

CINEA/EMFAF/2021/3.4.9

Stakeholder feedback on a prototype Ocean Observation campaign reporting template and map viewer



This tender is funded through the call launched by the European Climate, Infrastructure and Environment Executive Agency (CINEA) with the reference number CINEA/2021/OP/0009.



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 - Added value/benefits of the ocean observing tool
 - Recommendations for scaling up of the ocean observing tool
 - Challenges, opportunities, costs and benefits of the EU level ocean observing initiative



Stakeholder Consultation Workshop

20 June 2023, 10:00-13:00 CEST (online)

The study “Ocean Observation Reporting Obligations” managed by the European Climate, Infrastructure and Environment Executive Agency (CINEA), in collaboration with the European Commission (DG MARE) and funded by the European Maritime, Fisheries and Aquaculture Fund (EMFAF) aims to review existing ocean observation reporting obligations and templates and to propose, test and seek stakeholder feedback on a new common template and online tool that could be used to better coordinate ocean observation campaign plans in EU Member States and across Europe, for the benefit of the Ocean Observation community.

On 20 June 2023 a stakeholder consultation workshop was co-organised by partners of this study (see logos below), with workshop preparations led by Seascope Belgium in close partnership with EuroGOOS and in collaboration with all partners.

CINEA/EMFAF/2021/3.4.9

Study for reporting obligations for Ocean Observation



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Workshop planning, expected outcomes and timing

The stakeholder consultation workshop on 20 June 2023 aimed to **inform, stimulate discussion and collect stakeholder feedback** on a **prototype Ocean Observation template and map viewer**, designed to **optimise the sharing of national ocean observation/monitoring plans** developed as part of the ongoing study “Ocean Observation Reporting Obligations” managed by the European Climate, Infrastructure and Environment Executive Agency (CINEA) with the reference number CINEA/2021/OP/0009.

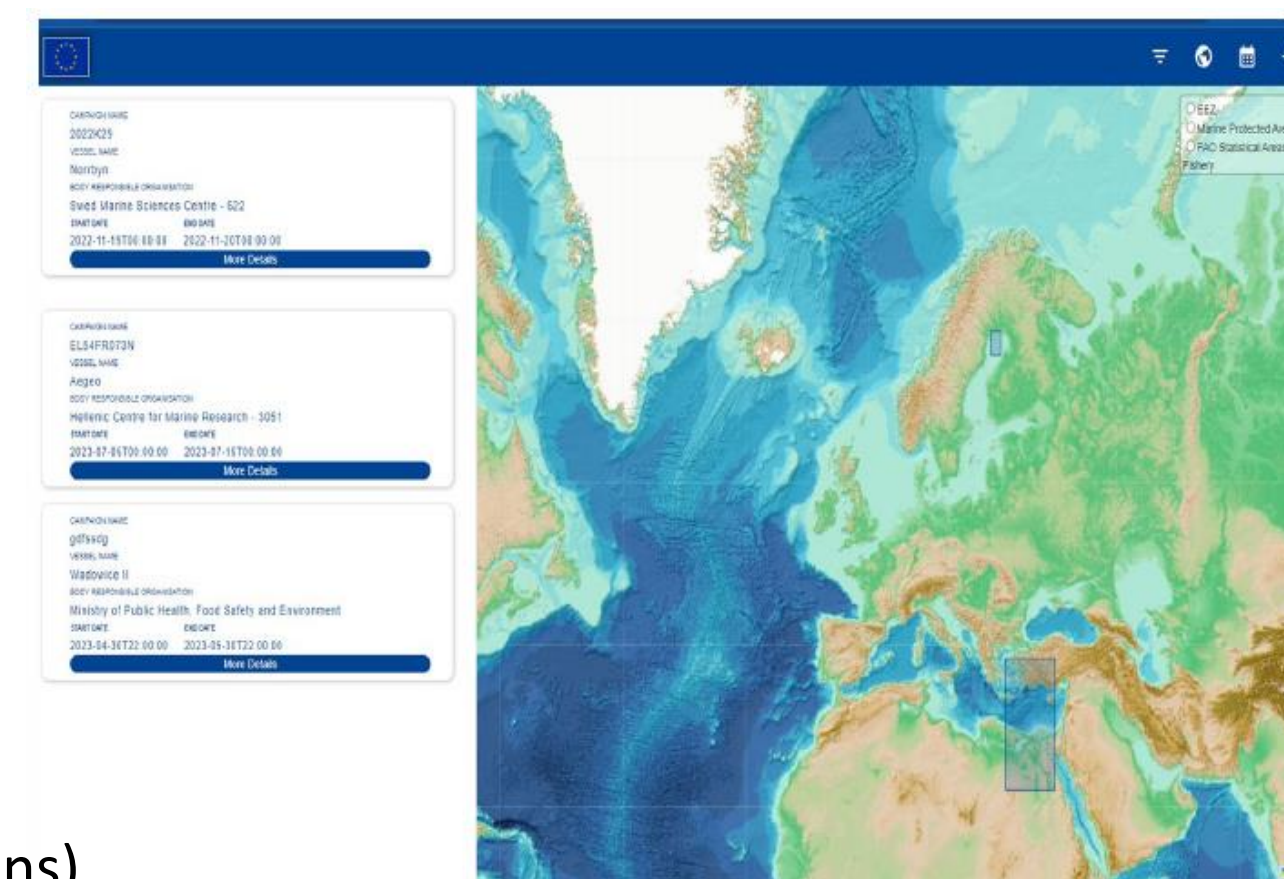
In advance of the workshop, participants received by email:

- A full agenda
- A briefing document (.pdf presentation) summarising the study and prototype tools

During the workshop, participants will be informed about the **prototype template and map viewer**, via presentations and discussions, and are invited to **actively interact and provide feedback** on the prototype tools and the added value for their stakeholder community. The workshop was conducted applying the Chatham House rules, with all comments and feedback remaining anonymous, not associated to individuals.

After the workshop

- The Mural link remained open until 22 June 10:00 CEST, then stakeholder feedback was submitted to CINEA and EC DG MARE as Deliverable 12 (Summary of Stakeholder consultations)
- Registered participants were sent a **test link to the prototype template and map viewer**, together with a **short survey** for providing further feedback (closing 30th June 2023).



Map viewer of the reporting template, version May 2023

A **short workshop report** (this PPT) was produced in summer 2023 by CINEA study* partners, for EC DG MARE and CINEA. *CINEA study reference number CINEA/2021/OP/0009

Stakeholder representation: Mapping and invitations

The workshop brought together **public sector stakeholders** involved in **ocean observation and marine monitoring** coordination and/or marine data collection. Key stakeholder groups were mapped in consultation with EC DG MARE and CINEA, and subsequently invited (see below). In agreement with CINEA and EC DG MARE, the private sector were not invited as the focus for this particular workshop was on publicly funded ocean observation and data collection efforts.

Geographical scope: European, with a focus on European Member States, and the 22 coastal European Member States (MSs)

Stakeholder sectors mapped and invited:

- **Hydrography:** National representatives of hydrographic institutes/organisations of EU Member States and associated countries
- **Marine Strategy Framework Directive (MSFD):** Working Group Data, Information, and Knowledge Exchange (WG DIKE) of EU Member states and associated countries
- **Data Collection Framework (DCF):** National DCF representatives of EU Member states and associated countries
- **Academia/research** (research-driven time-series/sustained ocean observation, operational oceanography)
 - Global Ocean Observing System (GOOS) National Focal Points (NCPs) in Europe
 - European Ocean Observing System (EOOS) Operations Committee: GOOS NCPs, marine research infrastructures (e.g., Eurofleets)
 - National coordination offices of ocean observation, research fleet coordination etc
- **Regional Sea Conventions** (UNEP-MAP, Black Sea Commission, HELCOM, OSPAR)
- **European organisations and initiatives** (EEA, EuroGOOS, EMODnet, SeaDataNet, EMB, JPI Oceans)
- **EC policy makers** (DG MARE, DEFIS, RTD, JRC)
- **International:** GOOS, OceanOPS

Stakeholder Consultation Workshop Agenda

20 June 2023

10:00 - 10:05 **Welcome and Housekeeping: Kate Larkin, Seascope Belgium**

10:05 - 10:15 **Ocean Observation: Sharing responsibility: Rémy Denos, EC DG MARE**

10:15 - 10:25 **Why do we need better coordination of *in situ* ocean observing in Europe? A community perspective: Inga Lips, EuroGOOS, study Coordinator**

10:25-10:30 **Plan for the workshop, stakeholder representation, expected outcomes and time-line, with online polling (zoom): Kate Larkin, Seascope Belgium**

10:30- 11:10 **Stakeholder session 1 (plenary): Map viewer (prototype)**

- Overview of map viewer (Francesco Misurale, ETT) 10'
- Q&A (using Zoom Chat function and where time allows verbal interventions) 10'
- Stakeholder feedback in plenary (using Mural online whiteboard) 20'

11:10-11:20 Short break

11:20-12:00 **Stakeholder session 2 (plenary): Ocean Observation template (prototype)**

- Overview of Ocean observation template (Joseph Nolan, EuroGOOS) 10'
- Q&A (using Zoom Chat function and where time allows verbal interventions) 10'
- Stakeholder feedback in plenary (using Mural online whiteboard) 20'

12:00-12:50 Session 3: Break-out discussions

Facilitators: Joseph Nolan (EuroGOOS), Antonio Novellino (ETT), Francesco Misurale (ETT)

Note-takers: Megan Tijssens (SSBE), Lise Cronne (ICES), Emilie Breviere (SMHI)

- Introductions (name, affiliation – if time allows) and General Q&A on content 10'
- Ocean Observation template: Stakeholder comments 20'
- Online reporting tool: Stakeholder comments 20'

