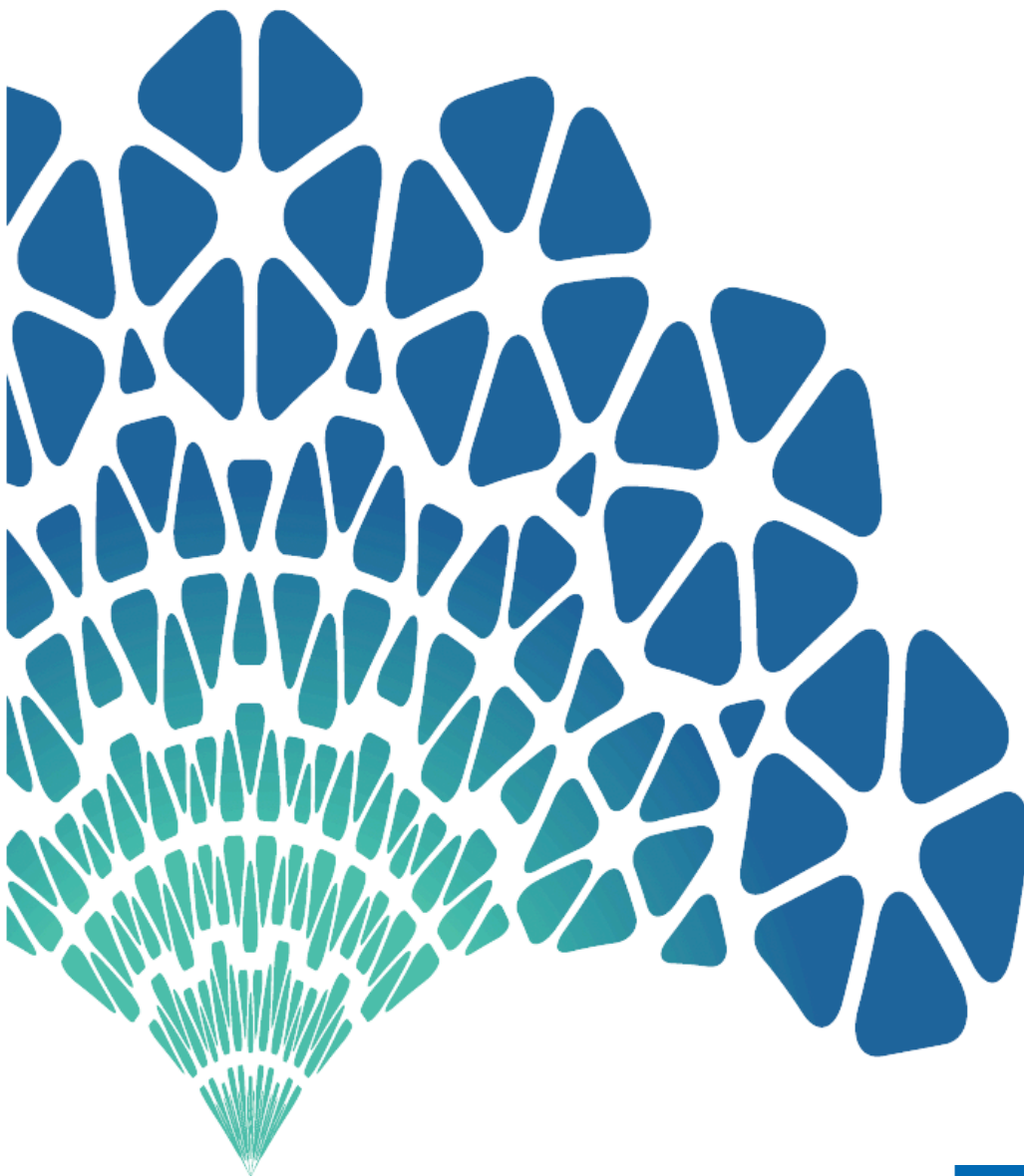

Assessment of global capacity needs on Marine/Maritime Spatial Planning 2025

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1 Introduction

This report is an assessment of global Marine Spatial Planning (MSP) capacity needs and makes recommendations for the Intergovernmental Oceanographic Commission (IOC) of UNESCO and collaborators engaged in capacity development to address key global capacity gaps on MSP.

The IOC Capacity Development Strategy, 2023–2030¹ is conceived as complementary to the IOC Medium-Term Strategy, 2022–2029² which sets out IOC high level objectives and functions. The vision of the Medium-Term Strategy identifies capacity development as the primary catalyst through which IOC will achieve its five High Level Objectives. There are key synergies between the activities identified in the IOC Capacity Development Strategy and various IOC MSP initiatives that range from professional development, sharing of ocean data and information as well as ocean research policies (Table 1).

IOC currently provides a range of MSP capacity building activities including training, digital products such as website, newsletters, and blogs as well as MSP guidance documents³. Moreover, IOC tracks its capacity building activities that are relevant for MSP through the IOC capacity development surveys, IOC MSP surveys, IOC Sustainable Ocean Planning and Management (SOPM) surveys, and the MSP Challenge and Training feedback forms.

Table 1. IOC CD Strategy and key synergies with MSP work

| | | |
|---|---|--|
| 1 | Human resources developed at individual and institutional levels | <p>1.2 Continuous professional development</p> <p>1.2.1 Promote and assist with the organisation of training courses, workshops and “summer schools”, relevant to the IOC mandate, including training of trainers/technicians and executive career development for institutional managers/decision makers, in collaboration with other organisations</p> <p>1.2.5 Promote the development and sharing of training materials and tools</p> |
| 2 | Access to technology, physical infrastructure, data and information established or improved | <p>2.2 Facilitating equitable access to and sharing of ocean data and information</p> <p>2.2.1 Promote the development and wide use of regional and global data and information systems</p> |

¹ Link to access the IOC Capacity Development Strategy, 2023-2030:

<https://unesdoc.unesco.org/ark:/48223/pf0000390082.locale=en>

² Link to access the IOC Medium-Term Strategy, 2022-2029:

<https://unesdoc.unesco.org/ark:/48223/pf0000381388.locale=en>

³ Link to access MSPglobal Guidelines and documents: <https://www.mspglobal2030.org/resources/msp-global-documents/>

| | | |
|---|--|--|
| 3 | Global, regional, and sub-regional mechanisms strengthened | <p>3.3 Identifying specific national and regional capacity development needs through regular needs assessment</p> <p>3.3.1 Organise and conduct biennial capacity development needs survey</p> |
| 4 | Development of ocean research policies in support of sustainable development objectives promoted | <p>4.1 Fostering the development of ocean research policies</p> <p>Action 4.1.2 of the Strategy seeks to assist and enable Member States with the development of ocean research policies, making use of the results of 4.1.1 (Compile and compare information on existing ocean research policies, and disseminate to Member States for their use). One of the targeted actions under Action 4.1.2 is to establish training for MSP</p> |

1.1 Objective and study scope

The overarching objective of this study is to undertake a comprehensive global capacity need assessment on MSP, building on the results of recent IOC surveys of relevance to MSP. This study addresses the following three key objectives:

1. **Identify, collate, and review existing MSP capacity building documents, channels, activities, and materials used by IOC.**
2. **Identify and assess global capacity gaps and needs for marine spatial plan development and implementation.**
3. **Identify and recommend areas for further development by IOC to address global capacity gaps and needs.**

The target consideration for this study are IOC Member States and their authorities responsible or engaged in MSP, as well as rightsholders, academics, industry groups, non-governmental organisations, and charities. The study is therefore focused on identifying MSP capacity needs and summarise the results to guide global MSP capacity development.

1.2 Report structure

The remainder of this report is structured as follows:

- Section 2 sets out the methods used to collect data and evidence sources to assess global capacity needs on MSP.
- Section 3 presents the results from this study by discussing key findings from the IOC survey on the status of MSP (2024) and desk review.
- Section 4 summarises the findings from the study to understand the key global MSP capacity gaps and needs.
- Section 5 provides recommendations for IOC’s and collaborators to address the identified gaps and improve capacity building for MSP.

2 Methods

The survey on the status of MSP (2024) was the main source of evidence for this report as it included specific questions about capacity needs. The results were further supplemented with desk review of previous MSP related capacity development surveys that were conducted by IOC.

2.1 Assessment framework

To address the overall objectives of this report, the IOC's avenues for capacity development in MSP at the individual, institutional and society levels was used as its analysis framework (Figure 1). The key avenues and capacity needs including individual skill and knowledge, institutional needs and social awareness about MSP were used to guide the review of documents and drafting survey questions.

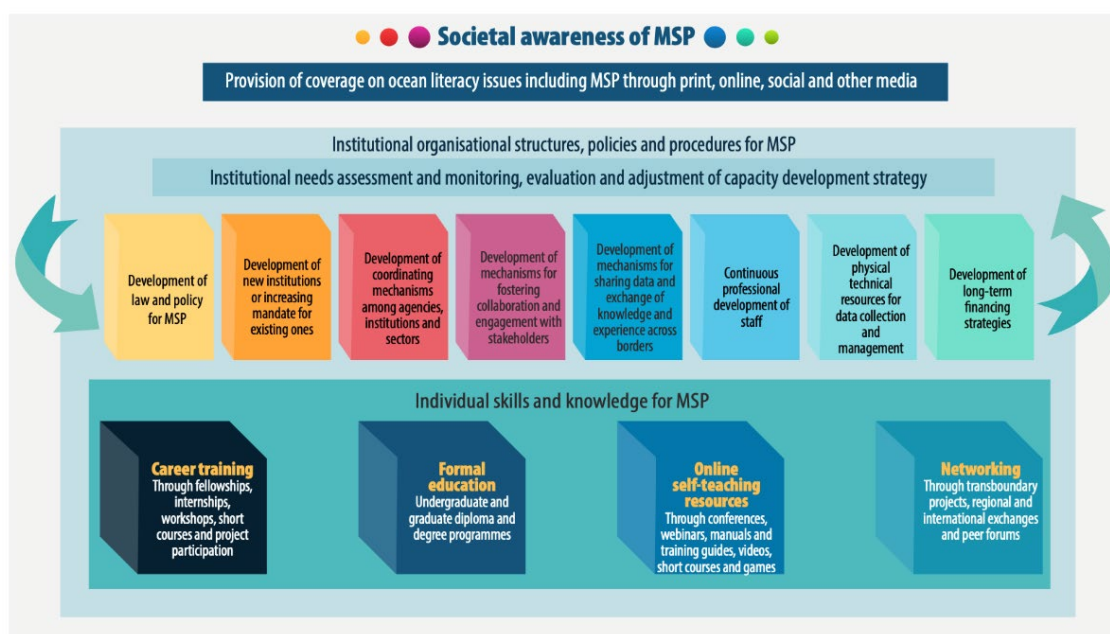


Figure 1. Avenues for capacity development in MSP. Source: UNESCO-IOC. 2021.

2.2 Online survey

Survey questions focused on ascertaining the experience of Member States of using IOC's capacity development activities and identifying their capacity needs as part of the survey on the status of MSP (2024). Questions were developed around the following themes:

- Respondent data (organisation type, role of respondent)
- Type of information on MSP respondents would like from IOC
- Key institutional needs
- Types of IOC's capacity development activities and their use and awareness by respondents
- Recommendations for how IOC can better support MSP capacity needs

This online survey was sent out to the IOC focal points to be answered in close consultation with the national competent authority responsible for MSP for a period between December 2024 to January 2025 for response.

2.3 Desk review

The desk review analysed previous IOC MSP surveys as bases for formulating the online survey questions to identify capacity needs gaps. It further reviewed other IOC capacity development surveys, IOC Sustainable Ocean Planning and Management (SOPM) survey, and the MSP Challenge and Training feedback forms. The results were used as an additional source of information to triangulate evidence from the status of MSP (2024).

