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BELGIUM

**Technical Proposal OBIS Consultant Strategic Advice  
(OBIS-Jul2021-WA)**

**Final Report**

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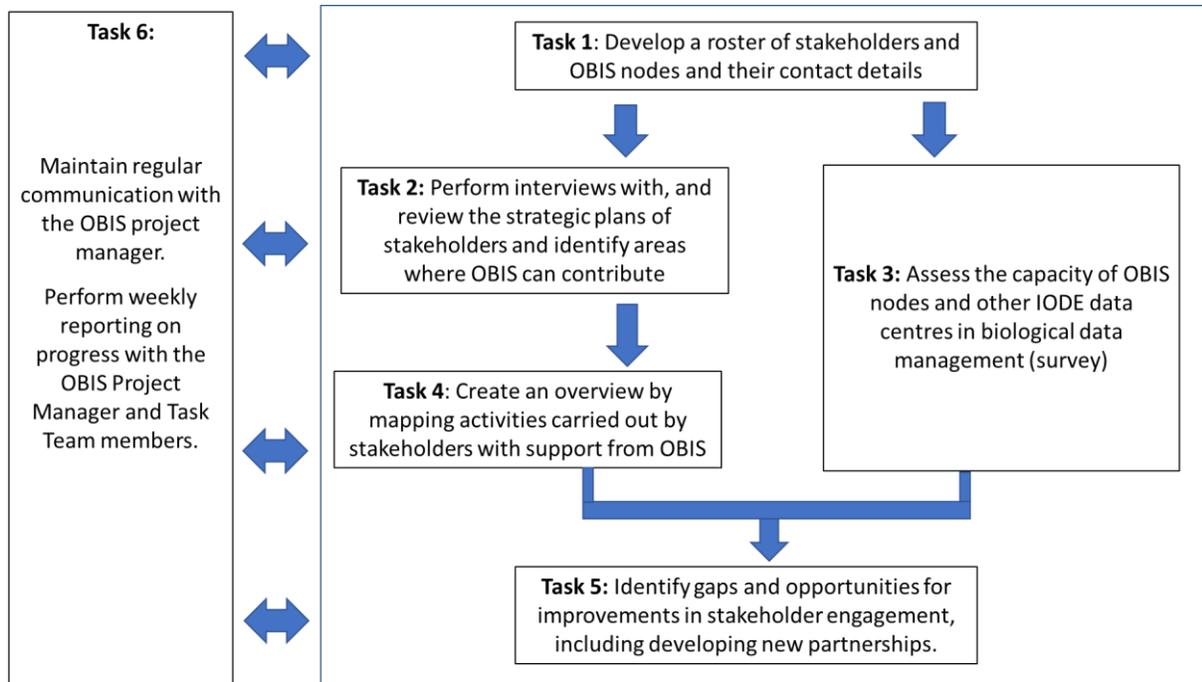
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# 1 Introduction

In the context of the UN Ocean Decade and initiatives under GOOS, MBON and others, expectations from stakeholders regarding OBIS are high. To meet these expectations, it is important to clearly understand the requirements for OBIS from key stakeholders, assess OBIS nodes' capacity to support those needs and identify gaps and opportunities for improvement in stakeholder engagement, including developing new partnerships. These are identified as the key objectives of this assignment.

Work on this assignment was carried out by a team of 2 consultants from Seascope Belgium: Nathalie Van Isacker and Nathalie Tonné. It was organized in 6 Tasks as follows:



The work was planned over a 2-month period between Mid-October and Mid-December 2021.

The core report for the assignment is presented in pages 4 to 25 of this report. Annexes are presented thereafter and include, amongst other information, the stakeholders' list, the results of the stakeholders' surveys, the stakeholders' interview reports and the responses of the OBIS Nodes to the questions communicated by the consultants.

## 2 Work performed over the duration of the assignment

The Kick-off meeting (Task 6) was organized online on 18 October 2021. The consultants were in regular (weekly) contact with the OBIS project Manager Ward Appeltans to proceed with the implementation of the Tasks and report on progress made.

The table below allowed to monitor progress in implementation of the tasks throughout the assignment period. The assignment was completed on 15 December 2021 with the submission of this Final Report.

Table 1. Progress made on tasks. The blue coloured boxes indicate the level of progress in each of the tasks and sub-tasks.

Task n°	Task	Subtask and actions	Not yet started	Ongoing	Well-advanced	Completed	Validated
1	Development of a roster	List stakeholders					
		List OBIS Nodes					
2	Interview of stakeholders and strategic plans	Review strategic plans					
		Questionnaire for surveys					
		Questionnaire template for interviews					
		Analysis of data					
		Survey results analysis					
		Interviews reports					
		List of stakeholder needs					
3	Capacity of OBIS nodes and other relevant IODE data centres	Questionnaire					
		Analysis of data					
		Presentation of results					
4	Mapping activities	Presentation of results					
5	Gaps and opportunities	Presentation of results					
6	Communication and reporting	Weekly reports					
		Interim report					
		Final report					

A shared Drive was set up on Google Drive allowing for Seascope Belgium and the OBIS Project Manager to exchange documentation and work together on the selection of key stakeholders to interview from the List of Stakeholders.

## 3 Outputs and results

### 3.1 Task 1: Develop a roster of stakeholders and OBIS nodes and their contact details

The List of Stakeholders was set up and progressively updated by Seascope Belgium based on the list of OBIS partners available from the OBIS website, suggestions from Ward Appeltans and the OBIS Nodes and suggestions from Seascope Belgium consultants.

A copy of the List of Stakeholders is included in Annex 1. It is available in Excel format at:

[https://docs.google.com/spreadsheets/d/1rFUxylf98YMejhh\\_2-aBcCGgFxOd5HSH/edit#gid=284745337](https://docs.google.com/spreadsheets/d/1rFUxylf98YMejhh_2-aBcCGgFxOd5HSH/edit#gid=284745337)

Ward Appeltans identified key stakeholders from the list for one-to-one interviews in Task 2. Seascope Belgium contacted the selected stakeholders by e-mail to set up the online interviews.

Ward Appeltans provided Seascope Belgium with the list of OBIS Nodes to be contacted in Task 3.

### 3.2 Task 2: Perform interviews with, and review the strategic plans of stakeholders and identify areas where OBIS can contribute

Task 2 included surveys and interviews as described below. The results of Task 2 served as input for Tasks 3, 4 and 5.

#### 3.2.1 Surveys

- Using the EU Survey tool, the consultants prepared a **survey for OBIS Training Alumni** which was made available online at [https://ec.europa.eu/eusurvey/runner/OBIS\\_Alumni\\_General\\_Survey](https://ec.europa.eu/eusurvey/runner/OBIS_Alumni_General_Survey). The survey was launched on 3 November and was closed on 16 November 2021. An e-mail was sent by Seascope Belgium to all OBIS Training Alumni on 3 November 2021 to invite them to participate in the survey, and a reminder email was sent on 9 November 2021. **A total of 77 responses were received.** A copy of the survey and the results are presented in Annex 2.
- Using the EU Survey tool, the consultants prepared a **general survey** for all stakeholders which was made available online at: [https://ec.europa.eu/eusurvey/runner/OBIS\\_General\\_Online\\_Survey](https://ec.europa.eu/eusurvey/runner/OBIS_General_Online_Survey). The survey was launched on 3 November and was closed on 16 November 2021. Texts for the promotion of the survey through various channels were prepared by Seascope Belgium. The survey was promoted in the following ways:
  - An article was published by OBIS on the OBIS website on 5 November 2021 inviting anyone interested to contribute to the survey.
  - An announcement was included in the OBIS newsletter.
  - The survey was promoted on the OBIS Facebook account, Twitter and LinkedIn.
  - The survey was also promoted with the MARINE-B list (Marine Research Information Network on Biodiversity).

**A total of 48 responses were received.** A copy of the survey and the results are presented in Annex 3.

### 3.2.2 One-to-one interviews

In total, 15 key stakeholders identified in Task 1, were invited for an online one-to-one **semi-structured interview**. **Responses were received from 10 stakeholders** as shown in the table below:

- A total of 7 interviews were carried out by videoconference; and
- In some cases, a videoconference could not be organized in the given period due to agenda constraints on the interviewee's side. In these cases, the questions were sent by email. Completed questionnaires were received from 3 stakeholders.

Table 2. List of interviews carried out and other contacts

Geographic scope	Interviewee	Affiliation	Date of the interview / Date questions sent	Format of the interview
Global	Tim Hirsch	Global Biodiversity Information Facility (GBIF)	4/11/2021	Videoconference
Global	Frank Muller-Karger	Marine Biodiversity Observation Network (MBON) and Marine Life2030)	4/11/2021	Videoconference
Global	Joseph Appiott	Secretariat of the Convention on Biological Diversity (CBD)	9/11/2021	Videoconference
Global	Patricia Miloslavich	Scientific Committee on Oceanic Research (SCOR)	23/11/2021	Videoconference
Global	Taco de Bruin	Intergovernmental Oceanographic Commission (IOC) of UNESCO, International Oceanographic Data and Information Exchange (IODE)	23/11/2021	Videoconference
Global	Nicholas Bax	Global Ocean Observation System (GOOS) Biology and Ecosystems (BioEco) Panel	25/11/2021	Videoconference
Flanders (Belgium)	Gert Verreet	Flemish Government, Department of Economics, Science and Innovation (Vlaamse	6/12/2021	Videoconference

		Overheid, Departement EWI)		
Global	Luciana Genio	International Seabed Authority (ISA)	19/11/2021	E-mail questionnaire
Global	Lauren Weatherdon	United Nations Environment Programme – World Conservation Monitoring Centre (UNEP-WCMC)	24/11/2021	E-mail questionnaire
Regional (Africa)	Arthur Tuda	Western Indian Ocean Marine Science Association (WIOMSA)	29/11/2021	E-mail questionnaire

**Questions were sent to the following stakeholders but no response were received in the given timeframe**

Regional (Africa)	David Obura	Coastal Oceans Research and Development - Indian Ocean (CORDIO) East Africa	A videoconference was first planned on 22/11/2021. It was rescheduled to 24/11/2021 and finally cancelled due to time constraints of the interviewee.	No response was received to the questionnaire sent by e-mail.
Pacific Ocean	Anthony Talouli	Secretariat of the Pacific Regional Environment Programme (SPREP)	23/11/2021	Due to time constraints of the interviewee, it was not possible to organise a videoconference and no response was received to the online questionnaire. However, he sent links to relevant information (see dedicated paragraph below).
Global	Margaret Leinen	Decade programme: Ocean Biomolecular Observation Network (OBON)		Several e-mails were exchanged but no response was received within the given timeframe.

**No response was received from the following stakeholders**

Pacific Ocean	Kathy Soapi	The Pacific Community Centre for Ocean Science (PCCOS)		No Response.
Global	Maury G. Estes	NASA Ecological Forecasting Applications Program		No Response.

Strategic Plans (where available) and documentation about all stakeholders in Table 2 were collected and reviewed in preparation of the interviews.