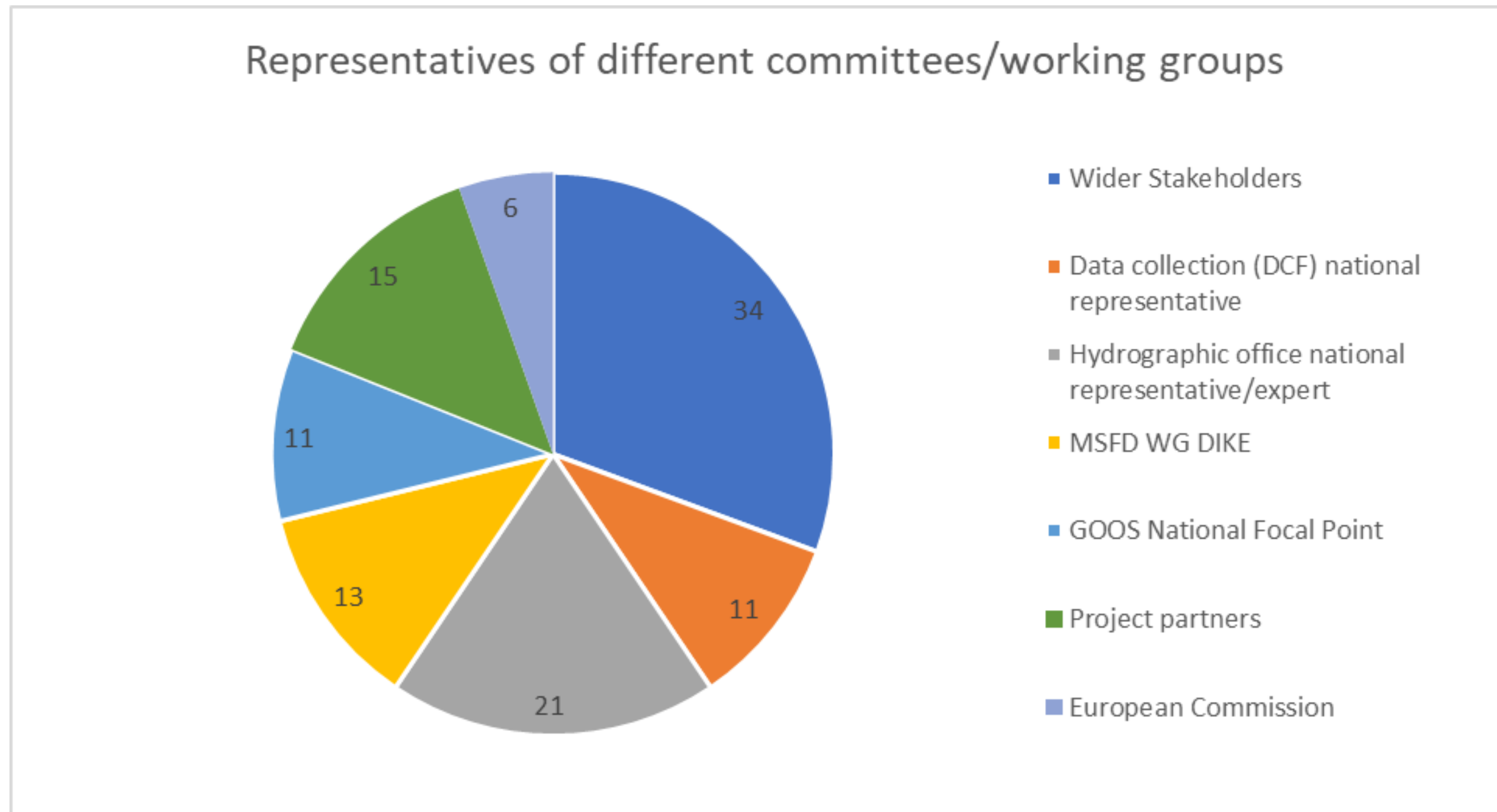
12: 50 - 13:00 Closing words and next steps: EuroGOOS/SSBE and EC DG MARE/CINEA

13:00 Workshop closes

Stakeholder analysis: Workshop registrations

Key stakeholder groups

111 registered participants (status 19 June 2023)

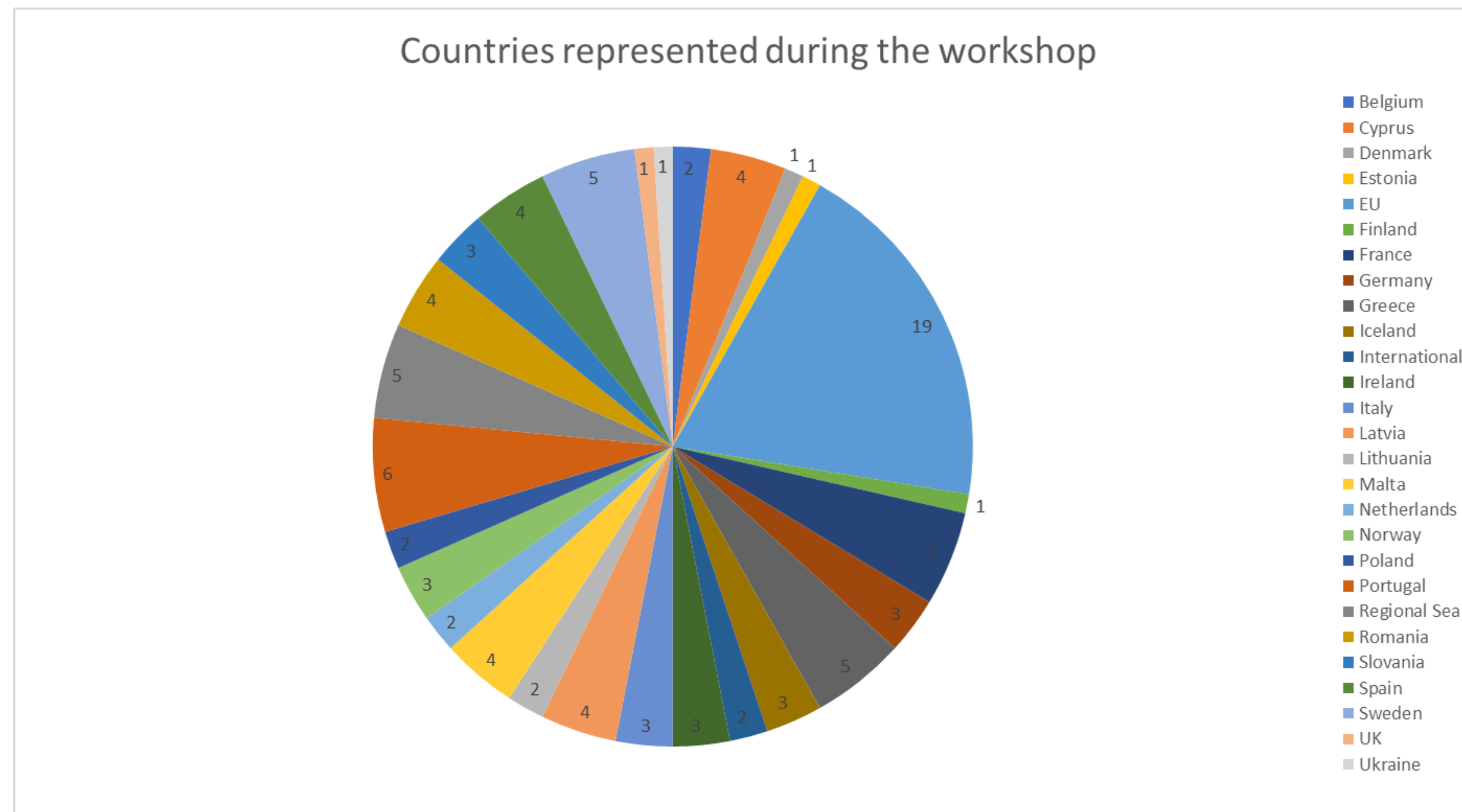


*Project partners in this case refers to partners of the “Ocean Observation Reporting Obligations” study, managed by the European Climate, Infrastructure and Environment Executive Agency (CINEA) with the reference number CINEA/2021/OP/0009.

Stakeholder analysis: Workshop registrations

Geographical representation

Registered participants included representatives from 20 / 22 European coastal Member States, also Iceland, Norway, UK, Ukraine, Regional, EU and International (status 19 June 2023)



*EU and International refers to participants representing organisations, institutes, networks or initiatives with a pan-European and/or International remit.