3 Findings

3.1 Survey on the status of MSP (2024)

IOC regularly assess the status of MSP around the world by asking national competent authorities to provide information on the status of the implementation of MSP at national and regional level. The responses are used to create or update the country profiles available on the MSPglobal website⁴, which is the IOC knowledge platform for MSP. The results are also used to support the development of tools and activities to be organised jointly with national authorities, regional and international partners. The 2024 survey covered various questions on MSP and capacity needs.

3.1.1 Approach

This survey was carried out in 2024 and included 16 questions of which 8 questions were relevant for MSP and capacity development. It was delivered to all IOC Member States (150) in 2024.

3.1.2 Profile of respondents

The stakeholder groups targeted for this survey included the following:

- IOC focal points
- IOC MSPglobal focal points
- National competent authorities for MSP

3.1.3 Results on the Survey on the status of MSP (2024)

A total of 55 countries responded to the capacity development questions. As shown in Figure 2, Europe was the most represented region with 34%, followed by Africa with 24%, the Americas with 22%, and Asia with 20%. No countries from Oceania responded.

⁴ Link to access the country profiles on the MSPglobal website: <https://www.mspglobal2030.org/msp-roadmap/msp-around-the-world/>

Geographical distribution of country respondents per continent
N=55

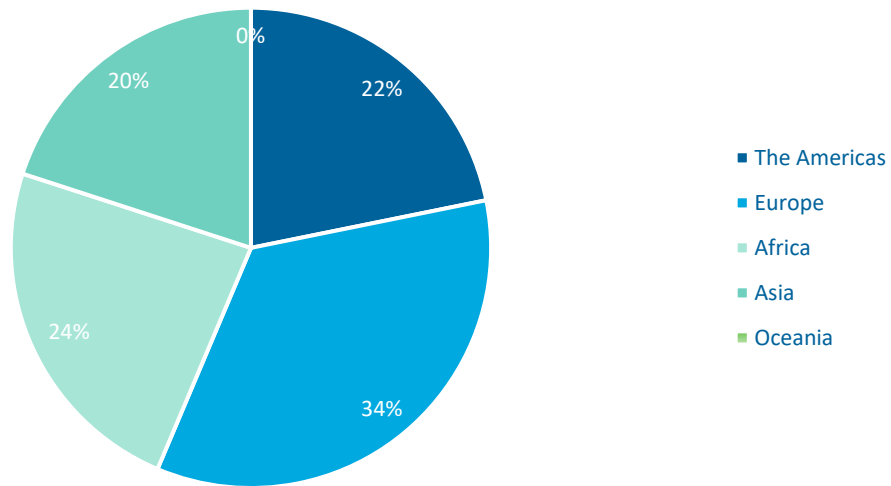


Figure 2. Geographical distribution of country respondents per continent to the IOC MSP Survey, 2024

The questions from the survey that has relevance for MSP capacity needs are presented below.

Q. 9. Which of the following MSP aspects addressed by IOC’s activities would you need more information on?

Many of the responding countries (40) noted that climate change and MSP was a key topic on which more information is needed. Following that, the areas with the most responses were monitoring and evaluation (36), transboundary MSP (34), the Sustainable Blue Economy (32), implementation of MSP (32), use of data and evidence in MSP (30), and inclusive participation and stakeholder engagement (27) (Figure 3).

IOC’s activities where more information is needed

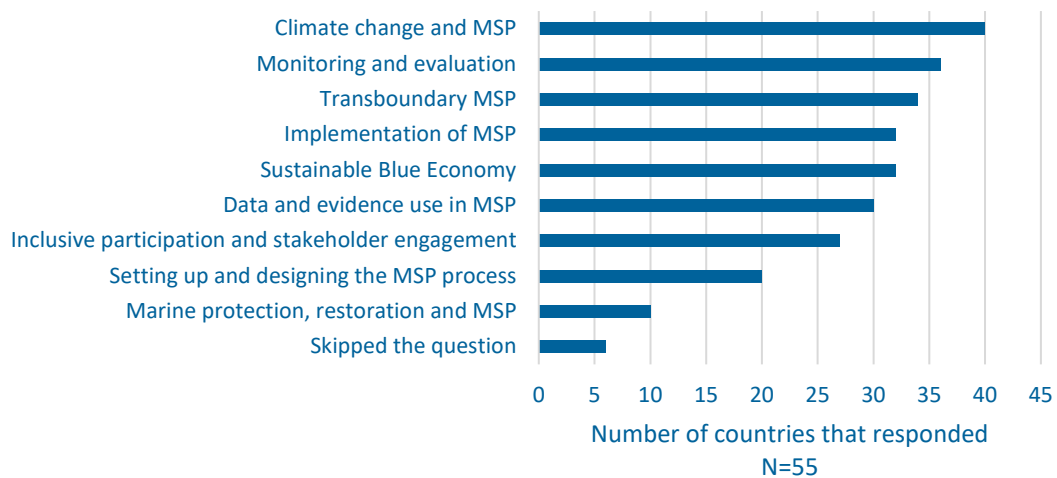


Figure 3. IOC activities where more information is needed by respondents. IOC MSP Survey, 2024

Q10. What other information would you like from IOC regarding marine spatial plan development and implementation?

Respondents expressed interest in additional information on how MSP can be a tool for stakeholder conflict management, both in national or transboundary contexts, and how it can be better integrated with Sustainable Ocean Plans. They emphasized the need for capacity development and training tailored to country specific needs including opportunities for government officials to engage in peer learning and exchange from other processes.

Other needs included incorporating technological tools such as simulation models, ocean observation systems to support MSP implementation, monitoring and evaluation and requested guidance on methodologies to address gaps in baseline data.

Respondents also expressed a strong interest in information on funding opportunities and international cooperation, networking and active participation among MSP practitioners.

Q11. Which of the following are key institutional needs for your organisation?

Figure 4 shows the key institutional needs identified by respondents. These needs include human resources as well as technical support and financial support which were cited by 30% and 28% of respondents respectively. These needs were followed by stakeholder and public engagement (18%) and governance and legal support (16%).

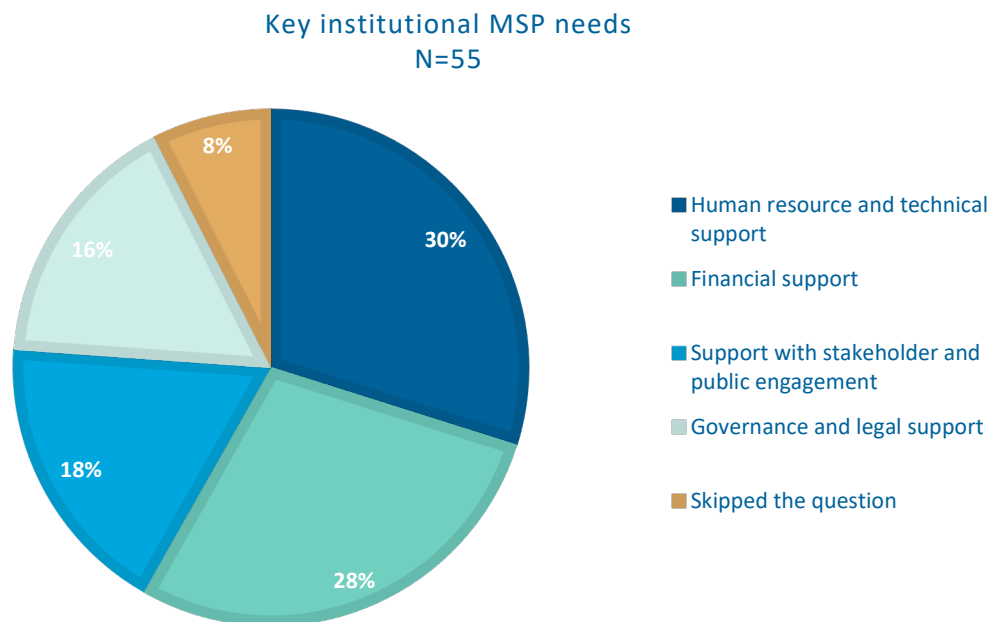


Figure 4. Key institutional MSP needs IOC MSP Survey, 2024

Q12. Kindly select from the following, which IOC’s activities, materials, and channels that you have attended/used, aware of/been invited to but have not used or not aware of.

According to the respondents, the most frequently used IOC activity, material and channel on MSP is the MSPglobal website (44 responses), followed by the IOC guidelines on MSP (34 responses) and digital communication such as newsletters and social media (31 responses). These results demonstrate strong use and awareness of the digital MSP materials and activities of the IOC. However, 22 of the respondents were unaware of the online training at OceanTeacher Global Academy and 19 respondents were unaware of the in-person training with the MSP Challenge Game. The reason for the low awareness can mainly be attributed to the fact that the MSP Challenge Game trainings are delivered to specific countries or regions (Figure 5).

IOC’s activities, materials, and channels that you have attended/used, aware of/invited but not used or not

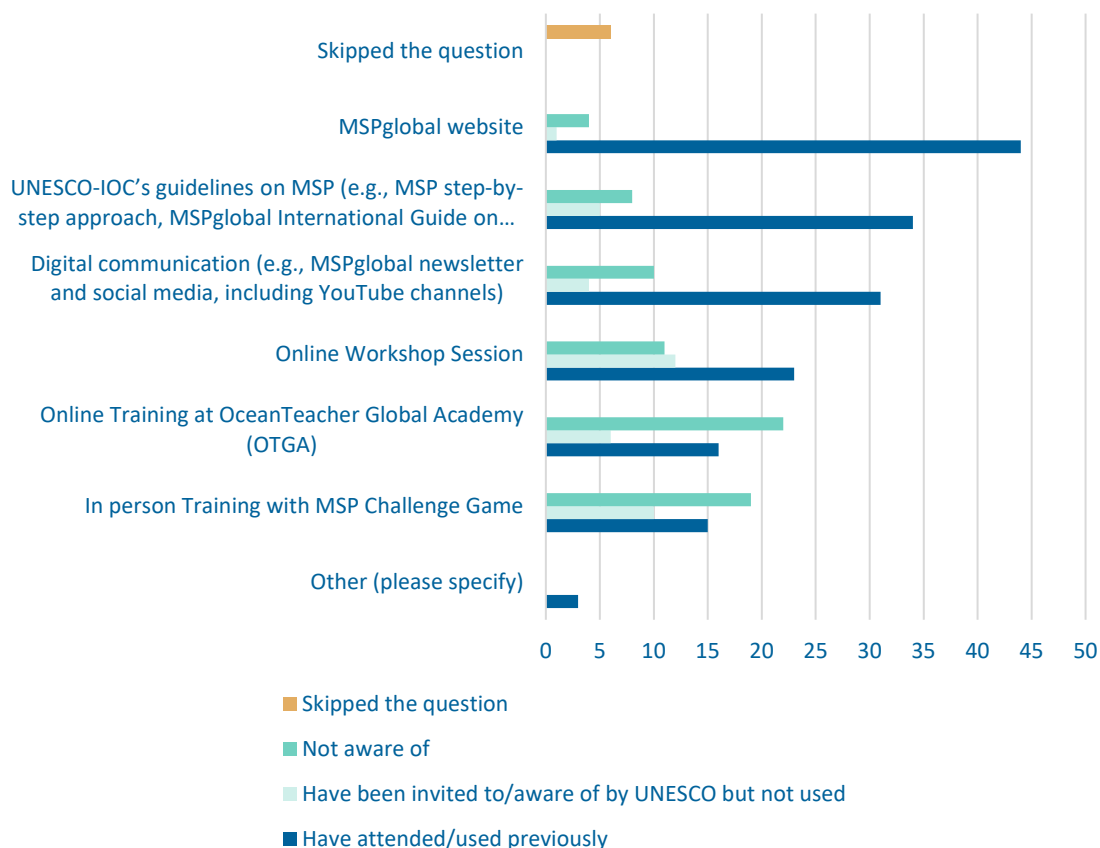


Figure 5. IOC activities, materials and channels that respondents have used/attended or not use/not aware of. IOC Survey, 2024

Q13. Please comment on any reasons why you have not used IOC’s engagement activities, materials, and channels.