Reports of the interviews carried out by videoconference, summarizing the responses from the interviewees to the questions, were sent to the interviewees for review to ensure that the reports correctly present their views. This also allowed the interviewees to complete their answers if and where they wished. The finalized interview reports are included in Annex 4. The interview reports include references to the Strategic Plans and documentation that were collected in the framework of the interviews. These reports are considered as confidential working documents. Some interviewees sent articles and documentation by e-mail to the consultants. These documents are included as PDF annexes to this report.

During the interviews, **the interviewees expressed keen interest in knowing what OBIS will do with the results of the study, and in being kept informed of the outcomes.**

### 3.2.3 Information received from the Secretariat of the Pacific Regional Environment Programme (SPREP)

The consultants contacted Anthony Talouli from the Secretariat of the Pacific Regional Environment Programme (SPREP) by e-mail (see Table 2). Several e-mails were exchanged but an interview could unfortunately not be organized in the given timeframe. He explained that responding to the questions asked would require the consultation and involvement of his colleagues. Due to their workload, it was not possible for them to answer the consultants’ questions by videoconference or e-mail. However, he sent links to the following relevant information:

- The [Inform project](#) aimed to establish a Pacific island network of national and regional data repositories and reporting tools to support the monitoring, evaluation, and analysis of environmental information, which supports environmental planning, forecasting, and reporting requirements. The Project has been executed in fourteen Pacific Island Countries during a four-year regional project (2017–2021). National environment portals have been introduced and set up in 11 Pacific island countries.
- In addition to national portals mentioned above, the [Pacific Environment Portal](#) provides an easy way to find, access and reuse regional and national data. The [Pacific Data Hub](#) from the Pacific Community (SPC) and the [Pacific Environment Portal](#), as well as the country portals make up the Pacific Data Ecosystem (PDE).

### 3.2.4 Information from the European Commission

Seascope Belgium contacted the European Commission to carry out an interview related to the recently launched Horizon Europe [Mission 'Restore our Ocean and Waters by 2030'](#). The consultants' invitation for an interview was forwarded to the Mission Secretariat. However, no interviews could be organized within the given timeframe.

Review of the [Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on European Missions](#) shows that Mission 'Restore our Ocean and Waters by 2030' will aim to:

- Protect and restore aquatic ecosystems and biodiversity;
- Prevent and eliminate pollution; and
- Make the EU's blue economy carbon-neutral and circular.

The Horizon Europe programme will provide EUR 344.16 million in the period 2021-2023 to support the implementation of the mission, with other funding including from the European Maritime Fisheries and Aquaculture Fund, Invest EU and other programmes (e.g. EU Space Program).

Planned actions are to:

- Launch 'lighthouses' in major sea and river basins to pilot, demonstrate and deploy solutions to achieve the mission objectives;
- Conclude lighthouse implementation charters to ensure governance and political commitment;
- Establish EU-wide 'Blue Parks' to provide new restoration and conservation opportunities, as well as expand networks of marine protected areas;
- Put in place a digital ocean and water knowledge system which includes preparation of the Digital Twin Ocean, an action contributing to the activities of the Destination Earth Initiative, and improved environmental monitoring of the ocean health, supporting effective water management; and
- Connect, mobilize and empower European citizens and local communities to take action for the restoration of the ocean and waters in a more inclusive way.

OBIS could be useful and could potentially contribute to some of these actions.

Details on Mission 'Restore our Ocean and Waters by 2030' are available in the [Implementation Plan](#).

The European Commission has announced that dedicated [Info-Days for the EU Missions](#) will be held virtually between 18 and 19 January 2022. Mission 'Restore our Ocean and Waters by 2030' (Mission Ocean) will be discussed in the morning of 18 January 2022. This will be an interesting opportunity to learn how OBIS could connect to Mission Ocean and what potential sources of funding are.

### 3.3 Task 3: Assess the capacity of OBIS nodes and other IODE data centres in biological data management

Based on the analysis of the information collected during the interviews and in the surveys, Seascope Belgium developed a Google Excel spreadsheet listing the identified stakeholder needs and gaps, resulting opportunities, means required and/or suggested to address these needs and stakeholder involvement.

This spreadsheet was shared with all OBIS Nodes on 25 November 2021 for review. They were asked to complete the file by:

- Answering a list of questions related to the identified needs;
- Rating the feasibility of the measures proposed to address the identified needs (0: non-feasible - > 5: feasible in the short-medium term); and
- Rating the impact of the measures proposed to address the identified needs (1: small help to a small number of users and/or minor support to science and biodiversity objectives -> 5: significant help to a large number of users and/or significant support to science and biodiversity objectives)

OBIS Nodes were asked to send their responses by Wednesday 8 December 2021. **Responses were received from 10 OBIS Nodes.**

The spreadsheet containing the answers from the OBIS Nodes is included as Annex 5 to this report. The full results cannot be summarized here as the interest lies in the specific responses from each OBIS Nodes and differences are observed between OBIS Nodes. However, some overarching observations are highlighted below:

- With regard to **suggested priority for potential new stakeholders and data providers**, OBIS Nodes mentioned Ocean Decade Programmes, impact assessment at large regional scale, Pacific Small Island Developing States (SIDS), NGOs, environmental consulting companies, local/regional environmental agencies, regional assessments, national or regional stakeholders, who deal with natural environment and biodiversity Environmental Impact Assessments, local governments that manage local coastal areas and data collected as part of MSC evaluations. One OBIS Node mentioned science, industry, policy and the wider public. One OBIS Node pointed out that it would be helpful to have clear examples demonstrating why data providers should take the time to provide data, illustrating the benefits to them and to society and the science community as a whole. OBIS Nodes also underlined it would be important to identify which data OBIS would like to integrate, and standardization and trainings for new data providers would be essential to the integration of new types of data into OBIS.
- The **risk of data duplication** when connecting to new data providers or connecting with other data repositories was highlighted as well as the need to address this.
- Inclusion of new types of data could focus on **imagery, genetic data and tracking data**.
- **Marine Protected Areas** and **coastal monitoring** were mentioned as suggested project priorities.
- **Collaboration between scientists and data managers** was highlighted as a suggested action.
- Responses from OBIS Nodes show that there is a **need to update trainings**. Several suggestions were made which the consultants integrated in the results presented in Task 5.
- Many OBIS Nodes pointed out that **time and resources are limited**. This constitutes the main constraint to the development of proposed measures based on identified needs from stakeholders. This implies that the identification of additional sources of funding is key to further developments and priorities have to be set on what can be done.
- Two OBIS Nodes mentioned suggested **use cases**. OBIS Brazil indicated that they have shared a sea turtle dataset from an NGO generated from citizen science monitoring. OBIS Australia explained that the government group that manages the Australian marine Parks already want data from surveys to be uploaded to OBIS as a requirement for working in those parks, along with significant physical data from CSIRO and other sources.
- With regard to suggested partnerships, one OBIS Node stated that **regional partnerships** are needed.
- Several OBIS Nodes indicated that the **translation of simplified guidance documents** into other languages would be useful but there are no resources for this.

Few OBIS Nodes provided a rating for feasibility and impact of the proposed measures given the difficulty of the task. The results differ between the OBIS Nodes, making it difficult to provide an overall rating or order of priority for the proposed measures. Nevertheless, the provided ratings show that none of the proposed measures were considered as being non-feasible and non-impactful (none of the measures were rated as 0 or 1). Therefore, the consultants did not exclude any of the proposed measures from further analysis in Tasks 4 and 5 and they conclude that all of these measures could be considered further by OBIS.

### 3.4 Task 4: Create an overview by mapping activities carried out by stakeholders with support from OBIS

Based on the results of the interviews and surveys as well as input received from the OBIS Nodes, key stakeholder activities were identified that could benefit from the direct support from OBIS with suggestions on how OBIS could contribute (Table 3).

The activities listed in the general survey (Annex 3, Figure 11) that were touched upon in the interviews are listed in Table 3 part A. Activities that were not touched upon or extensively discussed in the interviews as well as suggestions from the consultants for activities that could be of relevance, are listed in Table 3 part B.

It should be noted that this table provides a first general overview based on the input from stakeholders that was received within the two-month period of the current study. The objective of this table is to show the range of possibilities. There is a wide diversity of activities that could benefit from OBIS data. However, further analysis is needed to specify potential challenges that are associated with these activities. More detailed analysis on a case-by case basis and further stakeholder consultation would be needed for OBIS to consider direct support to these activities.

Next steps could consist of:

- Ranking the activities according to OBIS priorities and capacities with the help of OBIS Nodes (which activities to support, why and how);
- Identifying additional stakeholders involved in the different activities which could be contacted to discuss their needs in more technical details, identifying how OBIS could support them and how potential new partnerships could be developed;
- Identifying how potential challenges and constraints could be addressed.

Table 3. Overview of activities carried out by stakeholders that could benefit from the support from OBIS

Activity	Stakeholder involved	Stakeholder needs	Challenges to stakeholders	How OBIS could contribute	Comment
<b>A) Activities touched upon in the interviews</b>					
<b>Scientific research</b>	Scientists	Need for and easy access to (raw) marine biodiversity data with assured quality; Need for simple(r) data uploading mechanism; Need for easily applied data standards; Need for clear data licenses; Need for a workflow to upload data to both GBIF and OBIS in one go; Need to combine biodiversity data with other types of data.	Issues related to data interoperability and standardisation when sharing and when combining data (across disciplines or from different repositories); Trust in the quality of the data/ reliability; Limited time and resources to upload/share their data.	Stronger partnerships with GBIF and other marine data repositories; Extending portfolio of data providers; Transparency with regard to level of completeness and accuracy of data offered; Training tailored to the needs, and the development of training modules.	
<b>Reporting by national governments/ environment ministries to UN Conventions</b>	Policy-makers and national ministries	Need for data products, summarised information, high-level information (per country); Quality assurance information on the data; Need for data search filters (e.g. by EOV, reporting indicators).	OBIS is not well known to non-scientists; Find relevant and recent biodiversity information in an easy-to-understand format and a standardised format that can directly be included in a report; Compliance of the information with the required reporting indicators.	Communication towards and training for policy-makers and ministries; Better understanding policy-makers' needs and requirements; Developing data products and data summaries tailored to the needs of the stakeholders; Transparency on data quality and completeness of the data.	
<b>Future development of indicators in the framework of the Post-2020</b>	CBD	Need for and easy access to marine biodiversity data and indicators of ecosystems health.		Communicate to and participate in ad hoc Technical Groups on indicators.	Importance of COP 2022.