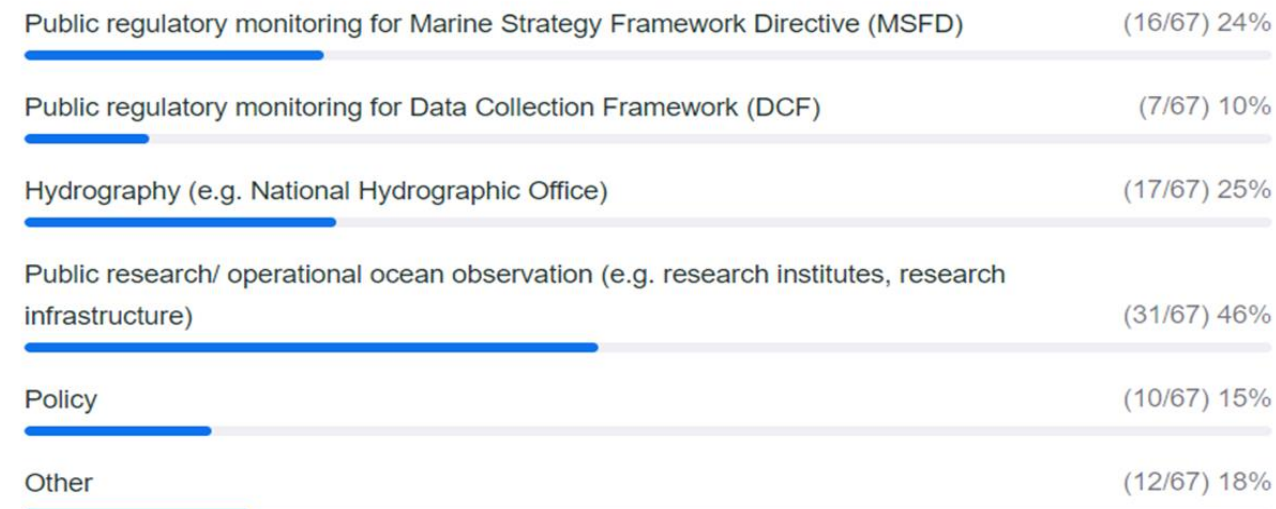
Stakeholder analysis: Workshop Polling

All Ocean Obs Workshop

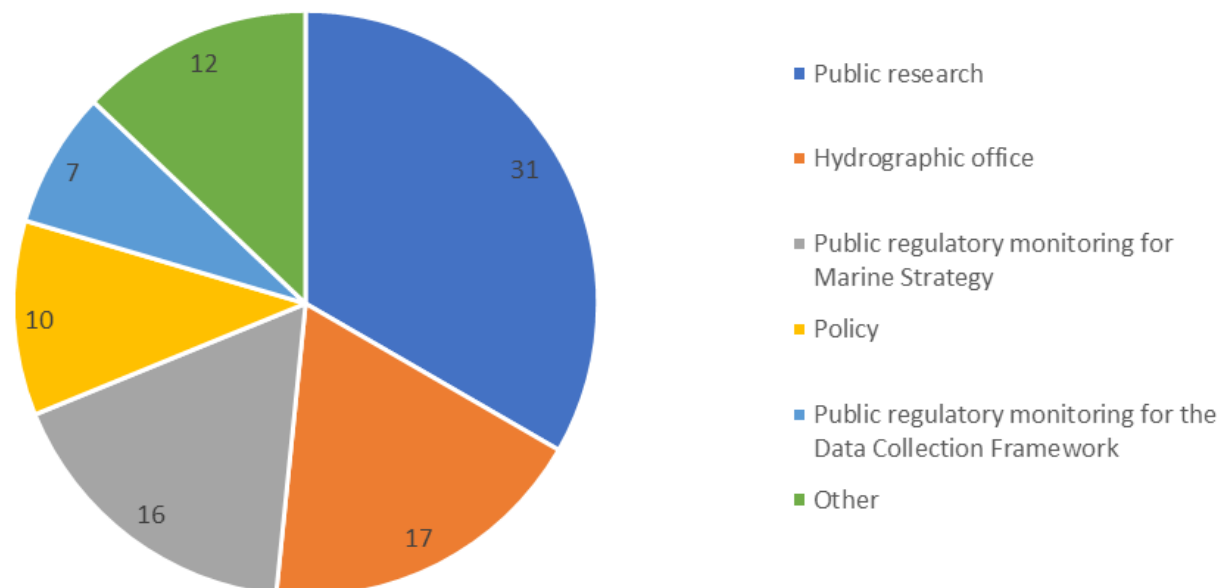
2 questions | 67 participated

1. My professional work related to Ocean Observation is most affiliated to: (Multiple Choice)

67/67 (100%) answered



Key stakeholder groups of the participants*



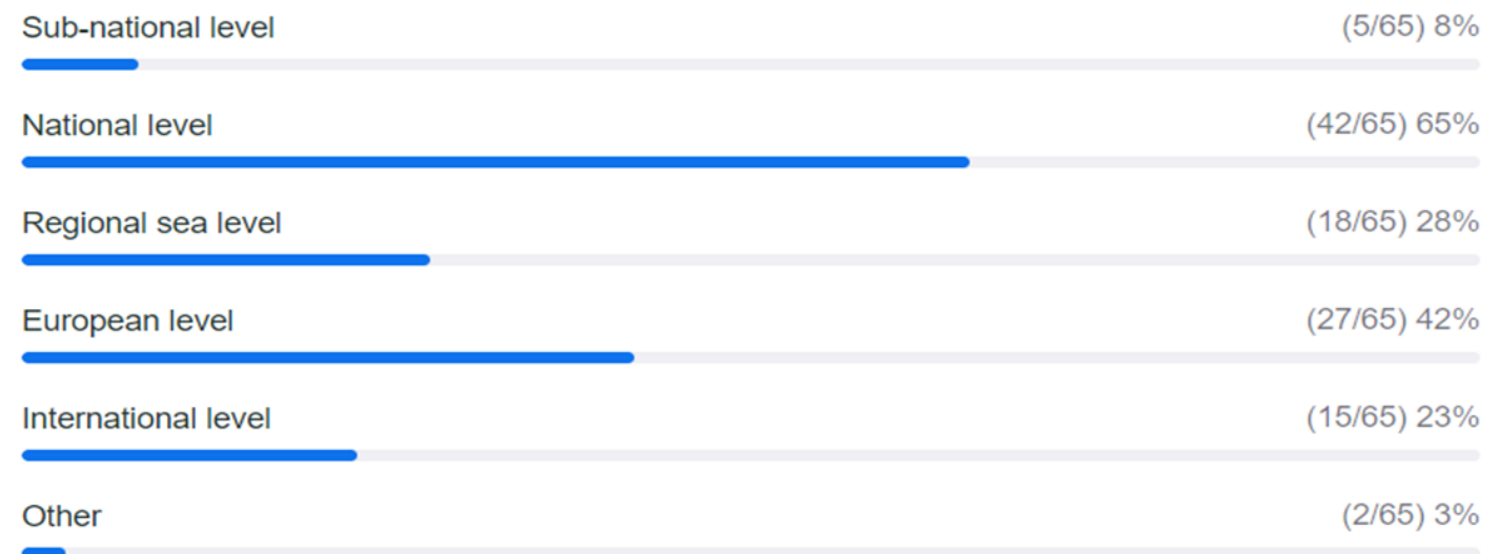
- From the 111 stakeholders who registered, 93 stakeholders attended the online workshop, including many national representatives from across EU Member State and Associated Countries involved in marine data collection. This was a very good turn-out (83.7%).
- 67/93 (72%) of the workshop participants took part in online polling question 1 and 65/93 participants took part in online polling question 2, both launched in zoom the opening session of the workshop.
- From the online polling questions, it was found that of the 67 poll respondents:
 - 46% of participants who responded* were affiliated to public research;
 - 25% of participants who responded* were affiliated to a hydrographic office;
 - 24% of participants who responded* were affiliated to public regulatory monitoring for Marine Strategy;
 - 10 individuals (15% of participants who responded *) were affiliated to policy;
 - 10% of participants who responded* were related to Public regulatory monitoring for the Data Collection Framework;
 - 18% of participants who responded* indicated they were affiliated with another type of organization.

*Note: During the poll questions the participants could select multiple answers.

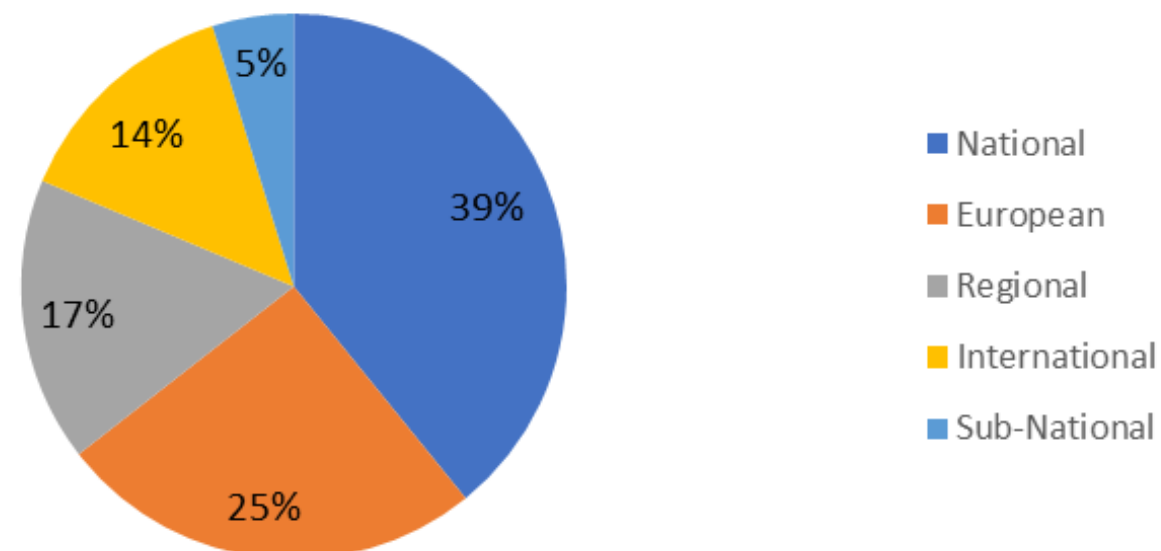
Stakeholder analysis: Workshop Polling

2. My main responsibilities for ocean observation/monitoring are conducted at (Multiple Choice)

65/67 (97%) answered



The participants responsibilities for ocean observation/monitoring that are conducted at *:



- From the online polling questions, it was found that:
 - 65% of participants that responded* have responsibilities for ocean observation/monitoring that are conducted at national level;
 - 42% of the participants that responded * have responsibilities for ocean observation/monitoring that are conducted at European level;
 - 28% of participants that responded * indicated that they have responsibilities for ocean observation/monitoring that are conducted at regional level;
 - A smaller number of participants who responded indicated that they have responsibilities conducted at international (23%) and sub-national level (8%).

*Note: During the poll questions the participants could select multiple answers.

Summary of Stakeholder feedback

The following slides provide a summary of stakeholder feedback gathered (anonymously) from:

- The online stakeholder consultation workshop, 20 June 2023
- A post-workshop survey that was sent to registered participants on 23 June, for a period of 1 week*

*Whilst there was very good attendance and engagement at the workshop, the uptake for the survey was low, with only 7 participants responding in the time-frame, which was set to 1 week due to the deadline for project partner reporting in early July. Dialogue will be undertaken with CINEA and DG MARE to see if the survey can be further extended, in which case the raw data of any new responses can be shared with CINEA and DG MARE for further follow-up.