Respondents who have not used IOC’s activities and materials noted that they were not aware of those possibilities or also noted that sometimes there has not been time and/or personnel available to attend or use these activities. It was also noted that in

some cases some of these activities have not been followed up by the responsible institution. A respondent also mentioned that language barrier was an issue as some of the training sessions were not translated into French.

Q.14. Which of the following activities is most needed to improve MSP capacity based on your experience? (Select all that apply)

Of the 55 country respondents, 38 noted the need for funding opportunities to improve MSP capacity. This was followed by the need for data tools, collection and management systems (34 respondents), collaboration with relevant institutions and organisations (also 34 respondents). In person trainings such as the MSP Challenge Game, were also stated as necessary to improve MSP capacity. Respondents who expressed other activity needs included gathering data on social evidence, collaborating with other suitable regional actors and providing funding and support for regional (transboundary) MSP collaboration (Figure 6).

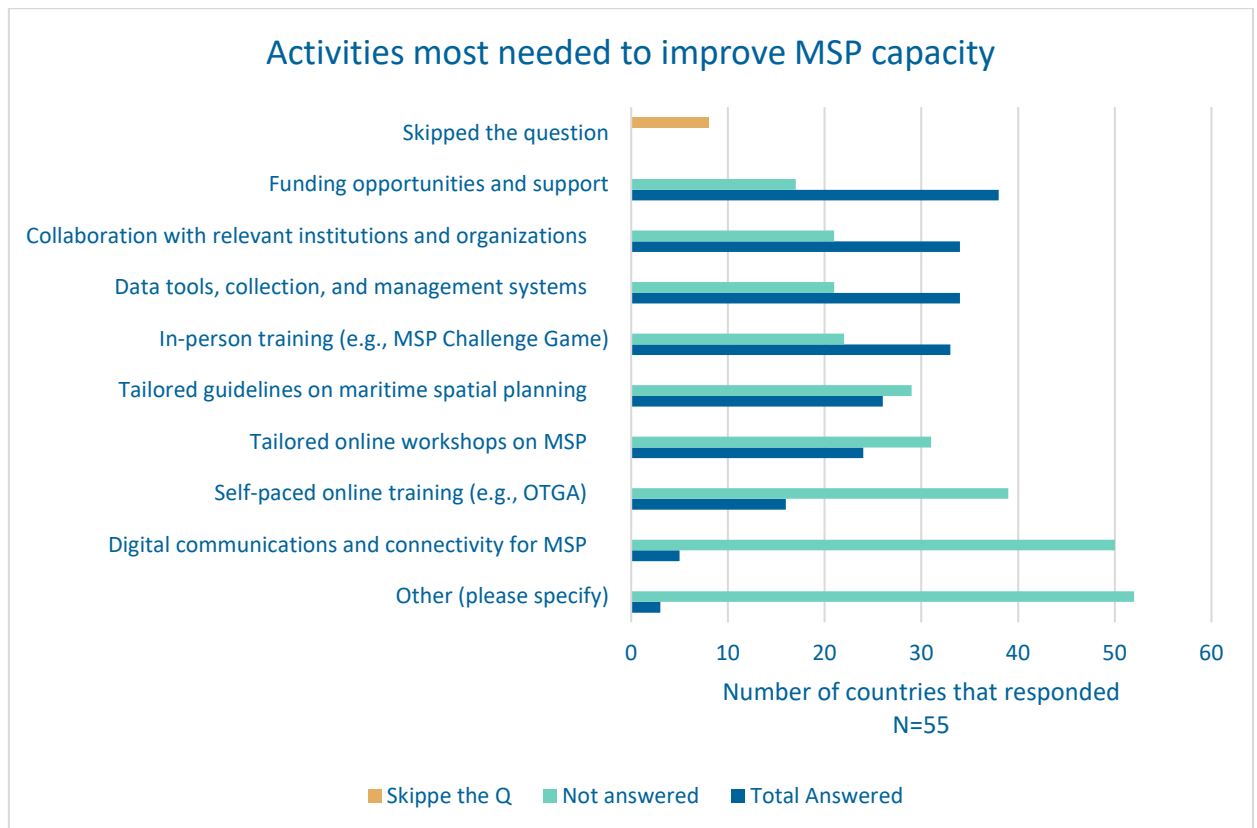


Figure 6. Activities most needed to improve MSP capacity. IOC MSP Survey, 2024

Q.15. Which of the following skills is the most needed to improve your MSP capacity? (Select all that apply)

The key MSP skills noted by respondents include data management and analysis (including modelling and scenarios) (34 respondents), followed by cumulative impact (29 respondents) and climate change assessment, socio-economic and financial analysis, and conflict resolution, consensus building and communication skills with 27 respondents each. In addition, respondents identified that conflict resolution as well as ocean governance and government relations (26 respondents each) as areas of skill

development that should be prioritized to enhance capacity development (Figure 7). Other skills noted by a respondent included how to implement MSP in the EEZ.

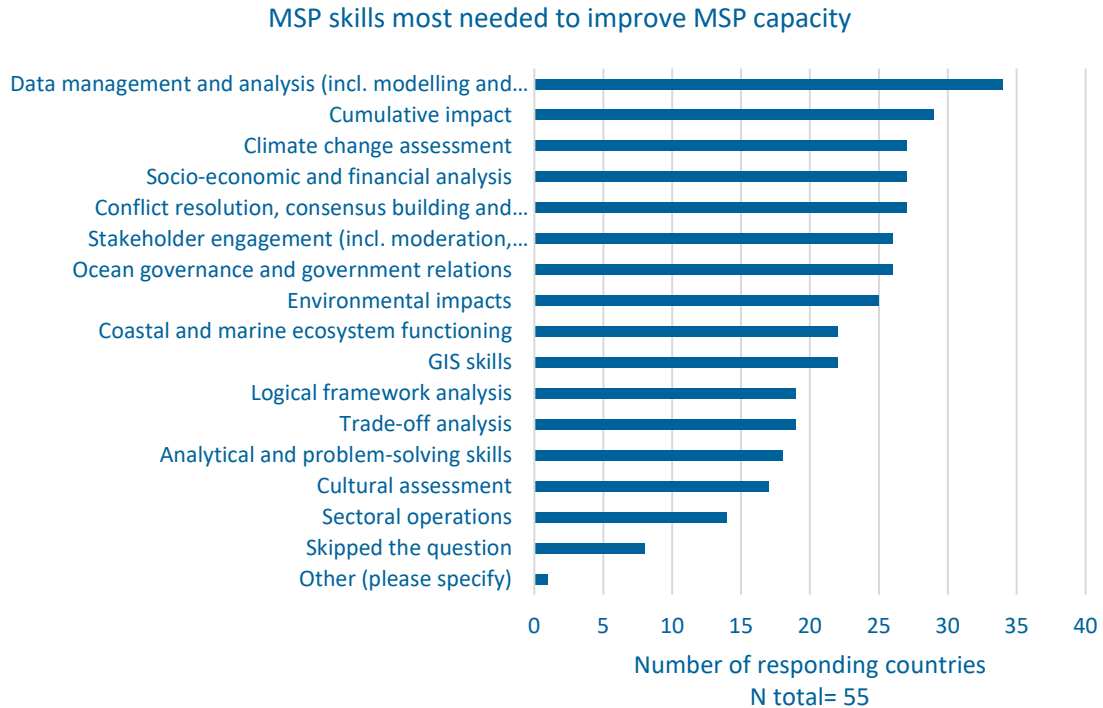


Figure 7. MSP skills most needed to improve MSP capacity. IOC Survey, 2024

Q16. How could IOC better support your marine spatial plan development and implementation?

Additionally, survey respondent noted that IOC could better support their MSP development and implementation through:

- Tailored trainings and technical assistance:** Providing from basic to advanced trainings and practical workshops on MSP methodologies, including techniques for incorporating climate change analysis into MSP, drafting of legal framework for MSP, developing incentive and disincentive systems for MSP implementation, conducting environmental assessments, analysing the integration of terrestrial and marine spatial planning, and advancing MSP development for multi-layered marine spaces. This includes conducting capacity needs assessments at a regional level to design capacity development activities according to the context of each region.
- Access to data and technology:** Supporting MSP development by providing up-to-date transboundary and global marine data and technology, including time-series analysis and more detailed scales, such as data on marine ecosystems, oceanography, human activities, and the interrelations between different regions utilizing marine spaces.
- Enhanced collaboration and networking:** Helping to improve transboundary or regional collaboration through workshops or forums, especially to address

transboundary issues. This must include support for countries to initiate contacts with the responsible institutions.

- **Providing MSP guidance:** Support in the development of Guides and Manuals applied by national governments. Dissemination of good practice models regarding MSP monitoring and evaluation. This included support for the implementation of national thematic studies and development of new MSP pilot projects.
- **Providing funding opportunities and support.**

3.1.4 IOC surveys on CD (2020-2021)

The IOC surveys on Capacity Development are meant to identify capacity development needs of IOC Member States. The first survey in 2018 focused largely on regional needs and those of Small Island Developing States (SIDS) and Least Developed Countries (LDC). The results of the survey also assessed the functional needs of a Clearing House Mechanism (CHM) as a tool 'to provide interested users in Member States with direct and rapid access to relevant sources of information, practical expertise in the Transfer of Marine Technology (TMT), as well as to facilitate scientific, technical and financial cooperation to that end'. The 2020 survey expanded the scope of the 2018 survey by covering more stakeholder groups and Member States.

3.1.4.1 Approach

The IOC survey on Capacity Development is delivered every two years. The survey was sent out to official National Focal Point who receive all official communications from the Commission and other collaborators. The focus of this survey was on the 115 developing countries out of the 150 IOC Member States (March 2021).

The data presented from the survey is based on the weighted average. All the responses were included to reflect a more general picture of the respondent's perspectives, including items that were ranked low. To get a weighted average the number that gave the highest rank (e.g. essential) was multiplied times 5 and added to the number that gave a second highest (e.g. very important) multiplied times 4, and so on. Due to the relatively small sample sizes care must therefore be taken when interpreting the results and making assumptions based on the data presented.

3.1.4.2 Profile of respondents

The 2020 survey decided to expand overall the scope of CD stakeholder groups (while the first survey focused on researchers, academic and IOC contacts only) as follows:

1. IOC focal points,
2. IOC CD focal points
3. Ocean researchers and research service providers (including heads of institution, data centre staff)
4. Academic staff (Higher Education Institution lecturers as well as Learning Services Provider staff)
5. Students (at Higher Education Institution)
6. Local government officials (including councils, national park authorities)

7. National government officials
8. Policymakers (senior government officials)
9. Industry (using, extracting and/or developing ocean resources)
10. Private sector operating in coastal zone (e.g. hoteliers, developers)
11. NGOs (e.g. environmental, etc.)

3.1.4.3 Results

The number of responses for the survey included 31 out of 150 IOC member states (20%); 26 out of 115 developing country IOC member states (22%). The questions from the survey that has relevance for MSP capacity needs are presented below.

Question 2.1: Please rank the most critical capacity development needs to build ocean science capacity (currently not available) in your country?

Funding and investment in ocean science and access to communities of practices were rated as the first critical capacity development need for Member States. Increased awareness, ocean literacy and public outreach, and access to remotely sensed satellite data was rated as third. Legal frameworks, regulation and enforcement, and access to regional and/or global data were the next rated at 6th. These capacity needs areas show the relevance of funding MSP projects, establishing MSP community of practices, raising awareness about MSP, and supporting legislative frameworks for its development as well as supporting ocean data to support MSP.

