the third countries and other states who can see each other's reports, the European institutions, and other relevant stakeholders.

#### **Deliverables:**

#	WP	Deliverable title	Responsible partner
D14	WP7	List of recommendations for scaling up the adoption of the reporting template for all EU Member States, and the way how the reports can be assessed	EuroGOOS

### **WP8 Dissemination**

**Lead partner:** EuroGOOS

Following the Contracting Authority's instruction, external communication on the consortium's activities has been limited, with planned activities detailed in the inception report significantly curtailed. WP8 activities therefore mainly consisted of coordination and collaboration with WP6 for the identification of stakeholders and preparations for the planned stakeholder consultation workshop. To inform relevant audiences on the results of All Ocean Obs in future, it is recommended to follow the initially planned dissemination and communication activities. It is further recommended in future to organise training activities or tutorials to support users of the prototype template and online map viewer.

#### **Deliverables:**

#	WP	Deliverable title	Responsible partner
D15	WP8	Report on dissemination activities	EuroGOOS

### **WP9 Project Management**

**Lead partner:** EuroGOOS

**Contributing partners:** SSBE, ICES, SHOM, SMHI, ETT, GEOMAR

WP9 provided project management to ensure the smooth running of the project and timely delivery of all outputs.



**Deliverables:**

#	WP	Deliverable title	Responsible partner
D1	WP9	Inception report	EuroGOOS
D2	WP9	Interim report	EuroGOOS
D16	WP9	Final report	EuroGOOS

**WP10 Transition and Handover details at the end of the contract****Lead partner:** EuroGOOS**Contributing partners:** ETT

WP10 aims to provide an adequate overview of the state of play at the end of the contract to hand over the products and services developed under the contract in a progressive, secured and orderly manner to the Contracting Authority or any party designated by the Contracting Authority.

**2. RECOMMENDATIONS FOR FUTURE DEVELOPMENT**

The following are recommended as future developments of the prototype online tool and template:

- Improved interoperability with other systems;
- Improved automation of data input from other platforms;
- Automation of data input to other platforms from the online tool.
- New functionalities and features:
  - Additional map layers/information visualisations;
  - Links and integrations with other tools.
- New template sections/new information to be included in the tool:
  - Permitting information;
  - Environmental impact assessment information;
  - Human activities.

The following aspects were not within the scope of this study, but would be necessary before the prototype tool could be launched:

- A GDPR-compliant privacy policy;
- A policy for user management and moderation of entries in the tool;
- A long-term, funded host for the online tool and its associated database;
- A communications strategy for the launch of the tool;
- Training/tutorial materials for users of the tool.

### 3. FULL DELIVERABLES LIST

#	WP	Deliverable title	Responsible partner
D1	WP9	Inception report	EuroGOOS
D2	WP9	Interim report	EuroGOOS
D3	WP1	Report on similarities, differences and the degree of detail between reports from different bodies or EU Member States	SMHI
D4	WP2	Summary report on the use of global, European or sea-basin standards in observation of physical, chemical, biological, geological or bathymetrical parameters	SHOM/ GEOMAR
D5	WP3	A draft design of the reporting template in XML schema format	EuroGOOS
D6	WP3	An instruction manual in HTML format	EuroGOOS
D7	WP4	Comprehensive set of observation plans from each of the two non-landlocked selected EU Member states, including at least one plan from each type of national body	ICES
D8	WP5	Prototype online map-viewer (digital map)	ETT
D9	WP6	Draft report on the scope of the reporting template	EuroGOOS
D10	WP6	List of selected involved representatives from organisations responsible for ocean observation reporting	SSBE
D11	WP6	One-day workshop in-person virtual/ hybrid workshop	SSBE
D12	WP6	Collection of feedback from workshop participants	SSBE
D13	WP6	Summary of the workshop proceedings	SSBE
D14	WP7	List of recommendations for scaling up the adoption of the reporting template for all EU Member States, and the way how the reports can be assessed	EuroGOOS
D15	WP8	Report on dissemination activities	EuroGOOS
D16	WP9	Final report	EuroGOOS

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