Stakeholder feedback : workshop

Map viewer prototype

10:30- 11:10 Stakeholder session 1 (plenary):
Map viewer (prototype)

- **Overview of map viewer** (Francesco Misurale, ETT) 10'
- **Q&A 10'** (Participants can use the "Raise Hand" function in Zoom for verbal interventions. In the event of many questions, we will invite written Q&A in the Chat)
- **Stakeholder feedback in plenary** (using Mural online whiteboard) 20'



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Stakeholder feedback on: Map Viewer prototype

Potential benefits for your entity in having a cross-sector tool or ocean observation and marine monitoring planning?

- Optimise ocean observing plans
 - To **get an overview** of the activities at international, regional sea and national level;
 - Access to **updated** available information;
 - More **comprehensive** datasets/information;
 - **Avoid duplication**;
 - Increase **cost efficiency**;
 - **Maximise impact** of each activity;
 - Provide cruise planning **information for Member States** that do not use any standards such as MFP.
- Identify knowledge gaps, informational gaps
 - **Reduce redundancy** and ability to close gaps;
 - Plan for ships to go to a particular place to start making observations to fill gaps;
 - Filling the data gaps **in time and space**.
- Give **more visibility** to ocean observing plans.
- Improve and promote opportunities for **collaboration**:
 - create awareness about **opportunities and the needs of each community**;
 - Can **create synergies** by co-locating observations;
 - Opportunity to **combine upcoming missions**;
 - Opportunity to **test sensors or methods in already set-up missions**;
 - Opportunity to **save resources**;
 - **Greater regional cooperation**.

Stakeholder feedback on: Map Viewer prototype

What are the strengths or successful components of the pilot Map Viewer?

- User-friendliness of the map viewer
 - easy to use;
 - **relevant info;**
 - **Straight forward** and user-friendly.
- Overview of the activities/ planning tool
 - **Overview** of planned missions **in space and time;**
 - **Help identify gaps;**
 - The possibility to **filter for platforms, times, areas** etc.;
 - **Better planning to avoid duplicate information** and missing out other important gaps;
 - A **cross sector** tool;
 - Integrate observations and **add value on the single observations.**
- Most useful features of the Map viewer prototype indicated by the feedback survey participants:
 - The **layers for EEZ, MPAs and FAO Areas** for Fisheries;
 - Adding layers (e.g. EEZ); Basic info on the vessel and more details in another tab (MSFD).

Stakeholder feedback on: Map Viewer prototype

The improvements for the Ocean Observing template prototype suggested by the stakeholders:

- Additional fields, sections and adjustments to the map viewer
 - **A filter for region/subregion;**
 - Adding information on **scope for collaboration** e.g., space for extra staff Possibility to take extra sensors, etc
 - Add the **planned ship routes** instead of boxes.
 - The layers should be **multiple choice** (not only one layer);
 - Use a **contact form** instead of contact information of PI.
- Additional services/functions
 - Being able to **allocate a region and time of interest** to show to those entering a mission that there are people with interest;
 - Insert **several campaigns at same time** (bundle upload);
 - Creating **an automatic alert** if a mission is entered for your region and time of interest;
 - Creating **an import function for national forms;**
 - **Produce cruise reports** automatically which are linked to the results;
 - Ability to **download results in various formats;**
 - How to harvest data from existing platforms. Should a common standard be developed in the area?;
 - Would be good if spatial data could be easily integrated in own systems (e.g. WMS) so we can compare our draft plans against published plans;
 - **A methodology should be set up in case of updates;**
 - Link to Navigator map tool (<https://navigatormap.org/>) for up-to-date MPAs boundaries.
- Additional links
 - **Pull data from existing online portals and databases;**
 - **EMODnet data** in background;
 - Data retrieval by **using AI;**
 - Work on an underlying standard and interoperable format - including a **GIS interoperable component.**

Stakeholder feedback on: Map Viewer prototype

Concerns about the map viewer prototype:

- The tool functionalities:
 - It was not clear how ongoing ocean observations will be captured without start and end date;
 - The research areas are defined by their minimum and maximum points because you get so much overlap with continents and that provides no info at all;
 - How would people at the national level get approval to share their contacts;
 - The future system must be able to **pick data from netcdf** or other metadata files without manual input;
 - Considering that telephone and other contact will be shared on this (public) platform (probably by other people than the PI or manager), how would the **GDPR** would be complied?
- Obligations:
 - This tool can work only if there is an obligation of Member States to report their plans on a regular basis;
 - To be able to incentivise/enforce contributions and guaranteeing that the input information follows standards. Try to make sure that the pool of information is comprehensive and that a minimum or no mission is lost or left behind.
- Duplication
 - Who will moderate the submitted missions and follow up on duplication?;
 - It is unclear how information regarding a planned activity in this map viewer, once executed, will not duplicate that which will be present in other databases (i.e. OceanOPS);
 - How will duplication with related or comparable services be managed (e.g., OceanOPS, MFP, etc.)?
- Existing tools
 - Is it possible to make this part of an existing data repository instead of having a new platform?;
 - Tool looks like a stand-alone application and needs to integrate better with existing systems, platforms, etc.;
 - How will it be made clear to users where the primary source of metadata is e.g., the new tool is for planning information but there are other tools once data are collected. If one service is updated but the other not it may create confusion.

Stakeholder feedback on: Map Viewer prototype

Suggestions for connecting with existing National, Regional and EU reporting tools:

- **Map the metadata journey** from planning to inception to operations so it is clear to users where they need to enter metadata and where it will be disseminated too;
- **Incentivise the private sector** observation to participate;
- Connect reported campaigns with **monitoring programmes in MSFD** (add link);
- A **uniform and semantically harmonized data model** is required, through which the information can be exchanged via web services (Rest, JSON, GML);
- Using **OGC standards** for web-based services;
- A **workshop** should be arranged with all the stakeholders (RCG's, MS's, EU, Technicians);
- Prepare the tool **for non-public sector actors**: industry, citizen scientists;
- **Provide APIs** to make it easier to use data directly;
- Needs to be **automatic transfer from national to EU viewers**, cannot expect operators to fill out this information more than once;
- Harvest data **from national data infrastructures**;
- There needs to be **standardisation of data transfer from existing databases**;
- Reporting stations and frequencies in **MSFD Article 12 could include a link to plans** for performing the monitoring;
- Great idea but ultimately **needs buy-in from the humans** - so each manager needs to either have time to plug in or else a **secretariat will be needed** ;
- Link to **SeaDataNet metadata portal** and pre-fill much of the metadata;
- Need a **map on the metadata lifecycle** so it is clear to creators where they need to create metadata once and it will cascade across related systems;
- Connect to EEA's new reporting tool where member state data is reported (<https://reportnet.europa.eu>);
- Need a **phase II -follow-on project** that includes **workshops/one-to-one meetings with the data managers** at the national level who are responsible for operational reporting (RVs, MSFD, WFD, Fisheries data collection DCF etc.) This would help to ensure the architecture is compatible with work already done at the local level (e.g., scripts designed to upload automatically information collected locally) and **ensure buy-in from the member states**;
- **Reduction of manual metadata entry is key for scalability** ;
 - The project needs to consider the scalability of the application for emerging policies like NZOC (<https://projects.noc.ac.uk/nzoc/>) which will significantly increase the use of autonomy in ocean observation;
- **Avoid duplicate planning platforms and collaborate with existing tools**, Regional Sea Conventions already have or plan to start a similar tool (<https://helcom.fi/wp-content/uploads/2019/06/Rec-37-1.pdf>).

Stakeholder feedback : survey

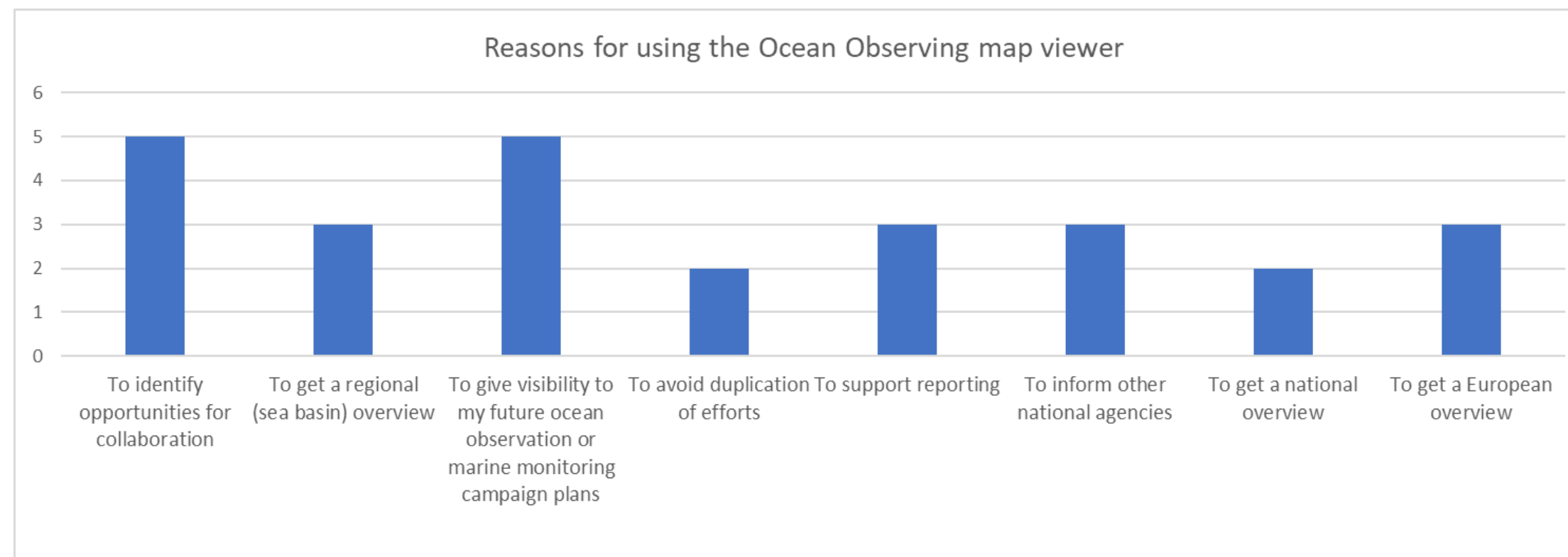
Map viewer prototype

- All participants of the survey indicated that they would **likely use the map viewer** once it would be implemented.
- The majority of the participants of the survey indicated that the map viewer prototype was **moderately easy** to use.
- The majority of participants of the survey indicated that they would use the ocean observing tool to **identify opportunities for collaboration** and to **give visibility** to their future ocean observing plans.