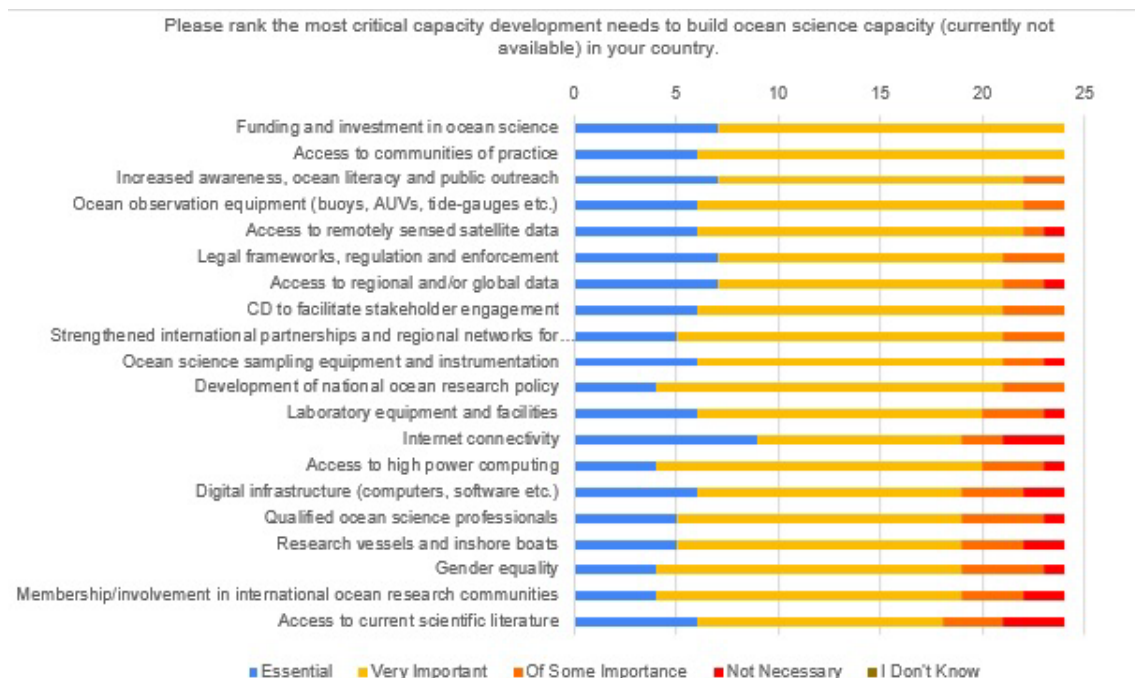


Figure 8. Most critical capacity development needs to build ocean science. IOC survey on CD, 2021

Question 2.2: How important are the following in terms of developing capacity in human resources (currently not available) in your country?

Fellowship programmes, professional development, mentoring programmes, formal education programmes and sharing of training materials were identified as important areas for developing capacity which also have relevance for MSP.

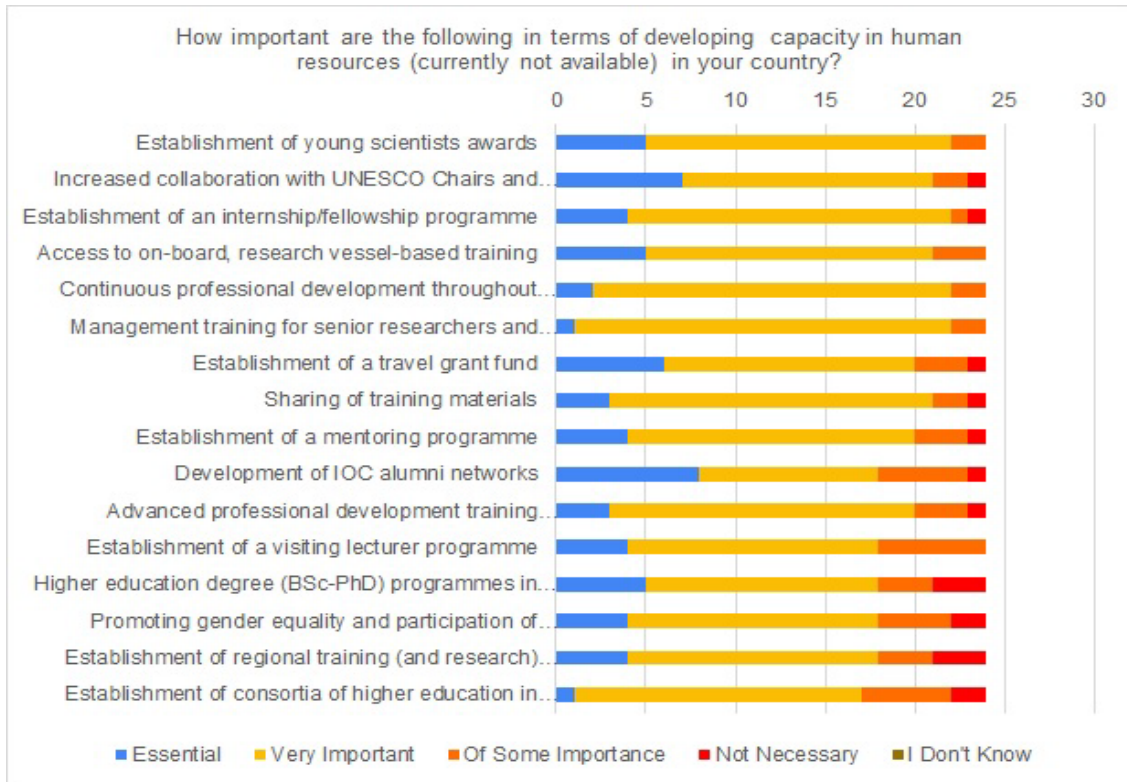


Figure 9. Important capacity needs in human resources. IOC survey on CD, 2021

Question 2.12: In the context of the UN Decade of Ocean Science for Sustainable Development for which of the following Ocean Decade Challenges are capacity development needs greatest in your country?

The Ocean Decade Challenge 4 which has relevance for MSP as it seeks to generate knowledge, support innovation, and develop solutions for equitable and sustainable development of the ocean economy was rated as the 3rd most important need area. This highlights the need for more ocean data and knowledge access for MSP.

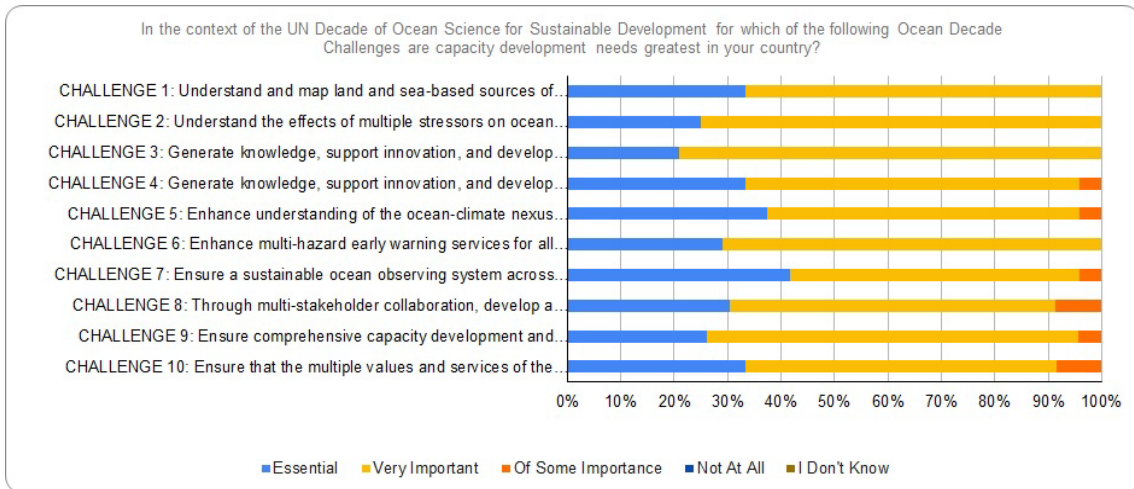


Figure 10. Ocean Decade Challenges and capacity development needs. IOC survey on CD, 2021

Question 2.13: In the context of the UN Decade of Ocean Science for Sustainable Development for which of the following Ocean Decade objectives are capacity development needs greatest in your country?

Overall objective 3: Increase the use of ocean knowledge and understanding and develop capacity to contribute to sustainable development solutions was rated as the first when it comes to the most important capacity development need.

Objective 1: Identify required knowledge for sustainable development and increase the capacity of ocean science to deliver needed ocean data and information and objective 2: Build capacity and generate comprehensive knowledge and understanding of the ocean including human interactions, and interactions with the atmosphere, cryosphere, and the land sea interface both came in second as areas where capacity needs are greatest. This result highlights the need for more knowledge on MSP solutions, development of data and knowledge to support MSP, climate change and land sea interface issues.

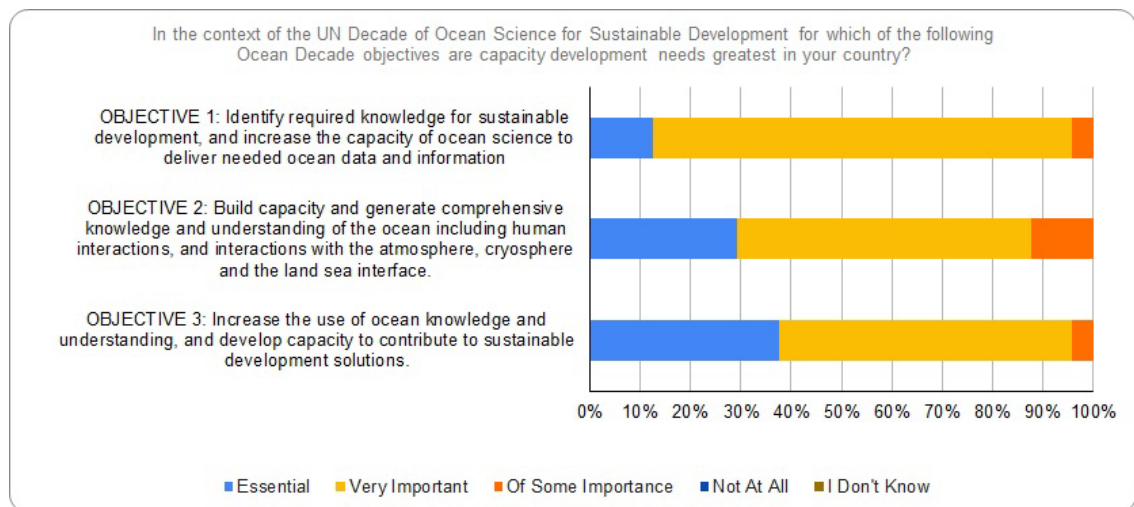


Figure 11. Ocean Decade objectives and capacity development needs. IOC survey on CD, 2021

Summary

The IOC surveys on CD (2020-2021) highlighted various capacity development needs of relevance to MSP. This includes:

- Funding research and projects on MSP
- Establishing MSP community of practices
- Raising awareness on MSP
- Supporting legislative frameworks for MSP
- Supporting ocean data to support MSP including national and regional levels
- MSP training and education needs such as fellowship programmes, professional development, mentoring programmes, formal education programmes and sharing of training materials
- Advancing knowledge on MSP solutions
- Information and knowledge on climate change and land-sea interface issues

3.1.5 MSP Training and Challenge questionnaire (2019-2024)

One of the capacity building activities carried out by IOC is the MSP face-to-face training and the use of the MSP Challenge Game. The training is based on the six MSP phases defined by the MSPglobal International Guide including sessions on the inclusive and participatory approach of MSP, data for MSP, transboundary cooperation, Sustainable Blue Economy, climate-smart MSP, and marine protection. In addition, the MSP Challenge board game was played as an essential hands-on part of all MSPglobal trainings to demonstrate the complex relations between marine-related activities and MSP.