Activity	Stakeholder involved	Stakeholder needs	Challenges to stakeholders	How OBIS could contribute	Comment
<b>Biodiversity Framework</b>					
<b>Global Biodiversity Outlook</b>	CBD	Need for and easy access to marine biodiversity data, indicators and models.	Find relevant and recent biodiversity information in an easy-to-understand format and a format that can directly be used.	Produce high-level information and summaries on marine biodiversity as input for the Global Biodiversity Outlook	
<b>Environmental Impact Assessments (EIAs)</b>	Industry	Need for and easy access to marine biodiversity data.	Find relevant and recent biodiversity information in an easy-to-understand format and a format that can directly be used.	Reach out to the stakeholders who work on EIAs (going to conferences and events organised by them) and communicating in channels that they are using (e.g. journals); Organise trainings for people in this field.	
<b>Digital Twin of the Ocean</b>	Scientists	Need for and easy access to all kinds of marine biodiversity data and models.	Find quality assured data, time series and models.	Produce tailored products or computing space for data analyses; Understanding the needs of modelers.	
<b>Blue Economy/ Biotechnology/ Industry</b>	Scientists, industry	Need for and easy access to marine biodiversity data and data products.		Networking, presence at conferences where these stakeholders are represented to understand their needs; Publishing on OBIS in specific journals in this field; Organise trainings for people this field.	

Activity	Stakeholder involved	Stakeholder needs	Challenges to stakeholders	How OBIS could contribute	Comment
<b>World Assessments</b>	IPBES, IPCC	Need for and easy access to marine biodiversity data, indicators and models.		Produce high-level information and summaries on marine biodiversity as input for the Global Biodiversity Outlook	
<b>Biodiversity Beyond National Jurisdiction (BBNJ)</b>	Policy-makers	To be further assessed	Find relevant biodiversity data for those areas; Better knowledge of these areas; Proper management of these areas.	Monitor the negotiations related to BBNJ; Identify needs related to data.	
<b>B) Other relevant activities identified based on the surveys and suggestions from the consultants</b>					
<b>Local ecosystem restoration, nature conservation and other projects</b>	NGOs, municipalities	Need for and easy access to local marine biodiversity data; Need for guidance on data sharing; Need for learning from other local projects/ similar local cases.	Find relevant biodiversity data for a specific area.	Engage with the stakeholders, help them finding the data they need; Demonstrate how to search for and use OBIS data in local projects; At the same time, offer trainings on data sharing with OBIS; Produce use cases on OBIS.	
<b>MPAs</b>	Manager of MPAs	To be further assessed	Find relevant biodiversity data for a specific area.	Engage with the stakeholders, help them finding the data they need.	

Activity	Stakeholder involved	Stakeholder needs	Challenges to stakeholders	How OBIS could contribute	Comment
<b>Implementation of nature-based solutions</b>	NGOs, local authorities	To be further assessed	Find relevant biodiversity data for a specific area.	Engage with the stakeholders, help them finding the data they need.	
<b>Maritime Spatial Planning</b>	Planners, local authorities, stakeholders	Need for and easy access to national marine biodiversity data.	Find relevant biodiversity data for a specific area.	Engage with the stakeholders, help them finding the data they need.	
<b>Ocean Literacy</b>	Science/research; private sector; citizens; public sector; education	Visual information about the Ocean; factsheets e.g. on a specific species; educational material	Find relevant biodiversity information in an easy-to-understand format and a standardised format that can directly be included in a report.	Create links with Ocean Literacy organisations, universities, other formal and non-formal education stakeholders; Outreach and communicate about the added value of biodiversity data; Highlight career opportunities in data management.	

### 3.5 Task 5: Identify gaps and opportunities for improvements in stakeholder engagement, including developing new partnerships – Conclusions and recommendations

#### 3.5.1 SWOT analysis of OBIS

A SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis of OBIS in the evolving global context was carried out based on the results from the stakeholders' surveys and interviews, information received from the OBIS Nodes and information shown in Table 3 (Task 4). The results are presented in SWOT analysis of OBIS in the evolving global context, based on the results from the stakeholders' surveys and interviews, information received from the OBIS Nodes and information shown in Table 3 Table 4 on the next page. Technical aspects, operational aspects, policy aspects, capacity building and global contexts have been considered.

This SWOT analysis can be used to further assess the opportunities that have been identified and OBIS' capacity to translate these opportunities into new developments and in what conditions.

Table 4. SWOT analysis of OBIS in the evolving global context, based on the results from the stakeholders' surveys and interviews, information received from the OBIS Nodes and information shown in Table 3

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>- Quality controlled open data.</li> <li>- A comprehensive, constantly expanding gateway to the world's ocean biodiversity and biogeographic data. Status on 13 December: 80,579,265 presence records, 161,653,697 measurements and facts, 4,342 datasets and 156,665 accepted species.</li> <li>- Inclusion in OBIS of environmental data connected to biodiversity data (ENV-format).</li> <li>- Global coverage and activities with OBIS Nodes across the world.</li> <li>- The majority of the survey respondents indicated that OBIS is helping them achieve their goals.</li> <li>- Positive feedback on trainings organized by OBIS for data providers and users (see results of the Training Alumni survey).</li> <li>- Positive feedback received from interviewees.</li> </ul>	<ul style="list-style-type: none"> <li>- OBIS is not well known beyond the scientific community.</li> <li>- Low offer of data products or other forms of data analyses/ high-level summaries.</li> <li>- Lack of data filters.</li> <li>- Limited functionality of the OBIS mapper.</li> <li>- Low visibility, communication and outreach.</li> <li>- Confusion in users' minds around differences in data from OBIS and GBIF.</li> <li>- Limited resources for development.</li> <li>- Rather complex data uploading process.</li> <li>- Complex guidance for users.</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>- Strengthening links with other data repositories can be developed (e.g. GBIF).</li> <li>- Establishing connections to new data providers such as NGOs or environmental impact assessment professionals.</li> <li>- Support to National Environment Ministries for reporting in the framework of the Post-2020 Framework for Global Biodiversity.</li> <li>- Ocean Decade networking possibilities, visibility for ocean research and new data issued by Ocean Decade projects/programmes/actions.</li> <li>- Communication and outreach opportunity at the <a href="#">Ocean Decade Laboratory</a> 'An Accessible Ocean' planned on 10-12 May 2022.</li> <li>- Support international environmental/biodiversity protection processes: Biodiversity Beyond National Jurisdiction (BBNJ).</li> <li>- Further developments in training sessions for existing and potentially new users by OBIS or combined trainings with partners (e.g. GBIF, WoRMS, WIOMSA).</li> <li>- Secure additional funding via opportunities from G7, Foundations, carbon offset projects. Funding</li> </ul>	<ul style="list-style-type: none"> <li>- Limited funding for OBIS as a whole and for OBIS Nodes.</li> <li>- Limited staff.</li> <li>- Data sharing barriers, e.g. data policies.</li> <li>- Competition between data repositories.</li> </ul>

at European level and development of European Union funded research (e.g. Horizon Mission Ocean).

- Increased recognition for the link between biodiversity and climate change at COP26.
- Nature-based solutions increasingly highlighted as important for climate change mitigation and adaptation.
- Establish/strengthen local/ community partnerships where relevant.
- Increased societal interest for biodiversity and Ocean literacy.

Depending on future resources and general project priorities, OBIS can select among the identified opportunities those that it finds most relevant and feasible for potential inclusion in the future OBIS strategy.

### 3.5.2 Conclusions and recommendations

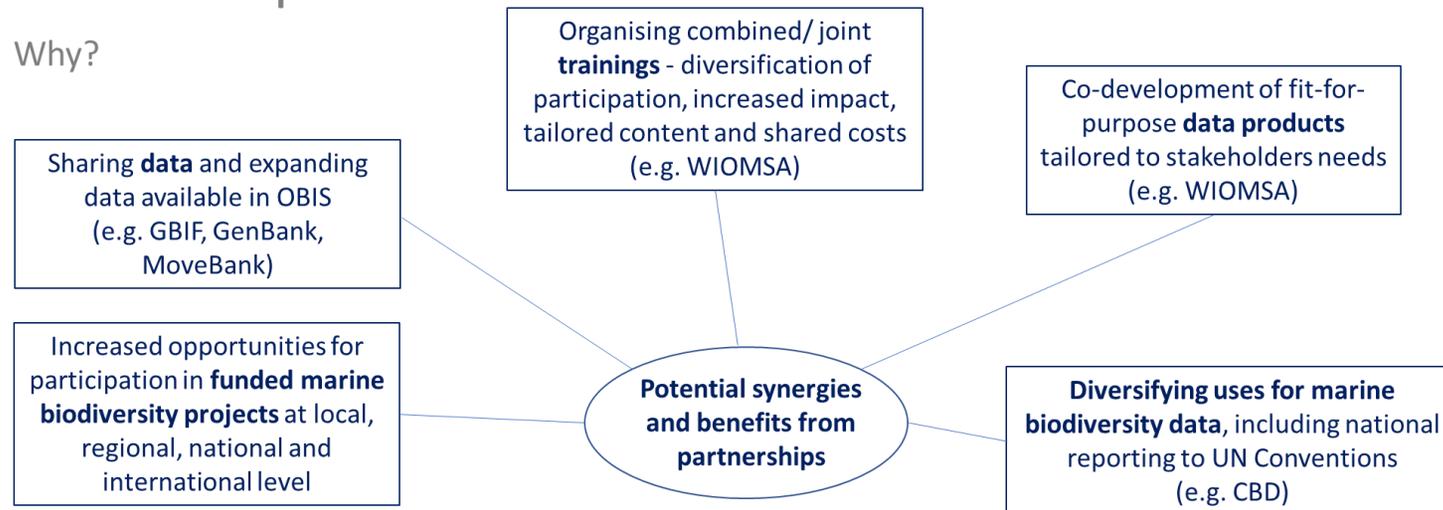
Using the results of the above tasks, gaps and opportunities for improvements in stakeholder engagement were identified and categorized into the following topics:

- Partnerships
- New training
- Promotion of OBIS to a wide variety of stakeholders
- Practical and technical suggestions
- Funding

The results are presented hereafter. Information on funding is limited to funding sources mentioned in the interviews and is not comprehensive. Further detailed analysis would be needed to identify relevant funding sources to finance measures that OBIS would give priority to, depending on the specificities of the activities and projects that will be developed.

# Partnerships

Why?



How? By expanding networks and increasing visibility

- Seek and optimise networking opportunities within the Marine Life 2030 Ocean Decade Programme and other Ocean Decade Programmes
- Proactive involvement in the [Ocean Decade Global Stakeholder Forum](#) (posting and participating in other organisations' activities)
- Requesting Ocean Decade endorsement for OBIS events and activities
- Presentations at selected events targeting audiences beyond science (e.g. NGOs, policy-makers, industry sectors, ...)

Figure 1. Gaps and opportunities for improvement in the field of partnerships

# New training

## Why?

### To target specific stakeholder groups working on:

- Scientific research
- Nature conservation & habitat restoration, including MPAs
- Biodiversity status reports
- Reporting to UN Conventions and policy-making
- ... (according to new needs)

### To ensure OBIS is widely known and used:

- In universities
- In research organisations
- In public bodies

### To facilitate submission of data to OBIS:

- For new users
- For intermediate users
- Refresher session for expert users



### To support OBIS Nodes on how to deal with new data types

- Imagery, genetic data, ...