“The ability to layer different sets of data offers valuable insight into the areas of ocean observation we are interested in” Quote from a public research institute

“The map viewer will provide more information than we currently have on ocean observing plans” Quote from a National Hydrographic office

“The map viewer prototype is user-friendly with an intuitive design. However, some of the features could benefit from clearer labeling and additional tooltips to help new users understand their functionalities ” Quote from a public research institute



Stakeholder feedback : workshop Ocean Observing template prototype

11:20-12:00 Stakeholder session 2 (plenary): Ocean Observation template (prototype)

- **Overview of Ocean observation template** (Joseph Nolan, EuroGOOS) 10'
- **Q&A 10'** (Participants can use the "Raise Hand" function in Zoom for verbal interventions. In the event of many questions, we will invite written Q&A in the Chat)
- **Stakeholder feedback in plenary** (using Mural online whiteboard) 20'

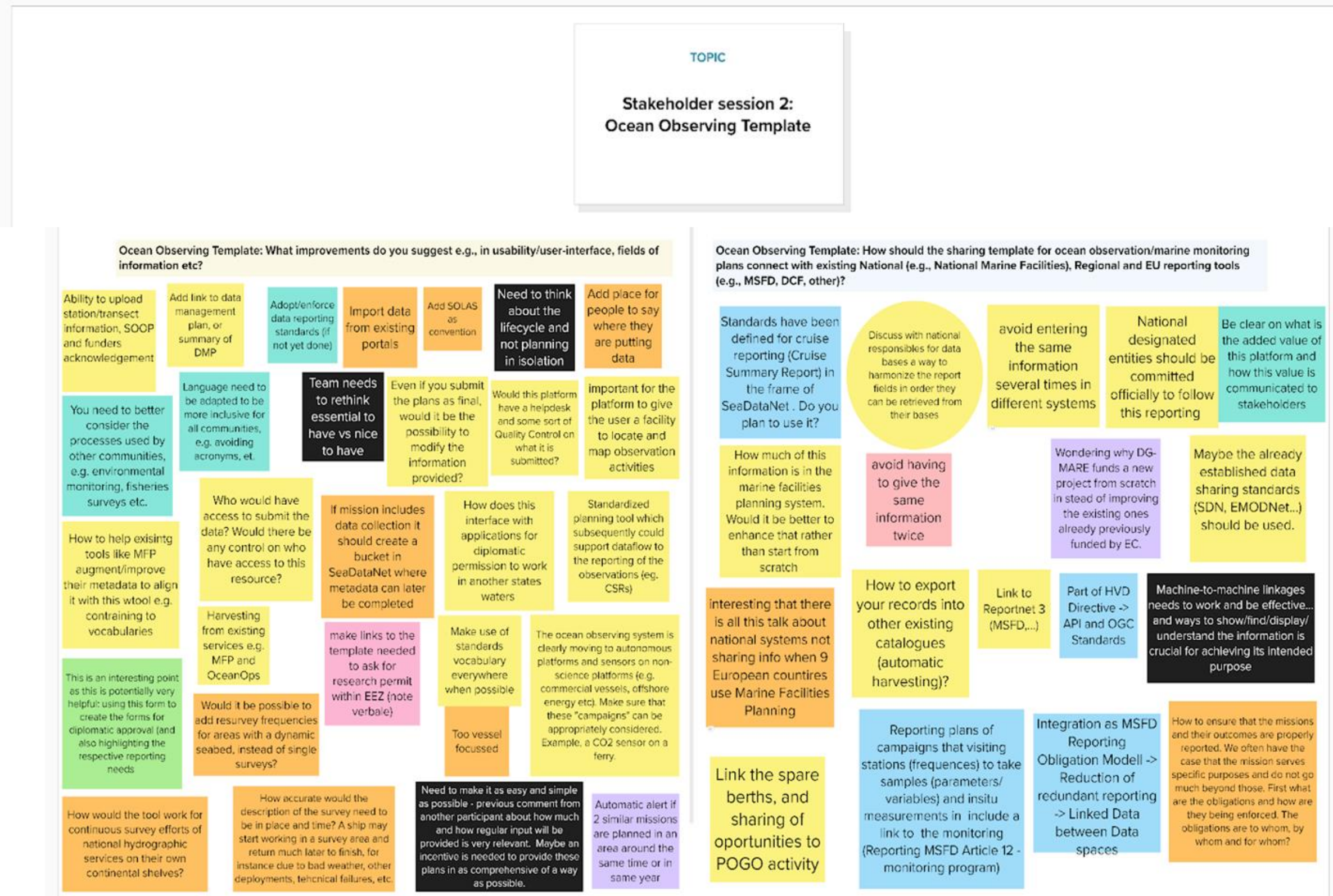


Stakeholder feedback : workshop

Ocean Observing template prototype

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Stakeholder feedback on: The ocean observing template prototype

The potential **benefits** of the Ocean Observing template identified by the stakeholders:

- Optimise ocean observing planning:
 - An **overview of activities**;
 - Possibility to **plan the observing system implementation** and to **close gaps** that might happen in the future;
 - Metadata that can underpin the full data chain from planning to curation of data arising from observations, **reducing errors/loss** of metadata;
 - **Avoid duplication of effort.**
- Better coordination:
 - Better cross-sectional **coordination between different campaigns** e.g., DCF and Monitoring campaigns;
 - Better **coordination on regional and international** observing/monitoring plans;
 - Better overall coordination and planning, **cross nations and institutes**, than for one particular institute;
 - Use this tool to **utilize the collective resources more efficiently.**
- Better visibility:
 - We would get visibility of all ships operated in a particular area;
 - Better visibility of activities by other national bodies and opportunity to collaborate;
 - If it is carefully designed to allow visualization with a time element, it could be useful when developing strategy documents and could support business cases when **planning essential ocean observing programmes.**
- Visualize data gaps:
 - It could show **which physical parameters are poorly collected** so to improve campaigns to focus more on them;
 - Help plan activities where are still have gaps and **avoid duplication of effort.**
- Standardized observations/data:
 - Create a **minimum viable spec** for authoritative data and products.

Stakeholder feedback on: The ocean observing template prototype

The strengths or successful components of the Ocean Observing template identified by the stakeholders:

- Wide range/scale information collection:
 - A wide range of information can, in principle, be collected;
 - A joint platform which allows to derive information and **identify potential policy recommendations;**
 - **It includes most of the different types** of ocean observations;
 - Having an eye on what is happening on the wider scale should **encourage increased cooperation** at the national, transnational and regional levels.
- Harmonized/ Standardized data collection:
 - The template will make it possible to collect the data for reports with **less effort;**
 - This will provide a **harmonised understanding/snapshot** of what and where observing is happening;
 - Standardized planning tool which subsequently **could support dataflow to the reporting of the observations** (e.g., CSRs).

Stakeholder feedback on: The ocean observing template prototype

The improvements for the Ocean Observing template prototype suggested by the stakeholders:

- Suggestions for standardization of the template:
 - Language needs to be adapted to be **more inclusive for all communities**, e.g., avoiding acronyms;
 - Make use of **standards vocabulary** everywhere when possible.
- Additional fields, sections or adjustments suggested for the template:
 - Add place for people to say **where they are putting data**;
 - Ability to **upload station/transect information**, SOOP and funders acknowledgement;
 - **add resurvey frequencies** for areas with a dynamic seabed, instead of single surveys;
 - **Linked Data** is missing. Use Organization, Name, Email as Code list;
 - Add a **"Don't know" option** for most (all?) questions;
 - Make links to the template needed to **ask for research permit within EEZ** (note verbal);
 - Add the option for a unique ID or free text from SDN vocabulary (e.g., C17) or ICES ship codes;
 - Add a **link to data management plans** to the template;
 - Replace parameter by parameter group (e.g., SDN vocabulary P03) (Public research/operational ocean observing).
- Additional services/functions:
 - A **help desk**;
 - **Quality Control** on what it is submitted;
 - **A facility to locate and map observation** activities;
 - A procedure for **ship calls** could be included (standard form), to increase visibility and possible collaborations (pre-planning);
 - Adopt/enforce **data reporting standards**;
 - **Bulk upload** will need to be possible to avoid the extent of manual work.

Stakeholder feedback on: The ocean observing template prototype

The improvements for the Ocean Observing template prototype suggested by the stakeholders:

- Additional links/ data flows:
 - Create a **flow to SeaDataNet** where metadata coming from the monitoring campaigns can later be completed;
 - **Help existing tools** like MFP augment/improve their metadata to align it with this tool e.g., Containing to vocabularies;
 - **Harvesting data from existing services** e.g., MFP and OceanOPS;
 - Add SOLAS as convention;
 - Add **link to data management plan**, or summary of DMP;
 - Using this form to create the forms for diplomatic approval (and highlighting the respective reporting needs).

Concerns about the template:

- **Too vessel focused**;
- An **incentive** is needed to provide these plans in as comprehensive of a way as possible;
- **Need to consider the processes used by other communities**, e.g., Environmental monitoring, fisheries surveys etc.;
- The ocean observing system is clearly moving to **autonomous platforms** and **sensors on non-science platforms**;
 - Make sure that these "campaigns" can be appropriately considered in the template;
- **Control on who has access to this resource**;
- Even if you submit the plans as final, would it be possible to **modify the information provided**;
- How accurate would the description of the survey need to be in place and time;
- There are many different templates for data calls and data collection. It seems **difficult** to produce **one template to cover all the obligations**;
- How would the tool work for **continuous survey efforts** of national hydrographic services on their own continental shelves?;
- Need to think about the **complete lifecycle of the ocean observing campaigns** and not solely the planning;
- The template must be **comprehensive**, with the reporting of virtually all missions/campaigns in the target regions/scopes;
- Perhaps make the input process simpler for recurring, short missions (Public research/operational ocean observing);
- How much of this information is in the marine facilities planning system? Would it be better to enhance that rather than start from scratch?;
- Wondering why DG-MARE funds a new project from scratch instead of improving the existing ones already previously funded by EC;
- The platform seems more well fit to voyages specifically targeted at ocean observation.