3.1.5.1 Approach

IOC assesses the delivery of the training using a questionnaire that training participants are asked to fill to assess the game and how it has helped improve their knowledge of MSP.

In 2024, the feedback form was expanded to cover how the training presentations have helped improve their knowledge and other capacity and support needs. Another question that encompasses wider capacity needs was added to the questionnaire:

Question 18. What can help you and your organisation in MSP development and implementation?

The updated feedback forms have been delivered in the Gulf of Guinea and countries of Pacific, South Atlantic and Indian Ocean as well as in a regional training that took place in Latin America.

3.1.5.2 Profile of respondents

The profile of questionnaire respondent includes national government officers and regional level agencies with marine remits. The respondents in some cases might include key NGOs, civil society groups, researchers and academia who play a key role in MSP within each country or region.

3.1.5.3 Results

A total of 256 responses were received across the national trainings held in the Gulf of Guinea, Pacific, South Atlantic and Indian Ocean countries and a regional training held Latin America. The results from the responses are summarised below.

Table 2. Capacity development need for MSP

| Avenues for MSP Capacity building | Capacity need type | Detailed capacity needs |
|-----------------------------------|--------------------|---|
| Individuals Skills for MSP | Training | <p>More training activities as well as detailed and follow up training with practical exercises were suggested by respondents. Respondent suggested adding more participants, other members of organisations and training for people in higher level of government. Others suggested extending the training days for a week. The following are the key theme that respondent suggested training:</p> <ul style="list-style-type: none"> • GIS and marine mapping • International marine regulation and compliance • MSP Challenge game • Real-case simulations to practice multi-sector planning • Tailored sessions for private sector, public sector, and communities to understand their roles and responsibilities in MSP • Capacity building and training on the creation and management of MPAs • Examples and innovations from terrestrial planning • MSP implementation frameworks, zoning and operationalization • Socio-economic and environmental and biodiversity aspects • Conflict identification and management • Tutorial training sessions: both in person and online to accommodate different learning needs • Examples of case studies, and exercises reflecting local realities, policies, and stakeholder dynamics |
| | Study visit | <ul style="list-style-type: none"> • Simulations and field visit to understand practical issues • Observe real MSP processes and multi-sector coordination in action • Learn from success stories and challenges in MSP implementation • Gain insights into stakeholder engagement, negotiation, and conflict resolution strategies • Translate lessons learned into local contexts and policy recommendations |

| | | |
|---|--|---|
| Institutional and organisational structures | National strategy | <ul style="list-style-type: none"> • Developing a national strategy for MSP and roadmaps • Alignment of MSP efforts with broader marine and coastal governance frameworks • Resourcing national and subnational agencies responsible for MSP • Mainstreaming MSP into national development priorities and marine conservation agendas |
| | Engagement | <ul style="list-style-type: none"> • Stronger engagement of key stakeholders, particularly high-level government officials, private sector representatives, and local communities • Creation of multi-sectoral working groups or committees to ensure collaboration and cross-sector buy-in • Inclusion of marginalized groups and traditionally underrepresented voices in decision-making |
| | Funding | <ul style="list-style-type: none"> • Funding projects • National budgeting for MSP • Dedicated financial support for MSP activities, including long-term sustainability of training programs and implementation processes • Resources to support cross-ministerial collaboration and stakeholder participation • Increased investment in human resourcing and institutional capacity development |
| | Ocean data collection and analysis | <ul style="list-style-type: none"> • Research to inform MSP • Sharing information and research results • Marine research equipment and logistics and materials for starting MSP • Improving access to marine data |
| | Assessing the existing processes, needs and capacity | <ul style="list-style-type: none"> • Institutional self-assessments to identify current gaps and strengths in MSP • Tailoring support and training to address country-specific institutional realities • Evaluations of existing policies, governance frameworks and organizational capacities |
| Societal awareness | <ul style="list-style-type: none"> • Public awareness and understanding among the general public, traditional local communities, and civil society • Sharing information on the challenges and success from countries with experience with MSP • Use of outreach materials, social media, and participatory events to increase visibility of MSP benefits and processes | |

- Showcasing the link between MSP and tangible societal outcomes such as livelihoods, sustainable use of marine resources, and biodiversity protection

Summary

The MSP Training and Challenge questionnaire (2019-2024) highlighted various capacity development needs for MSP including:

More training activities including detailed and follow up training with practical exercises, more participants, as well as extending the training days for a week were requested. The following are the key theme that respondent suggested training:

- GIS and marine mapping
- International marine regulation
- MSP Challenge game; Playing the game with participants from neighbouring countries
- MSP implications for private sector, public sector, and communities
- Capacity building and training on the creation and management of MPAs
- Examples and innovations from terrestrial planning
- MSP implementation
- Socio-economic and environmental and biodiversity aspects
- Managing conflicts
- Tutorial training sessions: both in person and online
- Training with more national context
- Extending the training and game into university courses and schools
- Study visits and practical simulation through online MSP Challenge game

Institutional capacity needs identified included the following:

- Support for developing a national strategy for MSP and revising existing regulations for MSP activities
- Resourcing national and subnational agencies responsible for MSP
- Funding projects, National budgeting for MSP and work plans
- Human resourcing and capacity
- Research to inform MSP and sharing information and research results
- Marine research equipment and logistics and materials for starting MSP
- Improving access to marine data
- Support for undertaking national capacity needs assessment

Societal capacity needs identified included:

- Public awareness creation
- Sharing information on the challenges and success from countries with experience with MSP

3.1.6 Sustainable Ocean Planning and Management Survey

This survey was conducted by IOC to better understand the existing landscape in terms of sustainable ocean planning and management and identify needs of stakeholders in terms of technical and scientific support. The outcomes of the survey were used to

inform the development of the IOC-wide Strategy on Sustainable Ocean Planning and Management (SOPM) and efforts to design a Decade Programme on Sustainable Ocean planning.

3.1.6.1 Approach

This survey was carried out in 2023 and included 48 questions of which 16 questions were relevant for MSP and capacity building.

3.1.6.2 Profile of respondents

The survey was focused on the IOC community, partner organisations (UN and non-UN) and other relevant institutional stakeholders with interest in ocean planning and management including research, observation, data, services, relevant information products to inform policy/management actions, and capacity development.

3.1.6.3 Results

A total of 37 respondent provided responses to the survey that had relevance for MSP. These respondents included those from national government, international organisations, research, consultancies, and educational institutions. The distribution of organisation and their expertise are discussed below.

Q8 Select the area that best describes your organisation's operations

The most represented organisation for the survey was national government (15), international and regional organisations (6), research (5), technical and technical advice/consultancy (5). The least represented was NGO/CSO (3) and education (2).

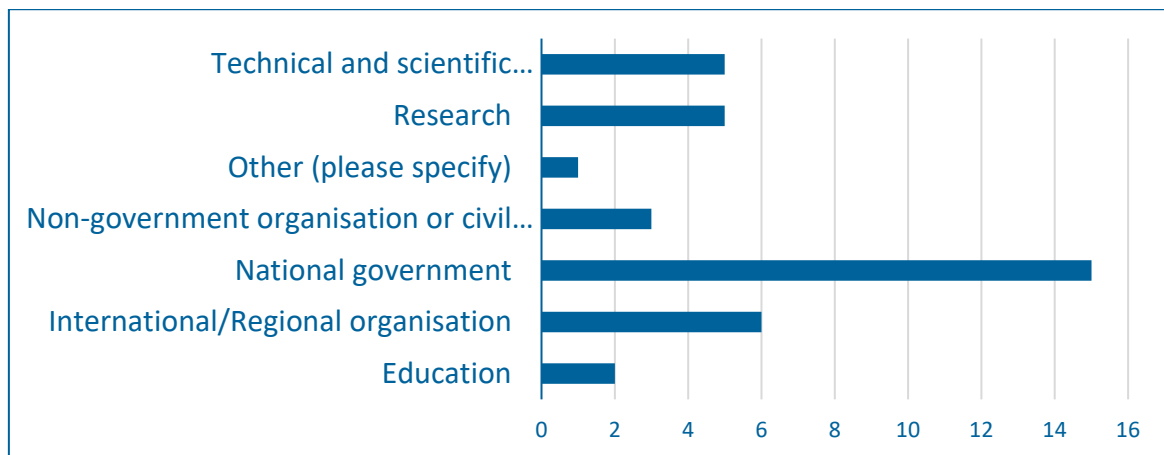


Figure 12. Areas of organisational operation. IOC SOPM survey, 2023.

Q9 Please select the options that best represent your personal area of expertise. Select all that apply

The area of expertise for most of the respondent was in the Ocean Planning and Management (25), Conservation and Biodiversity (13) and Natural Science fields (11). This was followed by thematic fields such as education and capacity building which had 10 respondents each, Data, and technology (8) and Social Science (5). Other sector focused expertise was represented through Maritime Transport (8), Energy (5), fisheries

and aquaculture (5), tourism (2), Industry and Business (1). Other expertise (9) included marine pollution, monitoring, science communication, economics, development planning and policy.

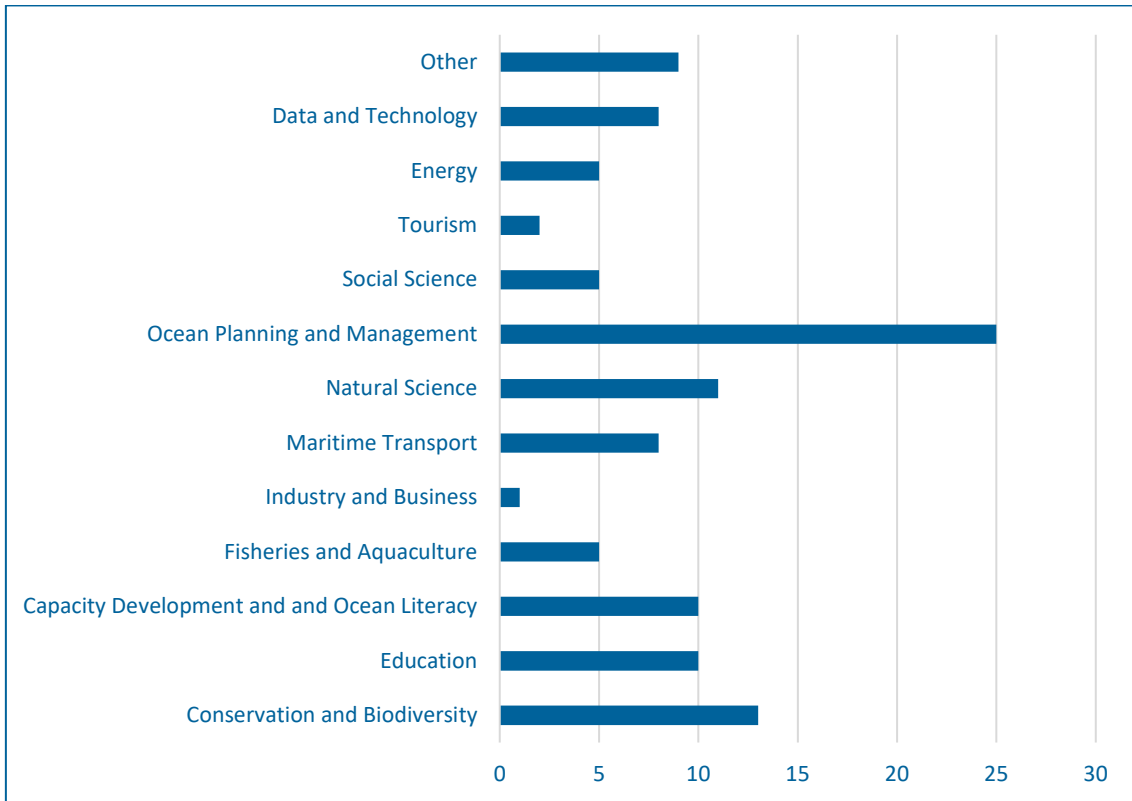


Figure 13. Personal area of expertise. IOC SOPM survey, 2023.