### To increase understanding of application of data standards, ENV-format, data quality control, vocabularies, metadata:

- For new users
- For intermediate users
- Refresher session for expert users

### To address regional needs and specificities:

- Availability/ coverage of OBIS data for a specific region and sources of data
- Understanding what data/ data products are available and how they can be used
- Extraction and analysis of OBIS data
- Understanding what data could be shared with OBIS and how
- Discussion on specific needs of the region (opportunity to assess needs)

## How? Through ...

- Further development of training sessions by OBIS in the OceanTeacher Global Academy; practical exercises
- Development of OBIS training modules that can be integrated into training courses organised by partners
- Assessment of needs for training content in the curriculum of marine biology students (universities)
- Development of video tutorials and material that can be published online and potentially included in MOOCs

Figure 2. Gaps and opportunities for improvement in the field of training

# Promotion of OBIS to a wide diversity of stakeholders

Why? To increase the use of OBIS and its contribution to the knowledge on and the conservation and sustainable use of marine biodiversity

How? By

- Building a Communication Strategy and Communication Plan
- Identifying opportunities for visibility through the Ocean Decade
- Strengthening networking opportunities by geographical OBIS Nodes

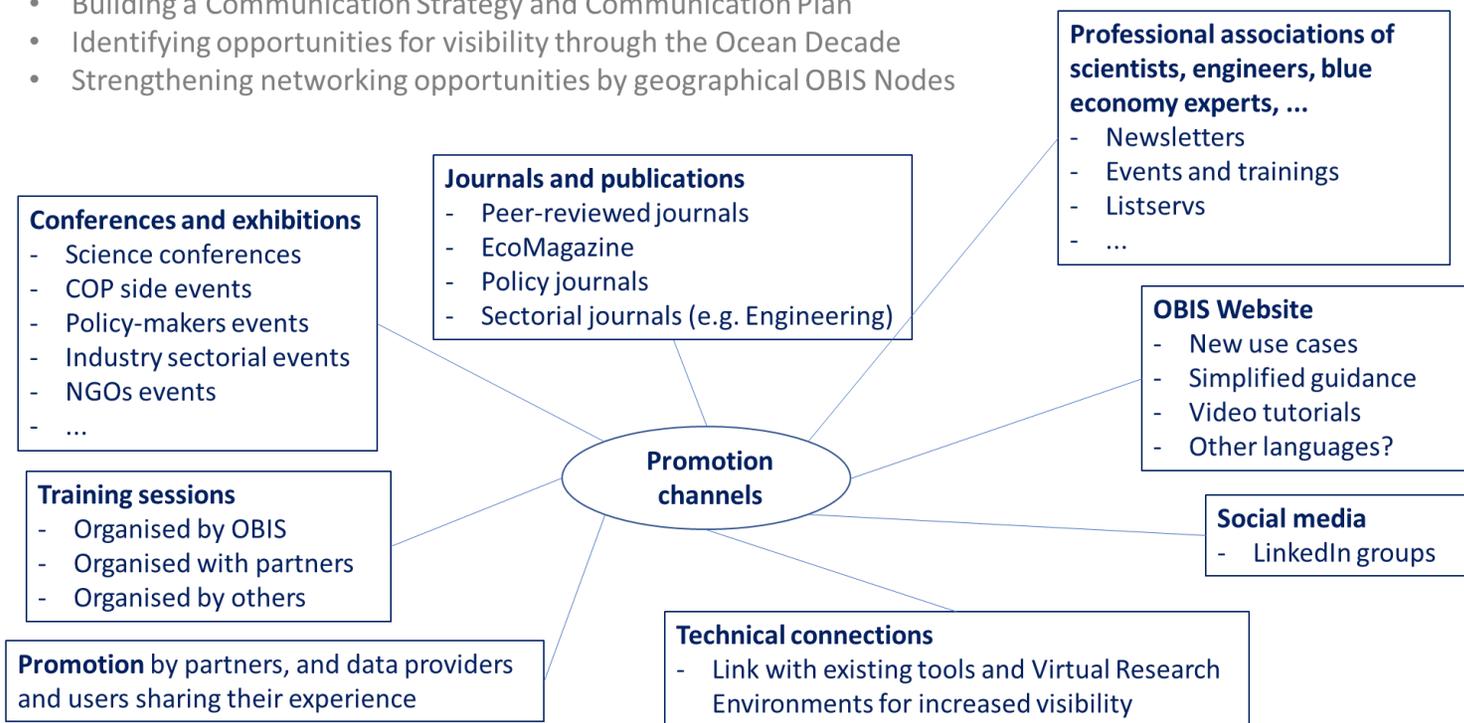


Figure 3. Gaps and opportunities for improvement in the field of promotion/ outreach

# Practical and technical suggestions

Why? To facilitate use of OBIS by a wider diversity of users

How? By developing

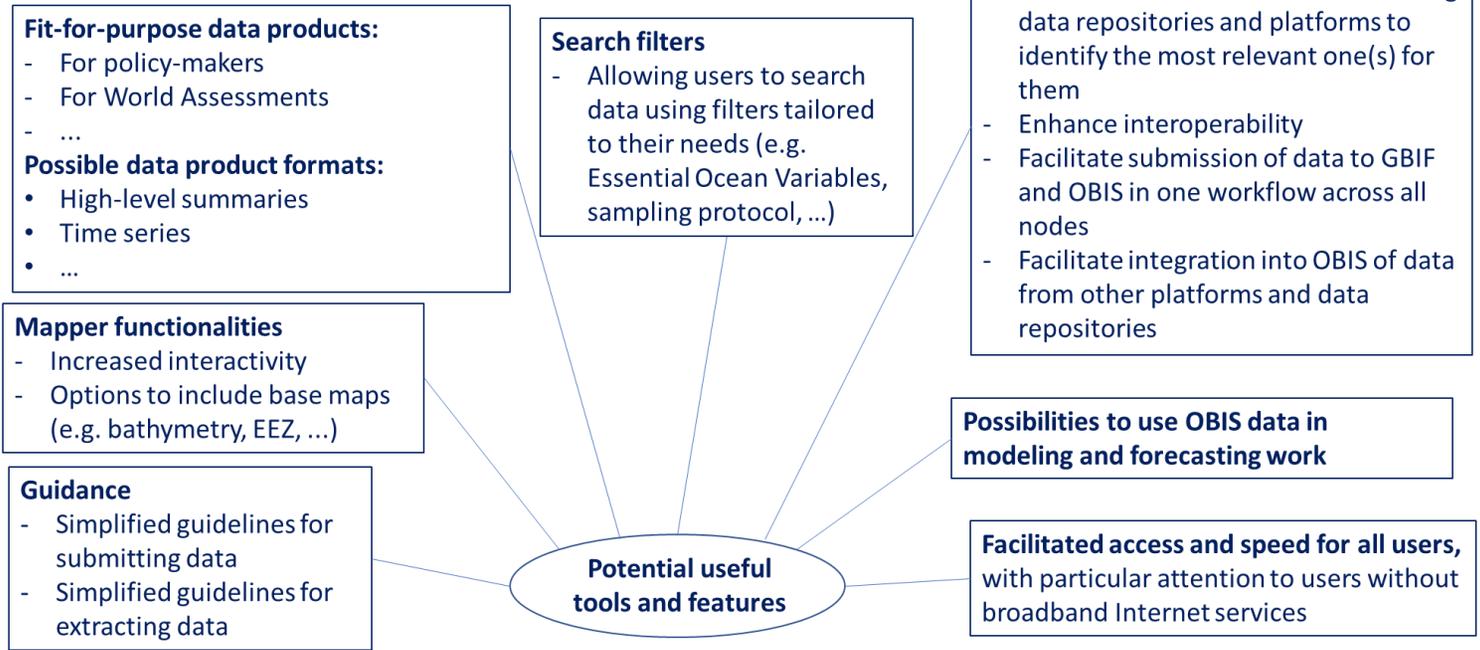


Figure 4. Gaps and opportunities for improvement in the field of technology and practice

# Funding

Why? To allow for further technical developments of OBIS to meet stakeholders' needs, increase its visibility, diversify its user base and ensure its sustainability

How? By considering new funding opportunities

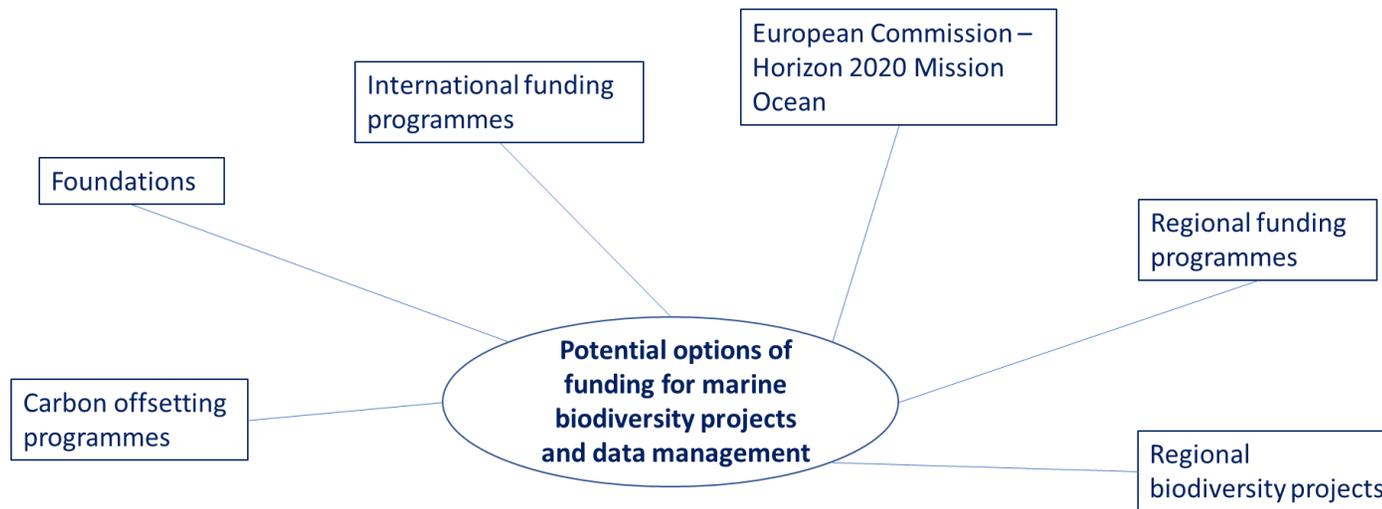


Figure 5. Gaps and opportunities for improvement in the field of funding. Information on funding is limited to funding sources mentioned in the interviews and is not comprehensive.

### 3.6 Task 6: Maintain regular communication with the OBIS project manager and reporting

Weekly reporting on the assignment was carried out via Skype meetings and messages, e-mails and the shared Google Drive folder.

The Interim Report was submitted by e-mail on 12 November 2021.

The Final Report was submitted by e-mail on 15 December 2021.