Stakeholder feedback on: The ocean observing template prototype

Suggestions for connecting with existing National, Regional and EU reporting tools:

- Align with standards and tools that have been defined:
 - For **cruise reporting (cruise summary report)** in the frame of SeaDataNet;
 - **Data sharing standards** (SDN, EMODnet...);
 - Align the ocean observing template with OceanOPS metadata standards (<https://github.com/oceanops/metadata-standard>);
 - Interoperability with **geonetwork for INSPIRE** compliant layers;
 - With **Action map from AA-MARINET** to aggregate oceanographic missions and campaigns (vessels, gliders, infrastructures, etc.) (<https://aanchor.Hidrografico.Pt/actions-map>);
 - **HELCOM draft reporting format** on recommendation 37/1 (<https://helcom.fi/wp-content/uploads/2019/06/rec-37-1.Pdf>);
 - Link the **spare berths**, and sharing of opportunities to **POGO activity**;
 - Link to **reportnet 3** (MSFD);
 - Export the records **into other existing catalogs** (automatic harvesting);
 - 9 European countries use marine facilities planning to share their plans.
- Communications and co-design with stakeholders:
 - National designated entities should be committed officially to follow this reporting;
 - Be clear on what is the added value of this platform and how this value is communicated to stakeholders;
 - Discuss with national responsible for data bases a way to harmonize the report fields in order that they can be retrieved from their bases;
 - Avoid entering the same information several times in different systems.
- Integrate with legislation/obligation:
 - Part of HVD Directive -> API and OGC Standards;
 - Integration as MSFD Reporting Obligation Model -> Reduction of redundant reporting -> Linked Data between Data spaces;
 - Reporting plans of campaigns that visiting stations (frequencies) to take samples (parameters/variables) and in situ measurements in include a link to the monitoring (Reporting MSFD Article 12 - monitoring program);
 - Identify the obligations and how are they being enforced? The obligations are to whom, by whom and for whom?
- Machine-to-machine linkages needs to work and be effective... and ways to show/find/display/understand the information is crucial for achieving its intended purpose.

Stakeholder feedback : survey

Ocean Observing template prototype

- The majority of participants of the survey indicated that they had no difficulties understanding the template fields.
- The majority of participants of the survey found that the controlled vocabularies used in the template were fully understandable.

“It is crucial to align terminology with existing efforts e.g., the [OceanOPS metadata-standard](#)”
Quote from a National hydrographic office

“Integration and automation of harvesting from existing tools will be key, the tool also needs to efficiently manage updates of changes to observation plans” Quote from a National Hydrographic office

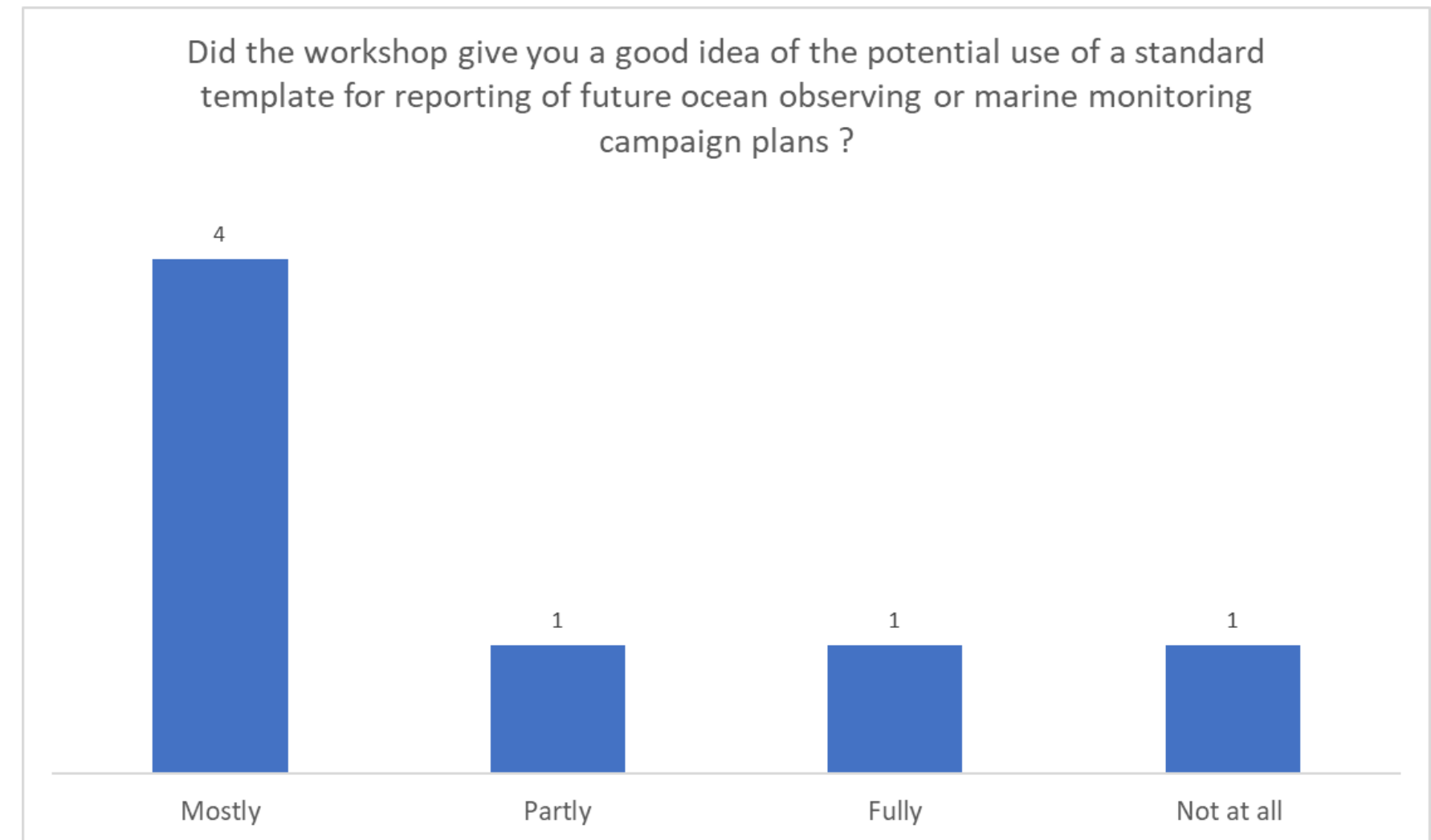
“Bulk upload are a key component to avoid the extent of manual work” Quote from Public regulatory monitoring for Marine Strategy Framework Directive (MSFD)