Q10 In which country are you based?

Most of the countries that responded to the survey had a representation including those from Italy, Ghana, Canada, UK, Belize, Kenya, Jamaica, Ireland, Finland, Cyprus, Croatia, Namibia, Mauritius, Barbados, and Thailand.

Norway had 4 responses, while Belgium and Russia Federation had 3 responses. Turkey, Germany, Poland, and Estonia had 2 responses.

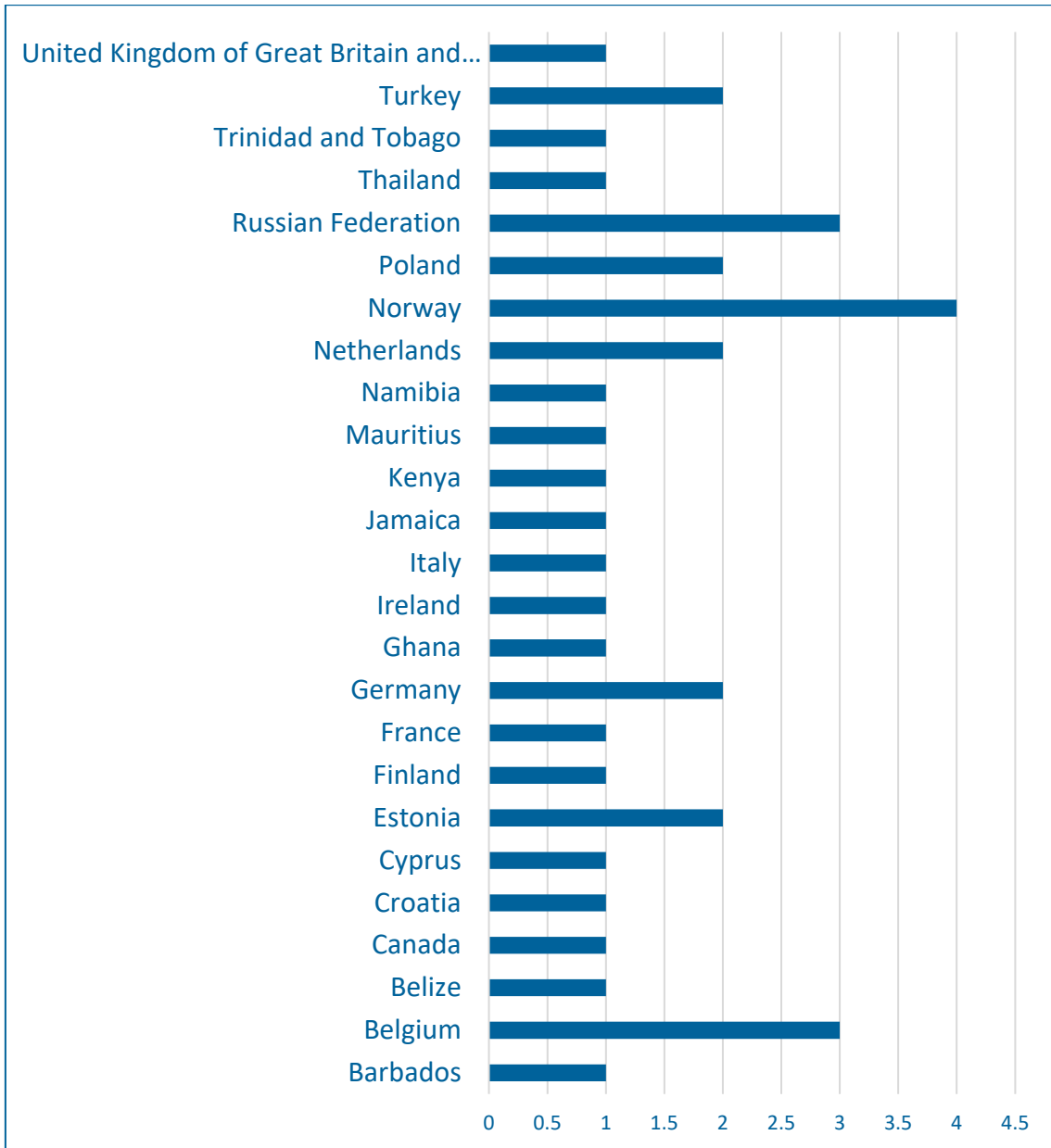


Figure 14. Number of Country responses. IOC SOPM survey, 2023.

Q11 Which region(s) do you operate in? Select all that apply

Most respondent operated in Northern Europe (16), Western Europe (12), Southern Europe (10), Sub-Saharan Africa (9), Eastern Europe (8) and Caribbean (7). Other respondents operated in the Arctic (6), North America (6) and Antarctica (5). The least represented regions where respondent operated included South America, South-eastern Asia, Eastern Asia with 4 respondent each and Central America with 2 respondents.

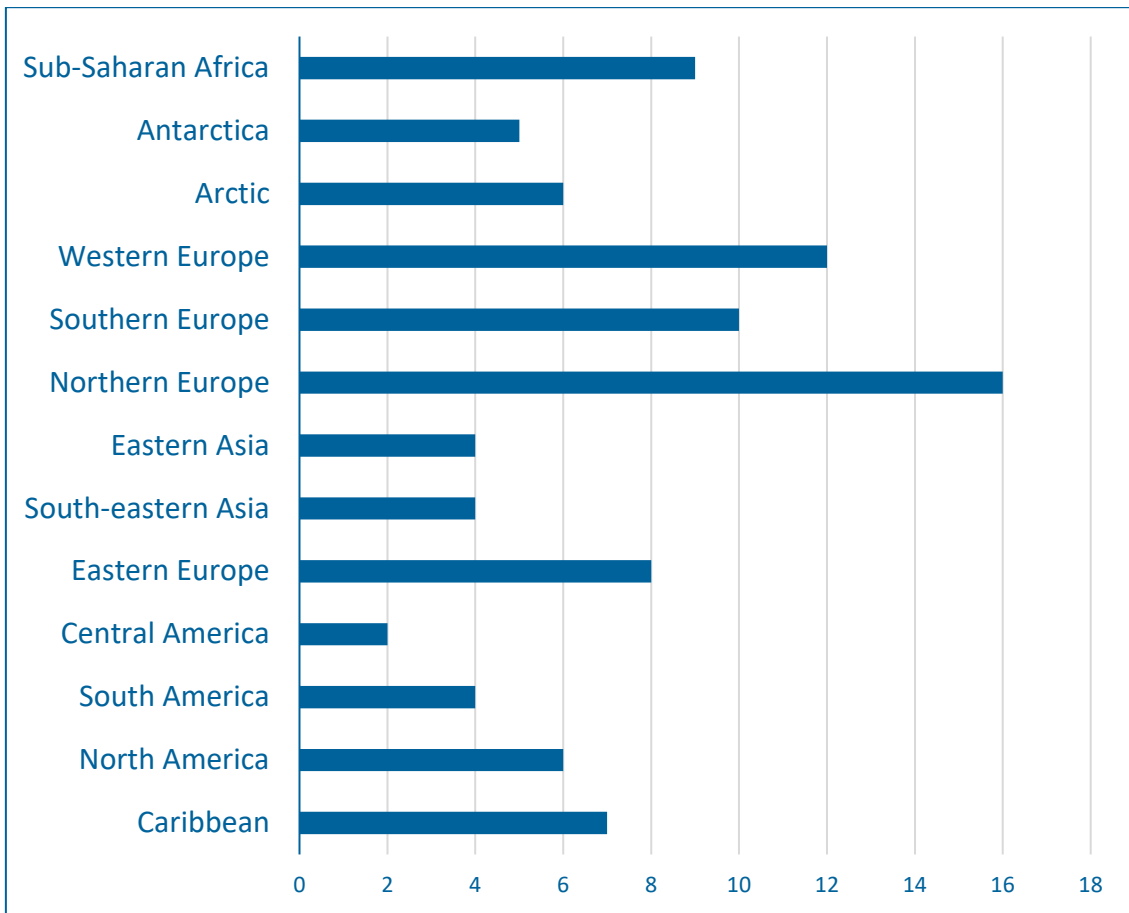


Figure 15. Regional operation of respondents. IOC SOPM survey, 2023

Q12 What approach or framework is used by your organisation for sustainable ocean planning and management? Select all that apply.

Marine Spatial Planning was the most used approach or framework for sustainable ocean planning and management (37), followed by Ecosystem based Management (34) and Blue Economy Strategy/policy/plan (32). The other frameworks used for SOPM included Large Marine Ecosystem (12), Sustainable Ocean Planning (12) and other effective area-based conservation measures (9).

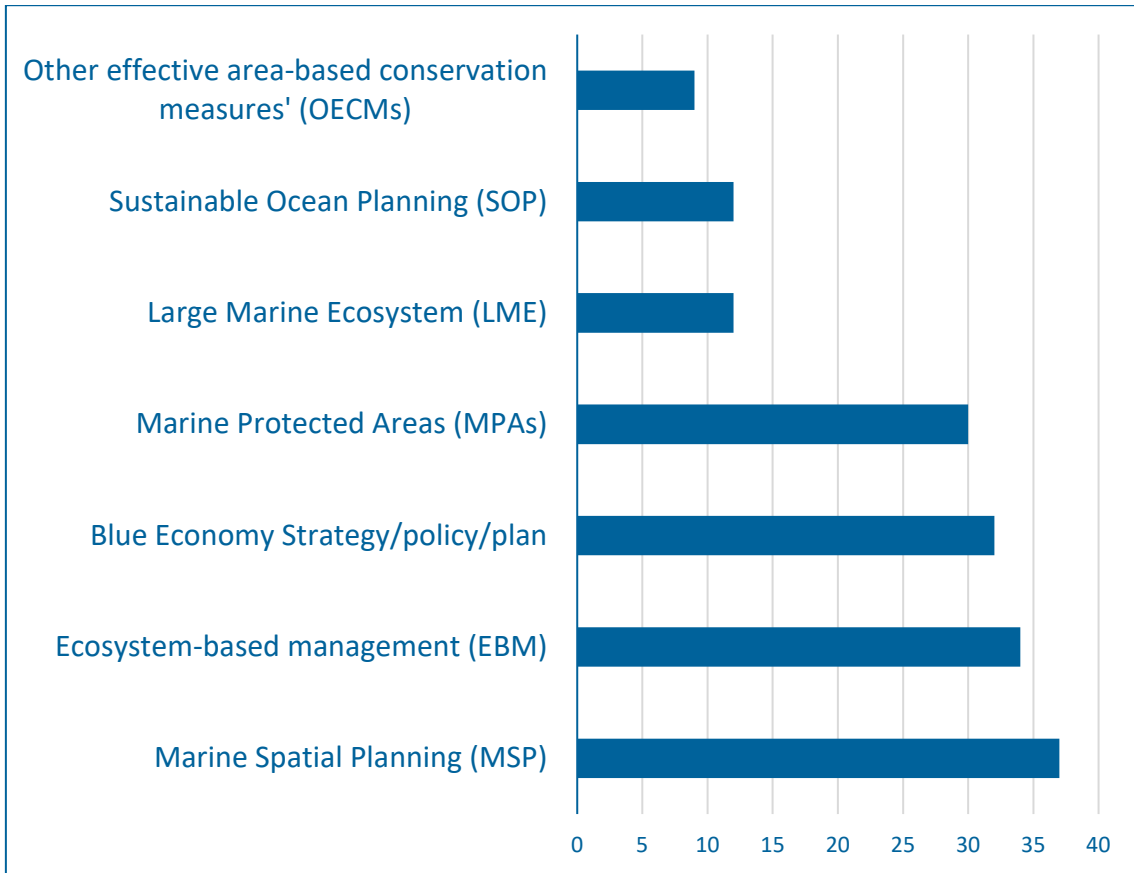


Figure 16. Approach or framework used for SOPM. IOC SOPM survey, 2023

Q14 In your opinion, how far along the journey of sustainable ocean planning and management is the country or region where you operate?