## Annex 1: Stakeholders List

Geographical scope	Type of Stakeholder	Organisation / Policy Framework/ Experts	Sector type
Atlantic Ocean	Project/ Programme	AANChOR	Scientific research
Polar Regions	Scientific researchers' association	Association of Polar Early Career Scientists (APECS)	Scientific research
Atlantic Ocean	Project/ Programme	AtlantECO	Scientific research
International	Project	BLACK SEA CONNECT	Blue Economy
	International process	CBD Secretariat	Nature Conservation
Africa	Scientific researchers' association	Coastal Oceans Research and Development - Indian Ocean (CORDIO) East Africa	Scientific research
Polar Regions	International process	Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)	Nature Conservation
International	International process	Convention on Biological Diversity (CBD)	Nature Conservation
International	Project/ Programme	Decade Programme: Joint Exploration of the Twilight Zone Ocean Network	Scientific research
International	Project/ Programme	Decade Programme: MarineLife2030	Observations and data management
International	Project/ Programme	Decade Programme: Ocean Biomolecular Observation Network (OBON)	Scientific research
International	Scientific researchers' association	Deep-Sea Biology Society (DSBS)	Scientific research
International	Project/ Programme	Digital Twins of the Ocean (DITTO)	Modelling and simulations

Geographical scope	Type of Stakeholder	Organisation / Policy Framework/ Experts	Sector type
Asia	Government	Division of Biodiversity and Forestry, Ministry of Energy and Natural Resources, Malaysia	Policy-making
Asia	Government	Division of Marine Park and Fisheries Resources, Department of Fisheries, Ministry of Agriculture and Food Industries, Malaysia.	Policy-making
North America	Academic institutions	Duke University (Marine Geospatial Ecology Lab)	Scientific research
International	Scientific researchers' association	Early Career Ocean Professionals (ECOP)	Scientific research
International	Scientific researchers' association	eBird	Observations and data management
Europe	Policy maker	European Commission - Horizon Europe Mission on Ocean	Funding
Europe	Environmental Agency	European Environmental Agency	Observations and data management
International	Project/ Programme	EuroSea	Observations and data management
Europe	Funder	Flanders Government	Funding
International	Funder	Flanders UNESCO Trust Fund	Funding
International	United Nation Entity	Food and Agriculture Organization (FAO)	Blue Economy
International	Partner	GBIF (Global Biodiversity Information Facility)	Observations and data management
International		GEOBON	
International	Partner	GEOBON MBON	Observations and data management
Europe	Academic institutions	GeoEcoMar	Environmental assessment, Impact

Geographical scope	Type of Stakeholder	Organisation / Policy Framework/ Experts	Sector type
			assessments & Environmental Management
International	Partner	Global Ocean Biodiversity Initiative (GOBI)	Environmental assessment, Impact assessments & Environmental Management
International	Partner	GOOS (Global Ocean Observation System)	Observations and data management
North America	Funder	Government of Canada, Department of Fisheries and Oceans (DFO)	Government
Europe	Academic institutions	Institute of Marine Biology of the NAS of Ukraine	Scientific research
Australia	Partner	Integrated Marine Observing System (IMOS)	Observations and data management
Polar Regions	International process	Intergovernmental Conference on Marine Biodiversity of Areas Beyond National Jurisdiction (BBNJ)	Policy-making / Policy implementation
International	Intergovernmental body	Intergovernmental Oceanographic Commission of Unesco, International Oceanographic Data and Information Exchange (IODE)	Observations and data management
International	Scientific researchers' association	International Association for Biological Oceanography (IABO)	Scientific research
International	Partnership between Nations and organizations	International Coral Reef Initiative (ICRI)	Nature Conservation
International	Scientific researchers' association	International Science Council	Scientific research

Geographical scope	Type of Stakeholder	Organisation / Policy Framework/ Experts	Sector type
International	International organization	International Seabed Authority	Policy-making / Policy implementation
International	World Assessments	IPBES	Scientific research
International	World Assessments	IPCC	Scientific research
	International Union	IUCN Fisheries Expert Group (FEG)	Nature Conservation
International	International Union	IUCN Global Marine and Polar Programme	Nature Conservation
Pacific Ocean	Government	Japan Wildlife Research Center	Policy-making
Europe	Partner	LifeWatch Belgium	Observations and data management
International	Scientific researchers' association	Marine Biological Association	Policy-making
Asia	Academic institutions	Middle East Technical University (METU)	Scientific research
Central and South America	Government	Ministry of Ecosocialism (Biological Diversity Office; General Directorate of Biological Diversity)	Policy-making
Pacific Ocean	Government	Ministry of Environment, Japan	Environmental assessment, Impact assessments & Environmental Management
International	Project/ Programme	MSPglobal	Maritime Spatial Planning
International	Academic institutions	NASA Ecological Forecasting Applications Program	Modelling and simulations
Pacific Ocean	International process	Northwest Pacific Action Plan (NOWPAP)	Environmental assessment, Impact assessments &

Geographical scope	Type of Stakeholder	Organisation / Policy Framework/ Experts	Sector type
			Environmental Management
International	Project/ Programme	Ocean Data Interoperability Program (ODIP)	Observations and data management
International	Partner	Ocean Tracking Network (OTN)	Observations and data management
International	Scientific researchers' association	Oceans Past Initiative	Environmental assessment, Impact assessments & Environmental Management
International	Global alliance of UN agencies, NGOs and specialist institutes	Partnership for Environment and Disaster Risk Reduction (PEDRR)	Disaster Risk Reduction
Central and South America	NGO	PROVITA	Environmental assessment, Impact assessments & Environmental Management
North America	Funder	Richard Lounsbery Foundation	Funding
PolarRegions	Scientific researchers' association	Scientific Committee on Antarctic Research (SCAR)	Scientific research
International	International organization	Scientific Committee on Oceanic Research (SCOR)	Scientific research
Pacific Ocean	Project/ Programme	Secretariat of the Pacific Regional Environment Programme (SPREP)	Observations and data management
International	Government	Small Island Developing States (SIDS)	Blue Economy
Pacific Ocean	International organization	SPC/The Pacific Community Centre for Ocean Science (PCCOS)	Observations and data management
International	Partner	TDWG Data Quality Interest Group	Observations and data management

<b>Geographical scope</b>	<b>Type of Stakeholder</b>	<b>Organisation / Policy Framework/ Experts</b>	<b>Sector type</b>
Asia	Policy maker	The Scientific and Technological Research Council of Turkey (TÜBİTAK)	Policy-making
International	International process	UN Decade of Ocean Science for Sustainable Development	Scientific research
International	Partnership between Nations and organizations	UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC)	Environmental assessment, Impact assessments & Environmental Management
Indian Ocean	NGO	Western Indian Ocean Marine Science Association (WIOMSA)	Environmental assessment, Impact assessments & Environmental Management
International	World Assessments	World Ocean Assessment Report - Lead Authors of Chapters 6 (Trends in the biodiversity of the main taxa of marine biota) and 7 (Trends in the state of biodiversity in marine habitats)	Scientific research
International	Blue economy professionals	World Ocean Council	Blue Economy
International	Partner	World Register of Marine Species (WoRMS)	Observations and data management

## Annex 2: Results of the Training Alumni survey

This annex reflects the final results and feedback received on the survey, which ran from 3 to 16 November 2021, and brings together viewpoints from the various types of users and sectors that participated in the Training Alumni survey. Responses by users have been cited “as is” (sic). A screenshot of the survey is shown in Figure 6 on the following three pages. In total, 77 alumni completed the Training Alumni survey.

The raw results of the training alumni survey were provided in the form of Excel spreadsheets attached to the Final Report. Name of the Excel files:

- Content\_Export\_OBIS\_Alumni\_General\_Survey\_Contributions\_Final.xlsx
- Statistics\_Export\_OBIS\_Alumni\_General\_Survey\_Contributions\_Final.xlsx

# OBIS Alumni General Online Survey

Fields marked with \* are mandatory.



You are invited to take part in an online survey on OBIS, because you have taken part in one or several OBIS trainings in the past. The survey investigates the evolving needs for marine biodiversity data and information and evaluates how these needs can be met.

We would be interested in your contribution to this short (5-minute) survey. In particular, we would like to learn about your experience in using OBIS since you participated in a [training course](#), and potential new needs you may have related to marine biodiversity data and products and/or training.

The results will help OBIS understand the requirements from its stakeholders, assess the capacity of OBIS to meet and support those needs, and identify the gaps and opportunities for improvement in stakeholder engagement.

## Privacy notice

By taking part in this survey, you agree with the privacy notice.

This survey is being carried out by Seascope Belgium for OBIS. All data is stored in a password protected electronic format. To help protect your confidentiality, the survey results will be anonymized upon analysis. The information you will provide will be shared internally with the team who manages OBIS.

For any questions about this survey, please do not hesitate to contact us at nathalie.tonne@seascopebelgium.be and nathalie.van.isacker@seascopebelgium.be

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The provision of personal information is fully optional. In case you wish to be contacted to discuss your comments in more detail, then kindly provide your details so the organisers of the survey can contact you.

Name (optional)

E-mail address (optional)

1

Affiliation (optional)

---

Your professional role/function

\* Geographical scope of your work

- Global
- Africa
- Antarctica
- Arctic
- Asia
- Australia
- Central America
- Europe
- North America
- Small Island Developing States
- South America

\* Which sector/stakeholder group does your organisation/entity belong to?

- Research/ academia
- Government/ policy-making
- Private institution/ company/ industry
- NGO
- Civil society
- Funder
- Other (please specify)

\* If other, please specify

\* Do you still use OBIS?

- Never
- I use other information sources
- Occasionally
- Frequently

\* Please specify the information sources you use

2

\* Have you been submitting any new data to OBIS since your last training?

- Yes
- No

\* Please indicate the reason why you have not submitted new data to OBIS

- Lack of institutional support
- I do not have time to do it
- I do not have the permission from my institution
- I changed job
- I do not know how to submit data to OBIS
- Not applicable
- Other (please specify)

\* Please specify

In the case you have encountered difficulties in submitting new data to OBIS, could you explain which difficulty/difficulties you encountered and how OBIS could resolve it/them?

Do you feel any data or product is missing in OBIS?

- Yes
- No

\* If yes, please specify

Do you have new needs from OBIS (for example, in terms of data or training, or other)? Please specify

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Thank you for your time and contribution.

Figure 6. The questions of the OBIS Alumni survey on EU Survey. The questions with a red \* were mandatory.

## Identification of survey respondents

### Geographic scope

The percentages in Figure 7 show that all geographical regions were represented in the study, apart from the Arctic region.

#### Geographical scope of your work

		Answers	Ratio
Global		9	11.69 %
Africa		16	20.78 %
Antarctica		1	1.30 %
Arctic		0	0.00 %
Asia		9	11.69 %
Australia		1	1.30 %
Central America		2	2.60 %
Europe		6	7.79 %
North America		8	10.39 %
Small Island Developing States		3	3.90 %
South America		22	28.57 %
No Answer		0	0.00 %

Figure 7. Geographic scope of the Alumni survey participants. Single option question.

### Organisation type

Figure 8 indicates that, at the time of responding, most of the OBIS Training Alumni were involved in research or academia, followed by a smaller fraction of respondents belonging to the public sector (government/ policy-making).