Stakeholder feedback : Post-workshop survey

Workshop satisfaction

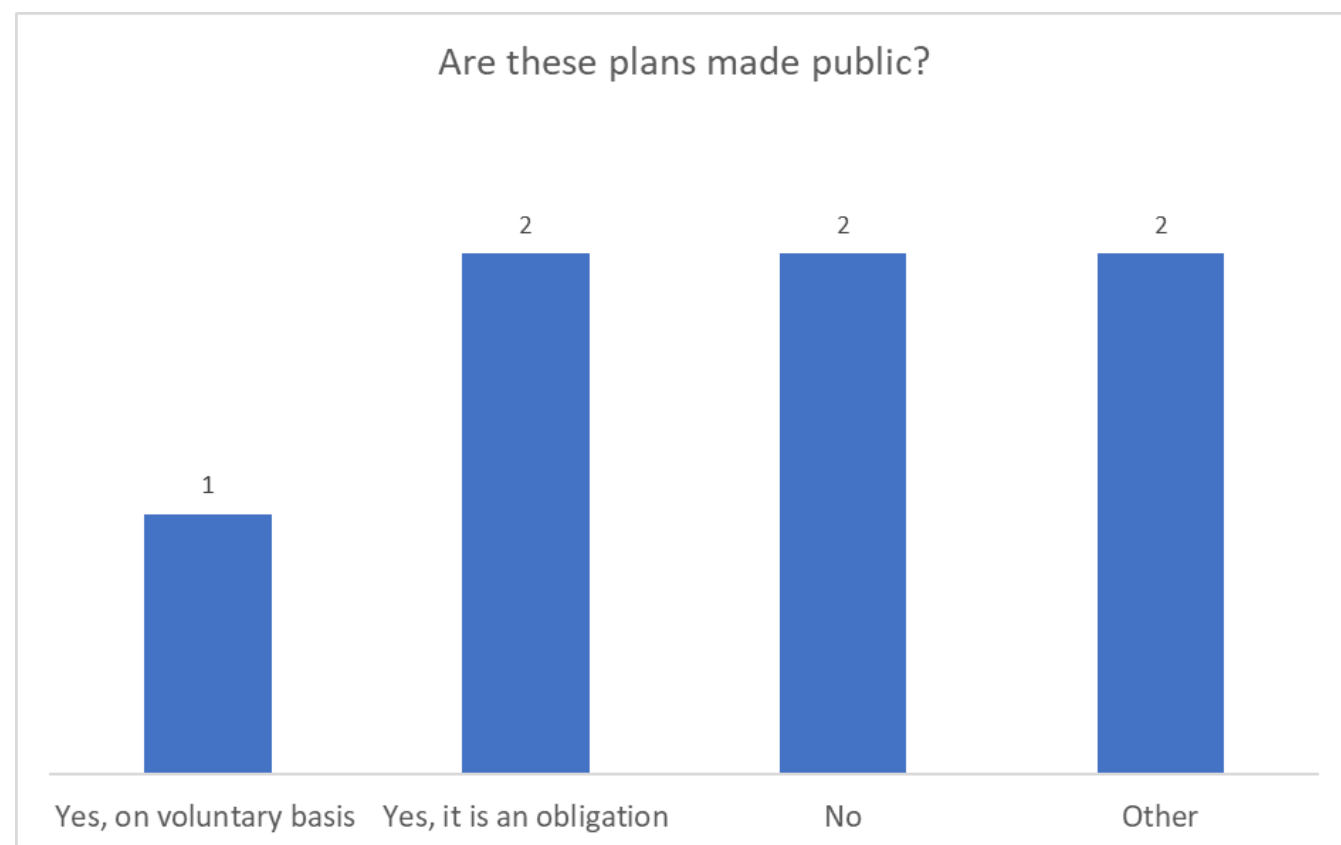
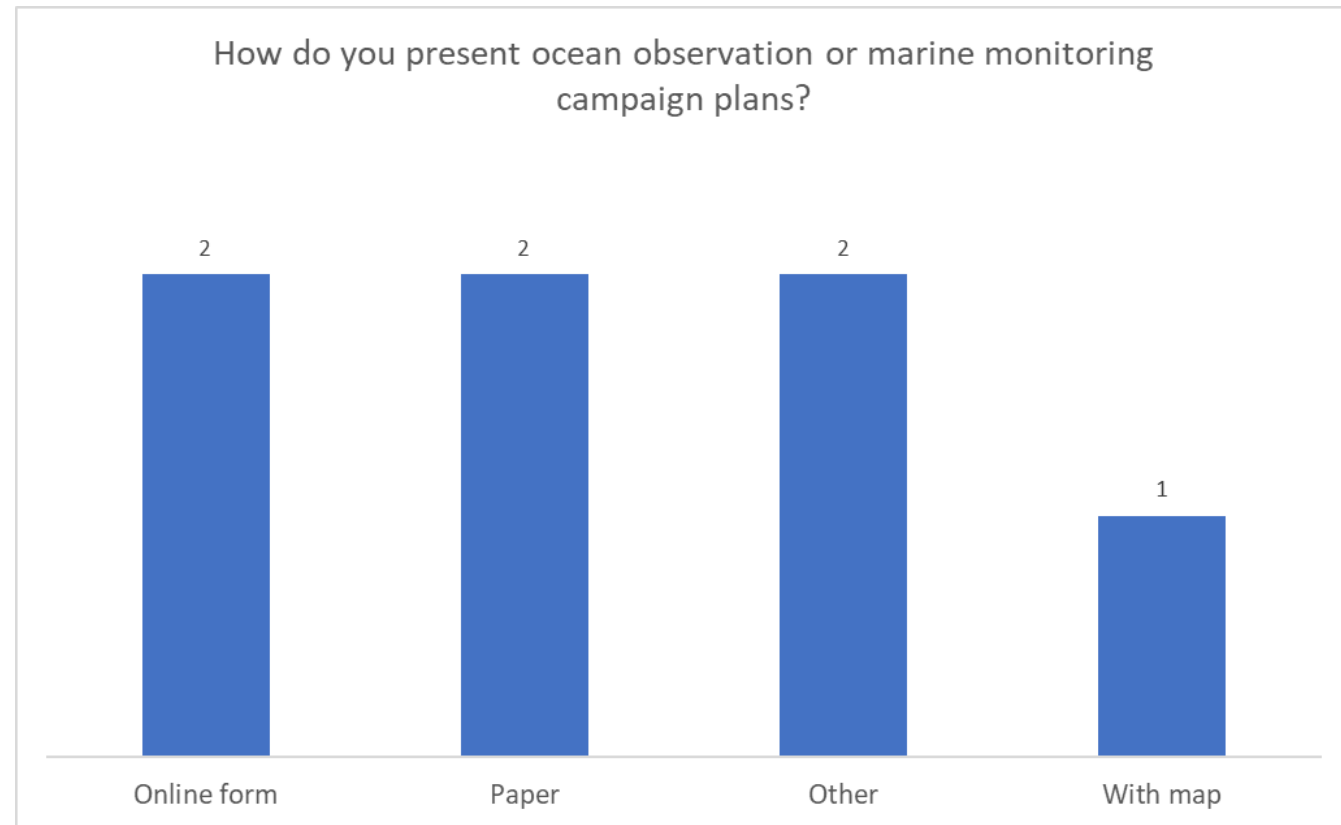
- The survey (7 individuals response) asked for feedback on the workshop itself
- 6/7 Individuals responding to the survey had **participated** in the workshop
- Satisfaction of the participants of the workshop
 - 4/7 individuals indicated that the workshop gave them **'mostly'**;
 - 1/7 individuals indicated **'partly'**;
 - 1/7 individuals indicated **'fully'**;
 - 1/7 individuals indicated **'not at all'** *.

*Note that this individual did not take part in the workshop



Stakeholder feedback : Post-workshop survey

Existing tools for Ocean Observing / Marine monitoring



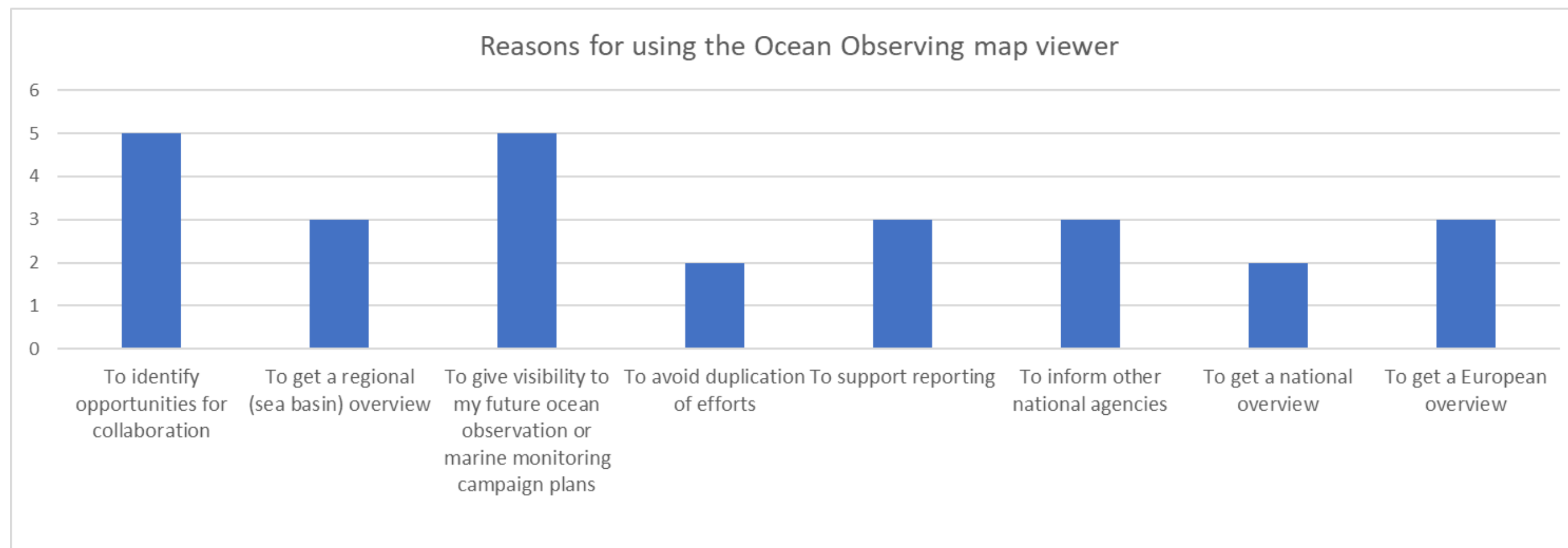
- Authorization of the ocean observing plans of the participants
 - 6/7 individuals indicated that an **institute** authorizes their ocean observation or marine monitoring campaign plans;
 - 1/7 individuals indicated that an **agency** authorizes their ocean observation or marine monitoring campaign plans.
- Format of ocean observing plans of the participants
 - 2/7 individuals indicated that their ocean observation or marine monitoring campaign plans are presented in **online form**;
 - 2/7 individuals indicated that their ocean observation or marine monitoring campaign plans are presented in **paper**;
 - 1/7 individuals indicated that their ocean observation or marine monitoring campaign plans are presented **as a map**;
 - 2/7 individuals indicated that their ocean observation or marine monitoring campaign plans are presented in **another form**.
- Availability of the ocean observing plans of the participants
 - 3/7 individuals indicated that their ocean observation or marine monitoring campaign plans are **publicly available** and for two of those, it is on an obligatory basis and for one on a voluntary basis;
 - 2/7 individuals indicated that they share their plans with the public in **another way**, namely:
 - **Upon request** to the contracted field workers of DCF survey and MSFD monitoring and other data collection;
 - **Make relevant researchers aware** of their plans.

Stakeholder feedback: Post-workshop survey

Map Viewer prototype

Likelihood of the survey participants to use the map viewer and reasons of use

- Likelihood of use of the map viewer:
 - 6/7 individuals indicated that they would **likely** use the map viewer if it would be implemented;
 - 1/7 individuals indicated that they would **very likely** be using the map viewer once it would be implemented.
- In terms of the use of the map viewer:
 - 5/7 individuals indicated that they would use the map viewer to **identify opportunities for collaboration** and to **give visibility** to their future ocean observation campaign plans;
 - 3/7 individuals indicated that they would use the map viewer **to support reporting, to get a regional overview, to get a European overview, to inform other national agencies;**
 - 2/7 individuals indicated that they would use the map viewer to avoid duplication and to get a national overview.



Stakeholder feedback: Post-workshop survey

Map Viewer prototype

The understandability and user friendliness of the map viewer

- User friendliness:
 - 3/7 individuals indicated that the map viewer prototype was **very easy to use**;
 - 4/7 individuals indicated that the map viewer prototype was **moderately easy** to use.
- Those that indicated moderately further explained their answer:
 - Risk of overlapping squares. Possibility to filter what is presented (area, variables, legislation etc.);
 - The **goals for the portal need to be clearer** so the context is obvious to users;
 - Some of the features could benefit from **clearer labeling and additional tooltips** to help new users understand their functionalities.