Most respondents were at the stage of completed planning but yet to implement management measures (12), in progress with planning and management measures (9) or completed planning and implemented management measures (7). Few of the respondents were at the early stages of scoping and understanding possibilities (3), either had some activities and other that could be classified as SOPM (2) or did not know the status of SOPM.

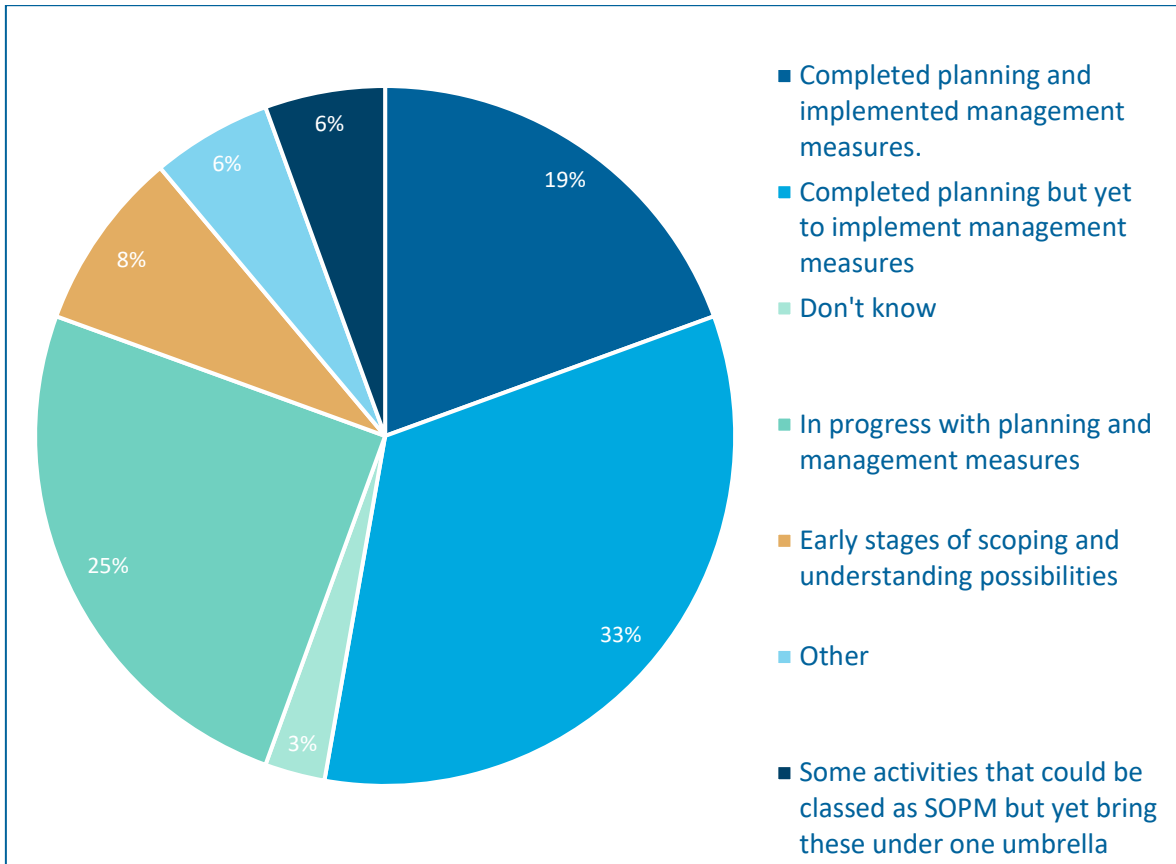


Figure 17. Status of SOPM per country. IOC SOPM survey, 2023

Q15 What is the most needed to improve sustainable ocean planning and management from your experience? Select all that apply.

The results from the survey showed that most respondent viewed collaboration with relevant institutions and organisations (31) as the most needed to improve SOPM. This was followed by tools and technologies for data analysis and decision-making support (29), Awareness campaigns and training programs (29), Access to ocean data and information (27), Data collection and management systems (27), institutional support and capacity development (26). Other needs included Funding opportunities and financial support (24), Sustainable financing mechanisms (23), Communication and engagement strategies (22) and tailored policy frameworks and regulations (20).



Figure 18. Capacity needs to improve SOPM. IOC SOPM survey, 2023

Q23 Which specific IOC initiatives and expertise (i.e., programmes, projects, products, and services) have you been engaged or used in the context of sustainable ocean planning and management? In case you are not directly involved in Sustainable Ocean Planning and Management (SOPM), please indicate your perception of what IOC initiatives may be most relevant to SOPM implementation. Select all that apply.

The Marine Spatial Planning Programme was the most used and engaged IOC initiative and expertise in the context of SOPM. This was followed by Microplastics (20) and Ocean Acidification (19).

The Global Ocean Observing System (GOOS), Data and Information - The International Oceanographic Data and Information Exchange (IODE), Ocean Biodiversity Information System (OBIS), Harmful Algal Bloom Programme and related work on nutrients/coastal eutrophication and the Assessment of SDG 14 targets all had 18 responses.

Other IOC assessments such as the State of the Ocean Report, Contribution to the World Ocean Assessment and GESAMP assessments had 17 responses.

IOC products such as the GEF International Water: LEARN products (16), Other Marine Policy guidance and tools (15) were widely used by respondents.

The Blue Carbon initiative (14) followed by the Phytoplankton, General Bathymetric Chart of the Oceans (GEBCO) /Seabed 2030 and Joint Centre for Oceanography and Marine Meteorology in situ Observations Programmes Support (OceanOPS) all had 13 responses.

The least engaged and used initiatives in the context of the SOPM included Ocean Literacy programme (11), Ocean Deoxygenation (9), Ocean Teacher Global Academy and other IOC Capacity development services/facilities (8), Early Career Ocean Professionals (ECOPs) network (8), Global Tsunami Early Warning and Mitigation Programme (6) and Tsunami Ready Programme (4)

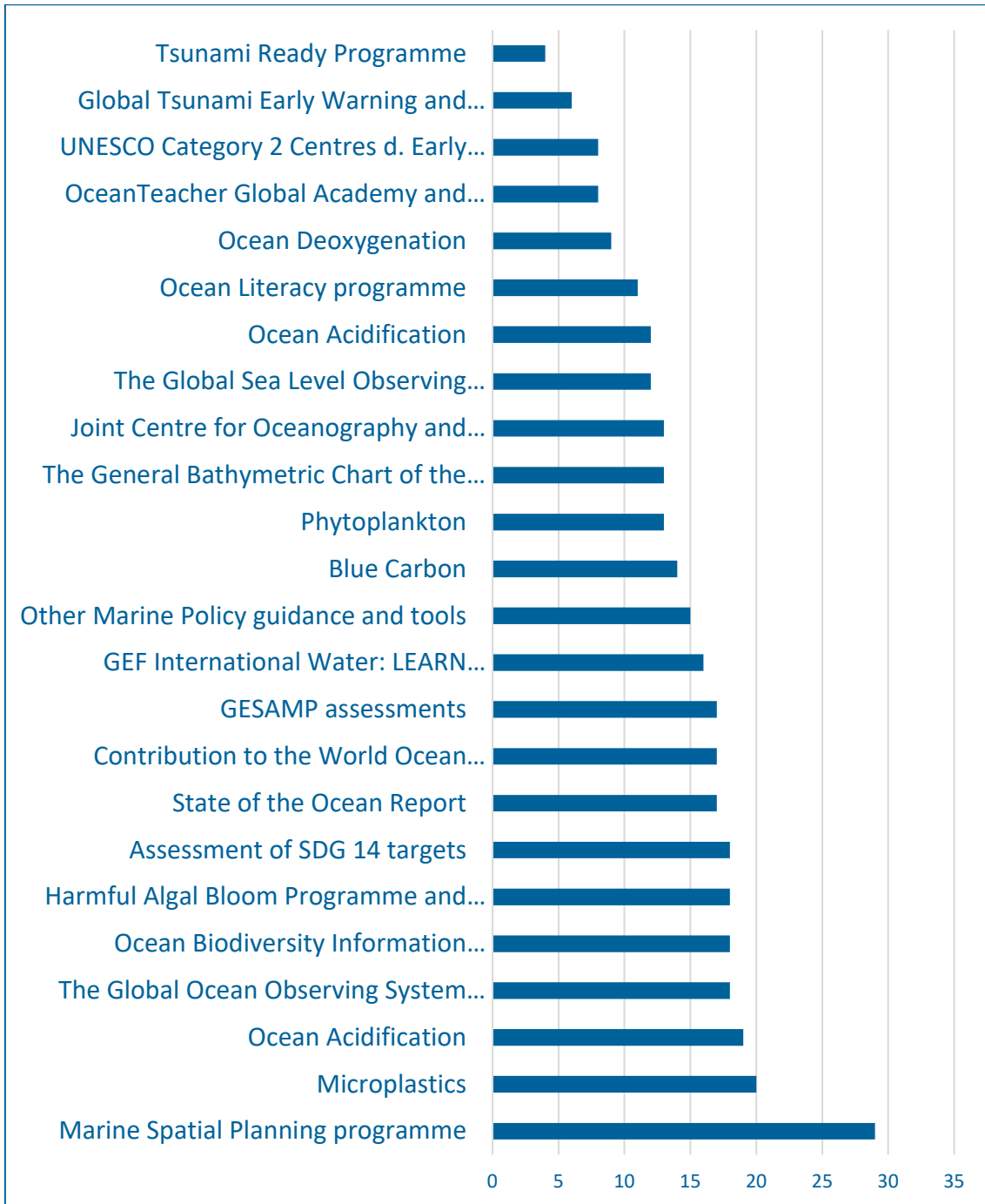


Figure 19. Use and engagement with UNESCO initiatives. IOC SOPM survey, 2023

Q24 During an initial review and discussions, a number of potential areas for the strategy to address were identified. These are listed below. Please rank these in order of importance for inclusion in the strategy for sustainable ocean planning and management. - Capacity development and training

Out of the total response, 43% noted that capacity development and training was important for SOPM whiles 37% noted that it is highly important. About 20% of respondent noted that capacity development and training was moderately important (17%) or somewhat important (3%).