**Which sector/stakeholder group does your organisation/entity belong to?**

		Answers	Ratio
Research/ academia		60	77.92 %
Government/ policy-making		17	22.08 %
Private institution/ company/ industry		2	2.60 %
NGO		5	6.49 %
Civil society		0	0.00 %
Funder		0	0.00 %
Other (please specify)		3	3.90 %
No Answer		0	0.00 %

Figure 8. Sectoral spread of the Alumni survey participants. Multiple option question.

### Use of OBIS

Almost 55% of the respondents indicated to use OBIS occasionally, and up to 34% uses it frequently (see Figure 9). The ‘other information source’ indicated was “the government”.

**Do you still use OBIS?**

		Answers	Ratio
Never		8	10.39 %
I use other information sources		1	1.30 %
Occasionally		42	54.55 %
Frequently		26	33.77 %
No Answer		0	0.00 %

Figure 9. Single option question.

When asked whether they have been submitting any new data to OBIS since their last training, 70% of the Training Alumni respondents indicated they have (Figure 10).

The main reasons indicated for *not* submitting any data to OBIS (Figure 11), were “lack of institutional support” and “I do not have time to do it”. Clarifications provided by the respondents were as follows:

- Lack of post-OBIS-submission value;

- I am working with a project funded by GBIF and I will provide data through this platform that is linked with OBIS;
- Geo location needs to cross check and verify from source;
- We have no new georeferences data since our research vessel is down;
- Déménagement de nos services de Dakar à Diamniadio et notre station de données océanographiques est en cours de réinstallation avec des contraintes techniques (station MESA et actuellement GMES And Africa);
- I am preparing a phytoplankton database of 5 years yet. I hope to submit it soon;
- No suitable data generated.

**Have you been submitting any new data to OBIS since your last training?**

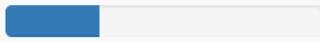
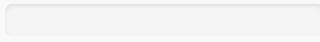
		Answers	Ratio
Yes		23	29.87 %
No		54	70.13 %
No Answer		0	0.00 %

Figure 10. Single option question.

**Please indicate the reason why you have not submitted new data to OBIS**

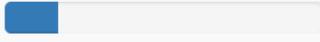
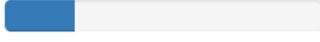
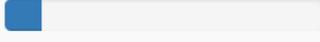
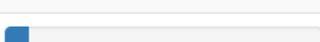
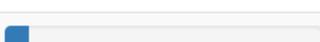
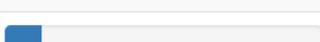
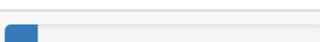
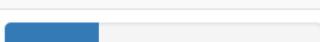
		Answers	Ratio
Lack of institutional support		13	16.88 %
I do not have time to do it		17	22.08 %
I do not have the permission from my institution		9	11.69 %
I changed job		6	7.79 %
I do not know how to submit data to OBIS		6	7.79 %
Not applicable		9	11.69 %
Other (please specify)		8	10.39 %
No Answer		23	29.87 %

Figure 11. Multiple option question.

On the question whether Training Alumni have been encountering difficulties in submitting new data to OBIS, and how OBIS could resolve those difficulties, 15 responses were received. The responses were grouped and cited below.

- Feedback related to **training**:

- Using OBIS is quite interesting but foundation training has to be addressed very well because I discovered during the training in 2013 some of us were not really carry along and some people from other Africa countries were well represented because it was not their first time in the training. I think there should be continuity on the training, not only one workshop will solve the issue of the OBIS;
- It is extremely complicated to upload data to the OBIS, during the course I thought they would indicate us with examples to guide us and it was not like that, it was more like: you fill out and when you have doubts we will help you, but we simply all had different doubts, and instead of giving us a clear example of how to fill out, what steps to follow and more, they gave us complicated manuals of things that we were not going to use;
- Can I have a tutorial on how to submit my data;
- Event core change from occurrence - refresher course;
- Feedback related to the **submission process or technical issues**:
  - Deal with historical datasets with no dates and coordinates;
  - Lots of difficulty with feeling like everything's been submitted/considered and made ready, some details like vocabs for fields are difficult to find guidance for but can be resolved in the community Slack or other live mechanism;
  - I am obliged by my funding agency to submit my research data to GBIF through the Brazilian GBIF's node (SiBBr), which is not connected to OBIS Brazil yet. It is time consuming to submit the data twice, to OBIS and GBIF;
  - R tools sometimes does not work correctly when I ask for the complete report;
  - Forgotten with access;
  - Avoir un appui institutionnel pour trouver un spécialiste qui pourrait réinstaller la station et trouver le signal pour recevoir à nouveau les données environnementales thématique Pêche et Océanographie;
  - We have to change our data into OBIS template or format such as event ID, measurement ID before upload. We have thousands of data and its make us taking a longer time to upload the data into OBIS because have to do a lot of data cleaning with only two staff in our office;
  - I am now working in Two data sheets but I just finish the OBIS course, so I need more time;
  - Just a problem of connection in my center. unstable connection;
  - If I encountered difficulties I will contact the Caribbean Node in order to ask for any kind of advice;
- Feedback related to **institutional resources**:
  - We do not have a real infrastructure, personnel and functioning institution.

A small proportion (22%) of the Alumni respondents indicated they **feel certain data or products are missing in OBIS** (see Figure 12) and specified what these would be. A complementary question was asked, asking **whether the Alumni have new needs from OBIS** (e.g. in terms of data or training), to which complementary responses were provided. The responses to both questions could be grouped and are cited below.

**Do you feel any data or product is missing in OBIS?**

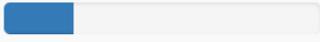
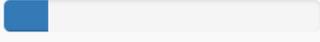
		Answers	Ratio
Yes		17	22.08 %
No		49	63.64 %
No Answer		11	14.29 %

Figure 12. Single option question.

- Feedback related to **training**:
  - An understandable, simple and easy to follow manual;
  - Support for local training in order to increase awareness and grow the community of data providers;
  - I did not like the course, I could not upload my data, the teachers did not want to make the videos available to the public, and there is no simple manual of the steps and EXAMPLE of filling out;
  - Would be nice if I could get a refresher training;
  - Training is always useful for examining data tools;
  - OBIS training for Canadian federal employees is becoming quite popular. Will be a clamour for bilingual / multilingual OBIS training materials (some authored at [github.com/OBISCanada/](https://github.com/OBISCanada/) already using OBIS USA and other pre-existing materials on GitHub/OTGA) for supporting these efforts in future;
  - Training of taxonomy of marines and costal resources;
  - Training in data submission;
  - Update the manual;
  - I would like to continue my training to handle all the tools that OBIS offers;
  - Need for a refreshment training to get which are the best practices for QC procedures in terms of defining a good workflow and get a quality flag report. Need for training on the new Genetic data format for publishing in OBIS;
  - Training on occurrence record quality filtering especially when taxonomic expertise is not guaranteed;
  - New training course to better understand and analyze OBIS data;
  - It will be more beneficial if more training and awareness classes for the wide researches, so they can contribute to the OBIS community;
  - More training, a tutorial with a complete instructions from to create the Darwin Core to Publish the IPT, with different examples of data sheets (Taxonomists, ecologists, etc);
  - I took the training course several years ago, so I will love to know if there has been updates regarding data format and submission. It will be very valuable to me in order to prepare new data, now that I have the time available for it;
  - I would love to use OBIS in my classroom with secondary level students and introduce them to this great resource... I am just not sure how to do it!;
  - Coordination of data and publication;
  - Training in quality control (R);
- Feedback related to **data (gaps, coverage, resolution, quality)**:

- Absence of relevant taxonomic groups such as birds and other taxonomic groups considered as coastal;
- Integration of external sources of environmental marine data?;
- Black Sea data;
- Genetic data;
- Some geographic regions are underrepresented;
- Occurrences or records for supra-organismic levels (populations, communities and ecosystems);
- Data which related to the Northern Indian ocean is still limited;
- les données sont manquantes dans certains pays et pas précises;
- As I know the capability exist to incorporate environmental and other data, I'd like to see abundance/density records along with the occurrence records where applicable;
- Habitat description;
- Time series of animal occurrences;
- La cohabitation entre la pêche et l'industrie pétrolière et gazière offshore (application pour le suivi des micro-pollutants);
- increase its intervention in Africa;
- Feedback related to **data services & related tools**:
  - more dataset-specific visualization, analysis, and contextualization;
  - The ability to sort taxa by functional traits, specifically whether adult stages are benthic or pelagic;
  - Pulling data out of OBIS is messy, but since it is a global database, maybe it can't be streamlined?;
  - Easier browsing of existing data;
  - WKT tool map do not have good scale resolution to establish coordinates or polygons. like Google Earth (GE) but GE do not generate polygon coordinates only a KML files that we have to convert to WKT;
  - R tools feedback;
- Feedback related to the **process of submission of data**:
  - Some mechanism of reward by submitting data such as exploring potential discounts with academic journals? Development of agreements and collaborations with specific governments so that their data is uploaded regularly to the platform?;
  - I am mainly a data provider and I think OBIS could provide more tools for formatting data using the Darwin Core standards;
  - Needs for updates on how to perform quality control procedures and about eDNA new extension table;
  - If they are somebody that have been assigned to help us clean our data it will be very helpful;
- Feedback related to the **identification of datasets**:
  - OBIS should provide dois for the submitted data;
  - Technically it is not explainable to me, Why generate an ID dataset different from the GBIF ID dataset. It's not easy for me to detect duplicate datasets (total o partial) It is not clear why some datasets are rejected. And less to do to correct them. More documentation with examples may be needed.

## Annex 3: Results of the general survey

This annex reflects the final results and feedback received on the survey, which ran from 3 to 16 November 2021, and brings together viewpoints from the various types of users and sectors that participated in the General survey. Responses by users have been cited “as is” (sic). A screenshot of the survey is shown in Figure 13 on the following four pages. A total of 48 respondents completed the General survey.

The raw results of the general survey were provided in the form of Excel spreadsheets attached to the Final Report. Name of the Excel files:

- Content\_Export\_OBIS\_General\_Online\_Survey\_Contributions\_Final.xlsx
- Statistics\_Export\_OBIS\_General\_Online\_Survey\_Contributions\_Final.xlsx

# OBIS General Online Survey

Fields marked with \* are mandatory.



*Help us identify your needs for marine biodiversity data*

**Do you need marine biodiversity data to carry out your work? Have you been providing data to OBIS or have you been using data from OBIS? We want to hear from you!**

In the context of the UN Ocean Decade, international processes and initiatives related to marine biodiversity and increased regional and local needs to map and monitor marine biodiversity in a changing climate, access to open marine biodiversity data is more than ever essential. The Ocean Biodiversity Information System (OBIS) aims to be the most comprehensive gateway to the world's ocean biodiversity and biogeographic data and information required to address pressing coastal and world ocean concerns.

To evaluate how growing needs for data and information can be met, OBIS is organizing an online stakeholders' survey in November 2021.

You are invited to take part in a short (5-minute) online survey, investigating the evolving needs for marine biodiversity data and information, and to evaluate how these needs can be met.