Features that were difficult to understand:

- **Selecting a Campaign;**
- **Adding entries;**
- The functionality of the **search function** once a lot of data is imported in the system;
- Understanding the **meaning of certain data layers** can be challenging at times, especially without a comprehensive guide or legend.

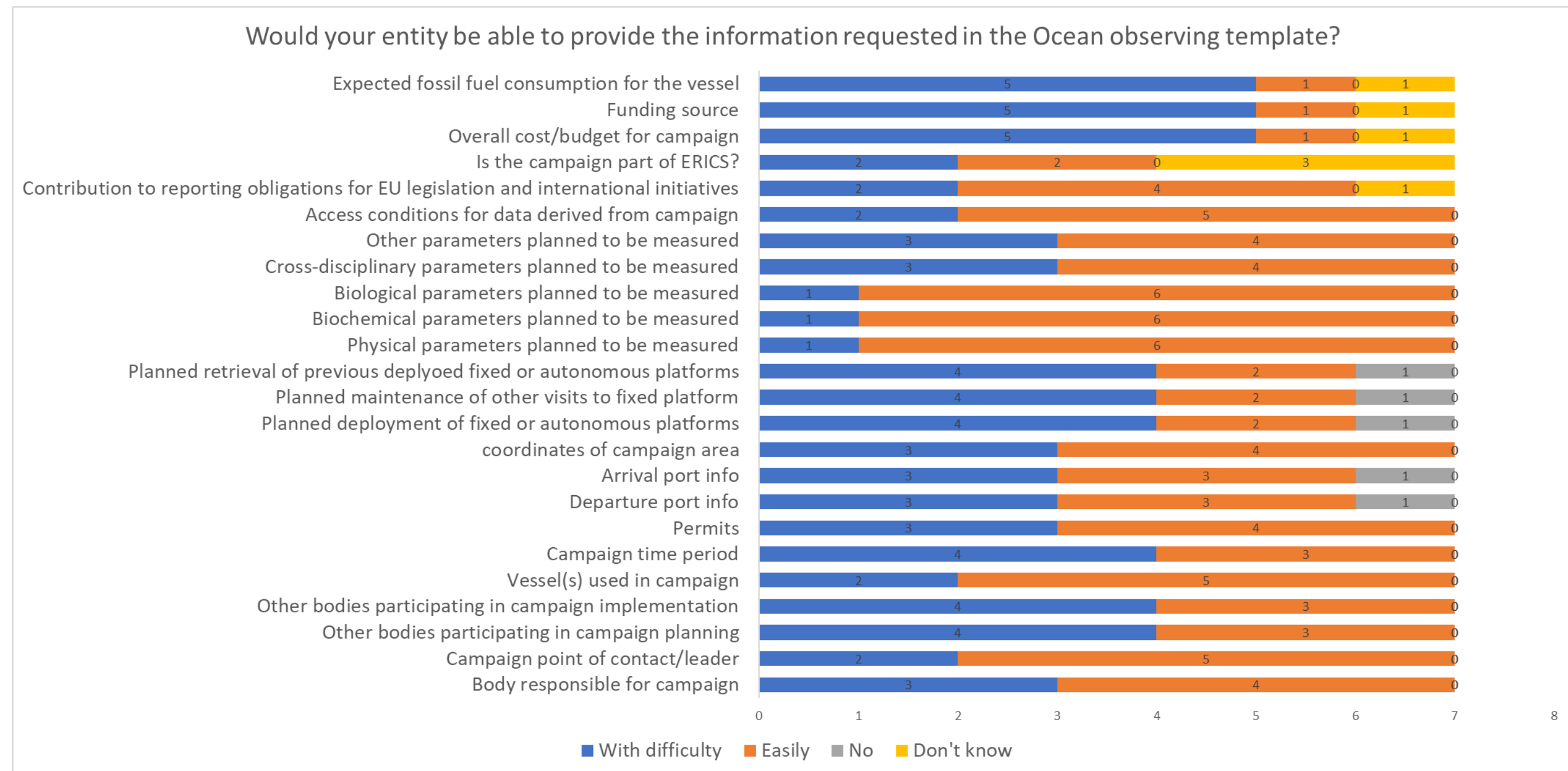
Stakeholder feedback : Post-workshop survey

The ocean observing template prototype

Feedback on the understandability of the template fields and the controlled vocabularies

- 6 out of 7 individuals indicated that they had no difficulties understanding the template fields.
- For 6 out of 7 individuals the controlled vocabularies were fully understandable.

Feedback on the template sections



Stakeholder feedback : Post-workshop survey

Added value, scaling up and buy-ins of the ocean observing tool

Suggestions for the added value/benefits of the ocean observing template and/or map viewer prototype

- Make the process of inserting information as fast and simple as possible, and clearly communicate the easiness of using the platform to the users (e.g., it takes only approximate X minutes to fill the form etc.);
- Additional information concerning **Marine Protected Areas** in the map viewer. "Swedish board of Fisheries" has been replaced by "Swedish Agency for Marine and Water Management“;
- Would help with **coordination of observations by ERICs**;
- By integrating the **ability to share and export data easily**, these tools could become a hub for oceanographic data, enhancing collaborations and improving research quality.

Recommendations to help the scaling up of this tool and buy-in to its use from all relevant stakeholders in your country (Feedback survey)

- **Scaling up to include Atlantic basin** would be naturally relevant for stakeholders for European Countries in this region;
- EU Reporting monitoring plans for MSFD stations and frequencies supporting art 11 reporting;
- Need to demonstrate clearly the added value of this new tool. This would be the **interoperability with applications on the further dataflow**, eg. event loggers (eg. EARS), cruise reports (CSRs), reporting to EC (Reportnet 3), SDN infrastructure (CDIs);
- Organizing **training workshops** and providing extensive user support could encourage more users;
- **Showcasing success stories** of how the tool has benefited other organizations can also foster buy-in.

Stakeholder feedback : Post-workshop survey

Added value, scaling up and buy-ins of the ocean observing tool

Challenges and opportunities / costs and benefits of the EU level Ocean Observation initiative

- Challenges
 - A major challenge is to **make the platform comprehensive**, and to make sure that virtually all missions are reported. The benefit is to have all the information gathered at the same platform;
 - It will be a challenge to **ensuring the metadata do not go stale** and thus no longer useful to many users;
 - Challenges might include the **need for personnel training** and potential initial disruption to workflows.
- Benefits and opportunities
 - **Better coordination** will allow member states to build and operate marine observation infrastructure that meets their priorities and **maximises the potential** of ocean observations by measuring essential variables once (station and frequency) and using them for multiple purposes;
 - Potential **for more efficient ocean observations**;
 - Planning and reporting is a lot of work, so it would be useful and **reduce effort** if the information can be re-used (only entered once), so need for fully interoperable system;
 - The benefits are **increased data accuracy, streamlined workflows, and better collaboration opportunities**, among others.

Stakeholder feedback : Summary

Map viewer prototype

Potential benefits and strengths of the map viewer prototype

- Optimize ocean observing plans;
 - More **comprehensive** datasets/information;
 - **Avoid duplication** and **maximize impact** of each activity;
 - Increase **cost efficiency**;
- Identify knowledge gaps, informational gaps;
- Improve and promote opportunities for **collaboration**;
 - Can **create synergies** by co-locating observations;
 - Opportunity to **save resources**.

Improvements for the map viewer prototype

- A filter for regions/subregion;
- The layers should be multiple choice (not only one layer);
- Insert several campaigns at same time (bundle upload);
- Creating **an automatic alert** if a mission is entered for your region and time of interest;
- Ability to **allocate a region and time of interest** to show to those entering a mission that there are people with interest;
- Creating an import function for **national forms**;
- Produce **cruise reports** automatically which are linked to the results.

Connecting with existing tools

- Reporting stations in **MSFD Article 12** can link to plans for performing the monitoring;
- **Link to SeaDataNet** metadata portal and pre-fill much of the metadata;
- Need a **map on the metadata lifecycle** so it is clear to creators where they need to create metadata once and it will cascade across related systems;
- **Provide APIs** to make it easier to use data directly;
- **Reduction of manual metadata entry is key for scalability**;
- A **uniform and semantically harmonized data model** is required, through which the information can be exchanged via web services (Rest, JSON, GML).

Stakeholder feedback : Summary

Ocean Observing template prototype

The potential benefit and strengths of the ocean observing template prototype

- Optimize ocean observing planning:
 - **Reducing errors/loss** of metadata;
 - **Avoid duplication of effort;**
- Better coordination and collaboration between campaigns, institutes, across nations and regions:
- Standardized observations/data:
 - **It could support dataflow to the reporting of the observations** (e.g., CSRs) and **Identify potential policy recommendations.**

Improvements of the ocean observing template prototype

- Adding information on **scope for collaboration** e.g., space for extra staff Possibility to take extra sensors, etc.
- Make use of **standards vocabulary** everywhere when possible, to be **more inclusive for all communities;**
- Add section that informs on data flows;
- Add a link to data management plans;
- A **help desk;**
- **Quality Control** on what it is submitted.

Connecting with existing tools

- **Align with standards and tools** that have been defined:
 - Cruise summary report (SeaDataNet); Data sharing standards (SDN, EMODnet...), OceanOPS metadata standards, geonetwork for INSPIRE compliant layers, Action map from AA-MARINET, HELCOM draft reporting format; on recommendation 37, Reportnet 3 (MSFD);
- Communications and **co-design with stakeholders;**
 - Discuss with national responsible for data bases a way to harmonize the report fields in order that they can be retrieved from their bases;
- Integrate with legislation/obligation as **MSFD Reporting Obligation Model** (Reporting MSFD Article 12 - monitoring program).

**Thank you
for your attention!**