The results will help OBIS understand the requirements from its stakeholders in terms of biodiversity data and information, assess the capacity of OBIS to meet and support those needs, and identify the gaps and opportunities for improvement in stakeholder engagement.

## **Privacy notice**

By taking part in this survey, you agree with the privacy notice.

The survey is being organised by Seascope Belgium for OBIS. All data is stored in a password protected electronic format. To help protect your confidentiality, the survey results will be anonymized upon analysis. The information you will provide will be shared internally with the team who manages OBIS.

For any questions about this survey, please do not hesitate to contact us at [nathalie.tonne@seascopebelgium.be](mailto:nathalie.tonne@seascopebelgium.be) and [nathalie.van.isacker@seascopebelgium.be](mailto:nathalie.van.isacker@seascopebelgium.be)

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1

The provision of personal information is fully optional. In case you wish to be contacted to discuss your comments in more detail, then kindly provide your details so the organisers of the survey can contact you.

Name (optional)

E-mail address (optional)

Affiliation (optional)

---

\* Your professional role/function

\* Geographical scope of your work

- Global
- Africa
- Antarctica
- Arctic
- Asia
- Australia
- Central America
- Europe
- North America
- Small Island Developing Countries
- South America

\* Which sector/stakeholder group does your organisation/entity belong to?

- Research/ academia
- Government/ policy-making
- Private institution/ company/ industry
- NGO
- Civil society
- Funder
- Other

\* Please specify

2

\* What is your connection with OBIS? I am a...

- ... data collector
- ... data manager and/or data provider
- ... data centre
- ... data user
- Other

\* Please specify

\* What do you use OBIS for?

- Maritime Spatial Planning
- Marine Protected Areas
- Biodiversity studies
- Conservation and restoration practices/planning
- Environmental Impact Assessment
- Species distribution modeling
- Climate change studies
- Taxonomy
- Blue economy
- Other

\* Please specify

Please rate the following statements from your perspective, for your specific use case:

	Agree	Partly agree	Disagree	Not applicable
* OBIS offers the data I am looking for	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* OBIS allows me to easily find and download/access the data I need	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* OBIS offers high quality data that meet my specific needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* OBIS offers data in easy-to-use formats	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* OBIS offers clean and ready-to-use data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* The metadata in OBIS are complete	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* I find it useful that OBIS links environmental data with species information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* The temporal resolution of OBIS data is sufficient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3

* The spatial resolution of OBIS data is sufficient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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Please rate the following statements from your perspective, for your specific use case:

	Agree	Partly agree	Disagree	Not applicable
OBIS helps me standardising my data to be interoperable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* The OBIS manual for data publishing is helpful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* OBIS helps publishing and visualising my data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\* How frequently do you use OBIS?

- Never
- I just started using it
- Occasionally
- Frequently

\* Is OBIS helping you to achieve your goals, fulfill your commitment?

- Yes
- No
- Not applicable

\* Please specify what you are missing

\* Please specify how

\* Do you feel any data or product is missing in OBIS?

- Yes
- No

\* Please specify

Do you have new needs from OBIS, in terms of data or training for example?

Thank you for your time and contribution.

4

Figure 13. The questions of the OBIS General survey on EU Survey. The questions with a red \* were mandatory.

## Identification of survey respondents

### Geographic scope

The percentages in Figure 14 show that all geographic regions were represented in the study, apart from Australia.

#### Geographical scope of your work

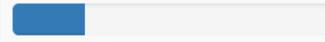
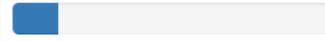
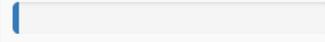
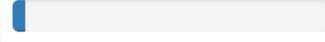
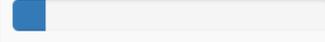
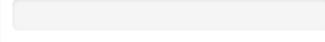
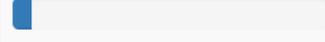
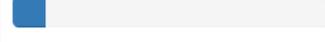
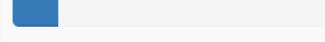
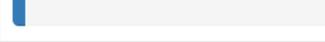
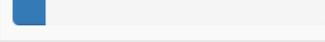
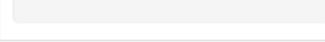
		Answers	Ratio
Global		11	22.92 %
Africa		7	14.58 %
Antarctica		1	2.08 %
Arctic		2	4.17 %
Asia		5	10.42 %
Australia		0	0.00 %
Central America		3	6.25 %
Europe		5	10.42 %
North America		7	14.58 %
Small Island Developing Countries		2	4.17 %
South America		5	10.42 %
No Answer		0	0.00 %

Figure 14. Geographic scope of the General survey participants. Single option question.

### Organisation and user type

Similar to the results of the Training Alumni survey, most of the respondents to the General survey were involved in research or academia, followed by a smaller fraction of respondents belonging to the public sector, and only one respondent belonging to an NGO (Figure 15).

**Which sector/stakeholder group does your organisation/entity belong to?**

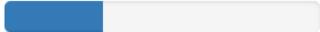
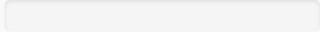
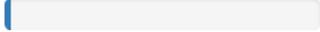
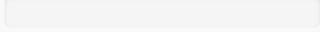
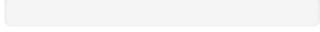
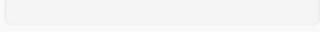
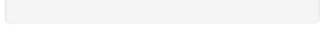
		Answers	Ratio
Research/ academia		35	72.92 %
Government/ policy-making		15	31.25 %
Private institution/ company/ industry		0	0.00 %
NGO		1	2.08 %
Civil society		0	0.00 %
Funder		0	0.00 %
Other		0	0.00 %
No Answer		0	0.00 %

Figure 15. Sectoral spread of the General survey participants. Multiple option question.

The results on 9 November indicated that there is an even spread among data collectors and data users. Less respondents identified themselves as a data provider/manager or a data centre (Figure 16).

**What is your connection with OBIS? I am a...**

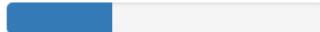
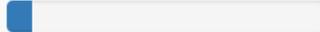
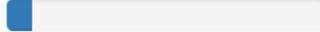
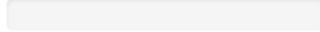
		Answers	Ratio
... data collector		26	54.17 %
... data manager and/or data provider		16	33.33 %
... data centre		4	8.33 %
... data user		30	62.50 %
Other		4	8.33 %
No Answer		0	0.00 %

Figure 16. Multiple option question.

## Use of OBIS

OBIS is used for a variety of applications, especially biodiversity studies (Figure 17). Other uses identified were:

- Impact evaluation of environmental policies;
- Developing methods to better enable almost all of the uses listed;
- As database;
- Ecosystem classification and mapping.

### What do you use OBIS for?

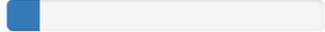
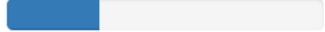
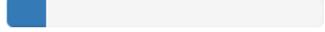
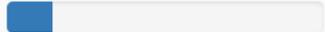
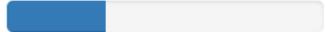
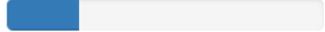
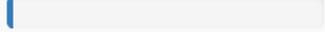
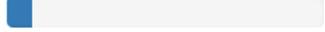
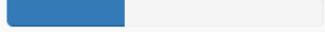
		Answers	Ratio
Maritime Spatial Planning		5	10.42 %
Marine Protected Areas		14	29.17 %
Biodiversity studies		25	52.08 %
Conservation and restoration practices/planning		6	12.50 %
Environmental Impact Assessment		7	14.58 %
Species distribution modeling		15	31.25 %
Climate change studies		10	20.83 %
Taxonomy		11	22.92 %
Blue economy		1	2.08 %
Other		4	8.33 %
No Answer		18	37.50 %

Figure 17. Multiple option question.

Respondents who identified themselves as a **data user** in Figure 16, were asked to rate (agree, partly agree, disagree, not applicable) nine statements with regard to the quality of the data and data services available in OBIS. The majority of the respondents either **agreed** or **partly agreed** on the majority of the statements (see Figure 18 to Figure 26 below). “No Answer” refers to the respondents that did *not* identify themselves as a data user and thus not responded to this question (i.e. 18 out of 48 respondents did *not* identify themselves as a data user).

Please rate the following statements from your perspective, for your specific use case: : **OBIS offers the data I am looking for**

		Answers	Ratio
Agree		10	20.83 %
Partly agree		18	37.50 %
Disagree		1	2.08 %
Not applicable		1	2.08 %
No Answer		18	37.50 %

Figure 18. Rating question.

Please rate the following statements from your perspective, for your specific use case: : **OBIS allows me to easily find and download/access the data I need**

		Answers	Ratio
Agree		15	31.25 %
Partly agree		9	18.75 %
Disagree		3	6.25 %
Not applicable		3	6.25 %
No Answer		18	37.50 %

Figure 19. Rating question.

Please rate the following statements from your perspective, for your specific use case: : **OBIS offers high quality data that meet my specific needs**

		Answers	Ratio
Agree		11	22.92 %
Partly agree		16	33.33 %
Disagree		1	2.08 %
Not applicable		2	4.17 %
No Answer		18	37.50 %

Figure 20. Rating question.

Please rate the following statements from your perspective, for your specific use case: : **OBIS offers data in easy-to-use formats**

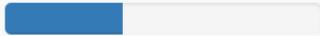
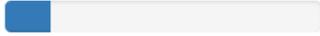
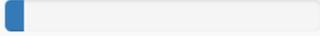
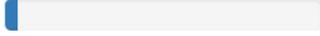
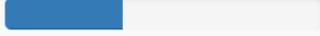
		Answers	Ratio
Agree		18	37.50 %
Partly agree		7	14.58 %
Disagree		3	6.25 %
Not applicable		2	4.17 %
No Answer		18	37.50 %

Figure 21. Rating question.

Please rate the following statements from your perspective, for your specific use case: : **OBIS offers data in easy-to-use formats**

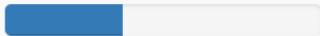
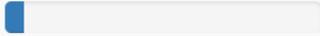
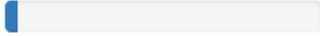
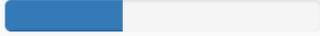
		Answers	Ratio
Agree		18	37.50 %
Partly agree		7	14.58 %
Disagree		3	6.25 %
Not applicable		2	4.17 %
No Answer		18	37.50 %

Figure 22. Rating question.

Please rate the following statements from your perspective, for your specific use case: : **The metadata in OBIS are complete**

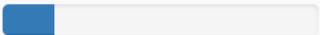
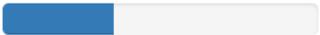
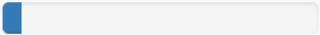
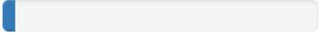
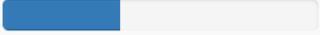
		Answers	Ratio
Agree		8	16.67 %
Partly agree		17	35.42 %
Disagree		3	6.25 %
Not applicable		2	4.17 %
No Answer		18	37.50 %

Figure 23. Rating question.

Please rate the following statements from your perspective, for your specific use case: : I find it useful that OBIS links environmental data with species information

		Answers	Ratio
Agree		20	41.67 %
Partly agree		5	10.42 %
Disagree		0	0.00 %
Not applicable		5	10.42 %
No Answer		18	37.50 %

Figure 24. Rating question.

Please rate the following statements from your perspective, for your specific use case: : The temporal resolution of OBIS data is sufficient

		Answers	Ratio
Agree		7	14.58 %
Partly agree		15	31.25 %
Disagree		5	10.42 %
Not applicable		3	6.25 %
No Answer		18	37.50 %

Figure 25.

Rating question.

Please rate the following statements from your perspective, for your specific use case: : The spatial resolution of OBIS data is sufficient

		Answers	Ratio
Agree		6	12.50 %
Partly agree		16	33.33 %
Disagree		6	12.50 %
Not applicable		2	4.17 %
No Answer		18	37.50 %

Figure 26. Rating question.

Respondents who identified themselves as a **data manager and/or provider** in Figure 16, were asked to rate nine statements (agree, partly agree, disagree, not applicable, see Figure 27 to Figure 29 below). The majority of the respondents **agreed** on the majority of the statements. “No Answer” refers to the respondents that did *not* identify themselves as a data user and thus not responded to this question (i.e. 32 out of 48 respondents did *not* identify themselves as a data manager and/or provider).

**Please rate the following statements from your perspective, for your specific use case: : OBIS helps me standardising my data to be interoperable**

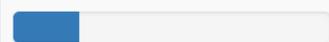
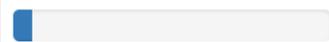
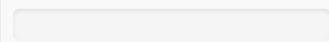
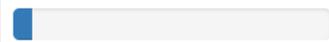
		Answers	Ratio
Agree		10	20.83 %
Partly agree		3	6.25 %
Disagree		0	0.00 %
Not applicable		3	6.25 %
No Answer		32	66.67 %

Figure 27. Rating question.

**Please rate the following statements from your perspective, for your specific use case: : The OBIS manual for data publishing is helpful**

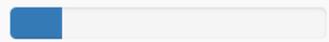
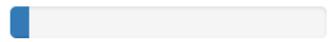
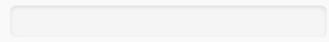
		Answers	Ratio
Agree		8	16.67 %
Partly agree		3	6.25 %
Disagree		0	0.00 %
Not applicable		5	10.42 %
No Answer		32	66.67 %

Figure 28. Rating question.

Please rate the following statements from your perspective, for your specific use case: : OBIS helps publishing and visualising my data

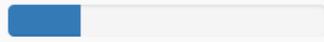
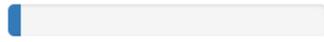
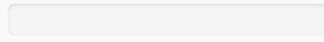
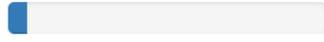
		Answers	Ratio
Agree		11	22.92 %
Partly agree		2	4.17 %
Disagree		0	0.00 %
Not applicable		3	6.25 %
No Answer		32	66.67 %

Figure 29. Rating question.

There is a spread among occasional and frequent OBIS users, and respondents who have never used OBIS or just started using it (Figure 30).

How frequently do you use OBIS?

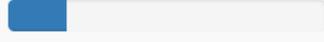
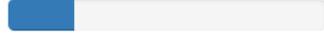
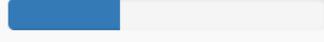
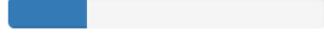
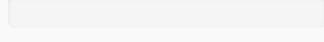
		Answers	Ratio
Never		9	18.75 %
I just started using it		10	20.83 %
Occasionally		17	35.42 %
Frequently		12	25.00 %
No Answer		0	0.00 %

Figure 30.

65% of the respondents indicated that **OBIS helps achieving their goals**. They were asked to specify **how**. In the majority of the cases, OBIS data were used for research activities. The feedback has been categorised and cited below:

**OBIS used for research activities:**

- Albeit the spatial resolution of the data in OBIS is not sufficient for my purposes it helps me get a first overview of species distributions and recent invasions; Provision of standards and means to make data openly accessible;
- Access to species distributions for research;
- Doing research at a global scale;
- As an OBIS node manager;
- Depth and geographic distribution is very useful as my biodiversity research;
- Ready access to data and/or metadata as needed - very useful clearinghouse for information;
- I use it to assess global biodiversity of phytoplankton;
- Data availability from diverse habitats;
- Collect and check the distribution of species (but still do not know whether Gbif data are in here or not);
- I have been able to find data for my country and other Caribbean Regions;
- In conducting environmental research and reviewing of environmental impact assessments;
- Ampliando la distribución o identificando sitios de interés (EN: "Expanding distribution or identifying sites of interest");
- Student thesis, publications, fora;
- Supports biodiversity mapping;
- OBIS has helped me build the databases for my thesis;
- BioGeoMar Program is using data from many marine taxa to conduct a synthesis of patterns in biodiversity and biogeography with a focus on the Brazilian coast;
- By analyzing distribution data for solving scientific questions;
- OBIS reports and articles help to prioritize data and research;
- Helping map the distribution of anguillid eels;
- I'm writing several papers that use OBIS data;
- Increasingly we are starting to input seafloor habitat data, which allows us to retain a link between seafloor species and habitat information;
- Provision of, and verification of, distributional records especially in southern Africa;
- Yes, it's providing big datasets for analysis of regional projects;
- Providing centralized access to many, many diverse data sets in a well-described, homogenous format;
- Having easy access to public global occurrence records of marine taxa;
- It is a helpful tool and data source to conduct research on biodiversity and evolution of marine species.

**OBIS used to support other, non-research, activities:**

- OBIS provides a place to examine and download large datasets in a standard format;
- Standardising my data, making my data available for use and archiving it;
- As an OBIS node manager.

**General responses:**

- OBIS is one of the sources of marine biodiversity data I use;
- Good data management and accessibility is very important.

A small 5% of the respondents does not think OBIS is helping them to achieve their goals and commitments. When asked what they are missing, the following reasons were given (cited as is):

- Tengo que buscar información en diferentes nodos (EN: “I have to search for information in different nodes”);
- It's very complicated to add data to OBIS. Also, to extract information. I think that are too many mistakes in georeferences.

**Is OBIS helping you to achieve your goals, fulfill your commitment?**

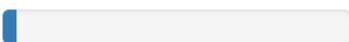
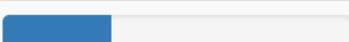
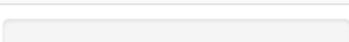
		Answers	Ratio
Yes		31	64.58 %
No		2	4.17 %
Not applicable		15	31.25 %
No Answer		0	0.00 %

Figure 31. Single option question.

Similar to the Training Alumni, the respondents to the General survey were asked **whether they felt any data or product is missing in OBIS** (Figure 32), and **if they have new needs from OBIS** (e.g. new data or new needs for training; *i.e.* complementary question). To the first question, 44% of the respondents indicated they do miss data or products in OBIS (Figure 32). The specifications as well as the responses to the complementary question could be grouped and are cited below.

**Do you feel any data or product is missing in OBIS?**

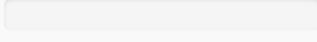
		Answers	Ratio
Yes		21	43.75 %
No		27	56.25 %
No Answer		0	0.00 %

Figure 32. Single option question.

- Feedback related to **training**:
  - Training would be helpful in the use of the data and analyzing the data;

- Training on Marine Biodiversity Data Collection Techniques;
- It would be great to receive any kind of training from OBIS;
- I will gladly take training's on the blue economy, biodiversity conservation and management of the MPA, and not only);
- Training is key because of the turnover of trained officers and also new research groups who have new data sets.
- Feedback related to **data (gaps, coverage, resolution, quality)**:
  - Latest data in time;
  - Morphotypes from the deep sea, not always possible to ID;
  - Desde la región mi país no ha compartido una cantidad considerable de datos (EN: "From the region my country has not shared a considerable amount of data") (the geographical scope of this respondent's work is Central America);
  - Archiving pictures, data of the area of community (polygon) and eDNA info. maybe not inside of OBIS but links are needed;
  - Absence data, but not necessary to visualize if we can create it using information of series of survey its useful;
  - Zooplankton and Phytoplankton data;
  - Depth distribution of species and collections;
  - Data from Bay of Bengal;
  - Greater taxonomic data extent;
  - It would be nice to have quality control of the data;
  - We need more occurrence data;
  - (1) discriminating species native and human introduced ranges; (2) range maps;
  - Link to voucher specimen location/holding;
  - More data, higher spatial and temporal resolution. More data from monitoring instead of citizen science would increase the value a lot;
  - Data of the benthic communities from Brazilian coast are missing. We are filling part of this gap with the BioGeoMar Program, a scientific project financed by Fundação Grupo Boticário;
  - Historical data & industry data;
  - Unfortunately, I did not receive much information on the management of the MPA;
  - More data on benthic communities in my study area (Black Sea);
  - Maybe it would be amazing to have the depth data from each marine record. Although I understand the scientist can obtained it by referencing the records;
  - It would be very useful to the deep ocean community if samples that were benthic/near bottom could be differentiated from pelagic ones. I know that this is hard (how close is close enough to be near bottom?), and that gear type can help, but it isn't always enough ("trawls" can be benthic or midwater...). Thanks in advance for any consideration you give this;
- Feedback related to the **process of submission of data**:
  - Adapting my data to OBIS needs can be daunting. I think many people don't share data with OBIS due to the complicated process it entails. It requires quite some time;
  - More than training, simpler workflows to fit my data to OBIS standards;
  - There are many regional projects in the Western Indian Ocean region that have not been able to submit their data to OBIS for various reasons;
- Feedback related to **data services & related tools**:
  - Images, genes, updated;

- Debería poder obtener los datos de los demás IPT desde GBIF (EN: “You should be able to get the data of the other IPTs from GBIF”);
- Easier ways of adding data and extracting information. Also easier forms to extract data by depths;
- The ability to easily filter based upon collection method or to search on traits (e.g. benthic vs pelagic);
- There are other databases for polar regions, thematic areas like the deep sea, and taxonomic sources. More integration in the future if the data has enough metadata;
- I wonder if there is scope to join up somehow with seafloor sediment data infrastructure, seeing as though sediment samples may be analysed for both particle size composition and biota;
- GBIF (marine records, like museums and iNaturalist) and ability to post and see images (like GBIF);
- OBIS and GBIF have announced a program to collect eDNA under coherent protocols. This is a very welcome and useful step. I would like to thank OBIS for its valuable work and its contributions to science and conservation;
- I'd like to know more about the genetics angle and the integration of other types of data, such as those generated in a lab;
- I have not use OBIS in a few years, in my experience, the tutorials on how to download and QC data in R have been very useful. And for what I can see in the website there are help pages that seem very informative and helpful;
- Feedback related to the **general use of OBIS**:
  - We interact mostly with GBIF, which, I assume, gets some data from OBIS;
  - Linked images when publishing records - is a reason not to use OBIS for several datasets.