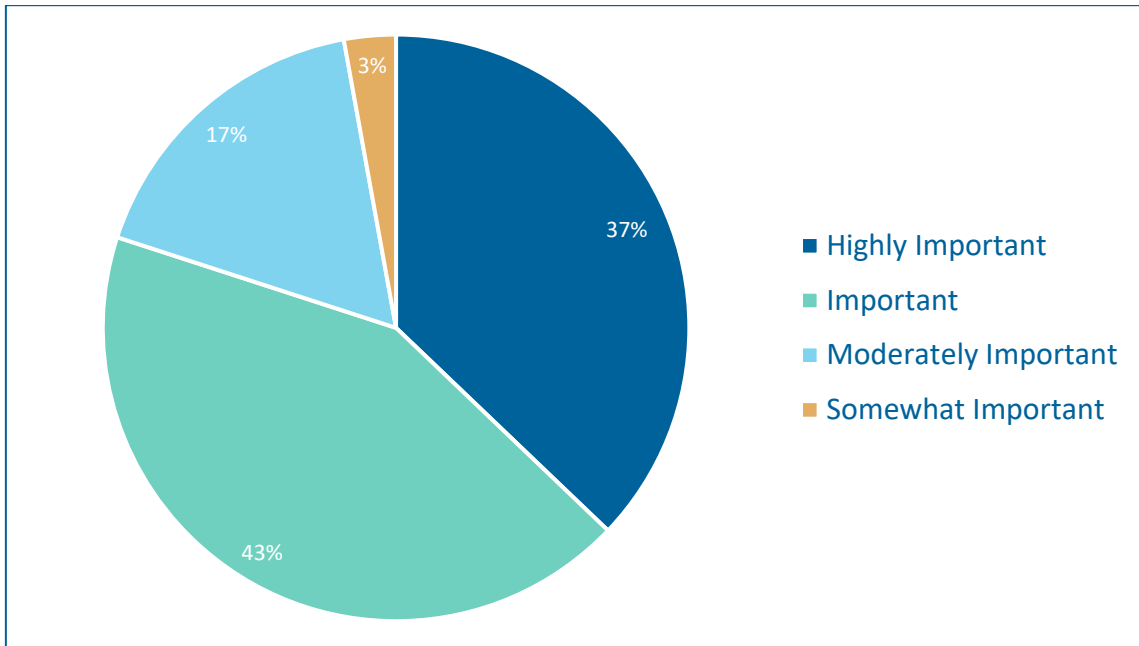


Figure 20. Role of capacity development in SOPM Strategy. IOC SOPM survey, 2023

Q27 Do you have access to knowledgeable personnel with expertise in any of the following areas?

Out of the total responses, some noted that they have access to Some Knowledgeable Staff (13), Full Access to Highly Knowledgeable Staff and Experts in the Relevant Areas (8), Access to Some Highly knowledgeable Staff and Experts in Relevant Areas (6). Few of the respondents noted that they have access to significant number of knowledgeable Staff (4), while only two respondents noted that they have no access or limited Access to External Professionals.



Figure 21. Access to knowledgeable personnel with expertise. IOC SOPM survey, 2023

Q34 In your opinion, what specific research or knowledge gaps need to be addressed to improve decision-making and implementation in sustainable ocean planning and management?

The following are the specific research or knowledge gaps that needs to be addressed to improve decision-making and implementation that were noted by respondents:

- Ocean resources assessment. The status and impacts on coastal and marine resources and new economic opportunities for further sustainable development.
- Cumulative impacts assessments
- Dialogue between scientists and decision-makers to transform data into information useful for taking decisions is very often time missing
- Ecosystem functioning (understanding food webs), impact of climate change, cumulative effects of pressures coming from human uses and pollution Criteria for ecosystem-based sustainable management (incl. costs of ecosystem services). The importance of integrating conservation areas in the management model, to support long-term supply of ecosystem services
- Natural capital/ resource economic assessment specially for decision makers
- The layer, shape, and depth of the seafloor
- The data showing what is the real relation between marine planning and changing marine environment
- A consolidated database of all ocean science information. So far, these are scattered everywhere using different forms
- Developing robust decision-support and forecasting tools. better integration of marine-focussed digital tools, services, data and information across Government
- Social, economic, and cultural dimensions of marine data

- Necessity to integrate shipping traffic and fact that maritime routes change with the weather and state of the sea
- Agreeing standards to manage the impact of offshore wind energy
- Building capacity on the understanding of commercial interests, community priorities and environmental management amongst MSP practitioners, those involved in consenting, monitoring, and enforcement
- Improving understanding of plan implementation and decisions on marine resources (including developments such as offshore wind, ports etc.): plan > decision conditions > monitoring > enforcement
- Research and knowledge on Ocean Processes and Ocean Climate Nexus

Q35 Which of the following are available to you for considering and integrating spatial considerations into decision making? Select all that apply. Select all that apply

Most respondents (29) noted that Geographic Information Systems (GIS) is available for them to integrate spatial considerations in decision making. This was followed by Mapping tools (24), Specific tools for environmental assessments (20), Mapping tools, Modelling, and forecasting/prediction tools (15), Specific tools for sectoral assessments (12) and specific tools for economic assessments (9). Three respondents either did not know (2) or had other tools (1) for integrating consideration into decision making.

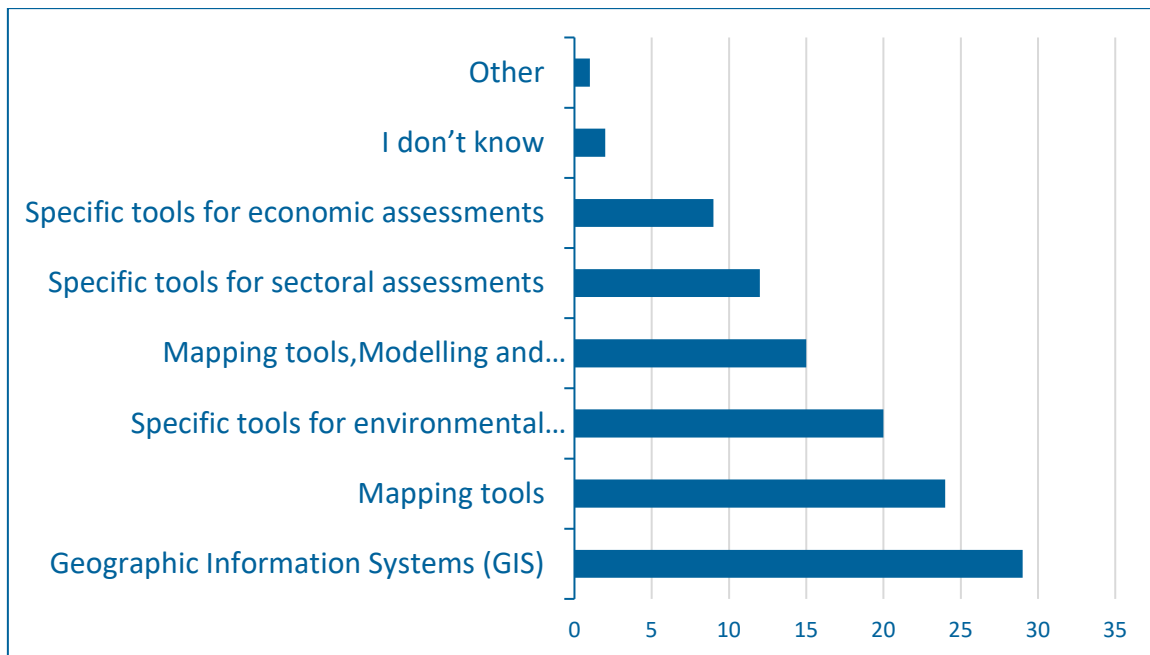


Figure 22. Availability of skills and tools for considering and integrating spatial considerations into decision making. IOC SOPM survey, 2023

Q36 How would you rate the current availability and accessibility of scientific data and information relevant to sustainable ocean planning and management in your country/institution?

Of the total response, 31% noted that current availability and accessibility of scientific data and information relevant to SOPM was fair. This was followed by good availability and accessibility (29%), poor (20%), very good (17%) and very poor (3%).

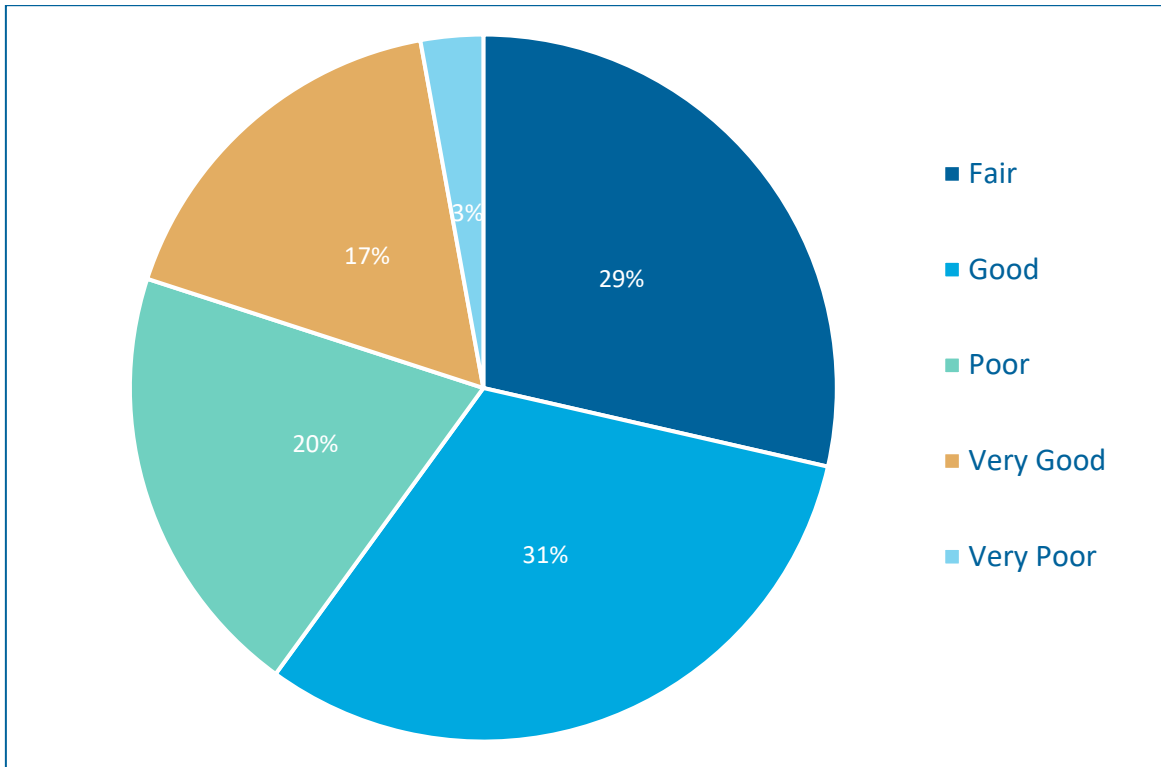


Figure 23. Availability and accessibility of scientific data and information. IOC SOPM survey, 2023

Q37 What challenges, if any, do you encounter regarding the availability and accessibility of scientific data and information for supporting sustainable ocean planning and management?

- Appropriate data available in format that can be used. Lack of willingness and agreement on data sharing policies. Existing data are mostly not FAIR
- Large and mostly unexplored EEZ and ECS with limited surveys and expeditions
- Lack or limited data in developing countries at a scale that is useful for planning/management
- Data fragmentation, highly specific and localised data points. Variation in data formats due to data production procedures and technical specifications. Scientific data are collected by different organisations/ institutions for specific projects/ needs but not managed or updated later on and not consolidated in one database or decision support tool.
- There are some data gaps or difficulties obtaining data from stakeholders, especially private or business stakeholders.
- The cumulative effects of human activities, especially on the marine environment, is not fully understood. There is lack of tools to assess anthropogenic impacts to marine ecosystems (lack of relevant input data on pressures and their impact)
- Funding to sustain ocean data collection, limited accessibility to high resolution spatial data for SIDS, lack of numerical modelling capacity, high cost for modelling software and licenses.
- Lack of harmonisation of data between countries. The work is done at regional seas and in EU but far from completed.

- There's no centralised system where all these data can be found.
- Inadequate capacity to collect and analyse data
- The conversion and interpretation of scientific data into actionable information and advice

Q39 How would you rate the capacity of your organisation to engage with stakeholders in the process of sustainable ocean planning and management?

Most respondents (21) rated the capacity of their organisation to engage with stakeholders in the process of SOPM as higher than average. This was followed by average rating (5), and high (7) rating. The least rating was both low and lower than average which had a respondent each.

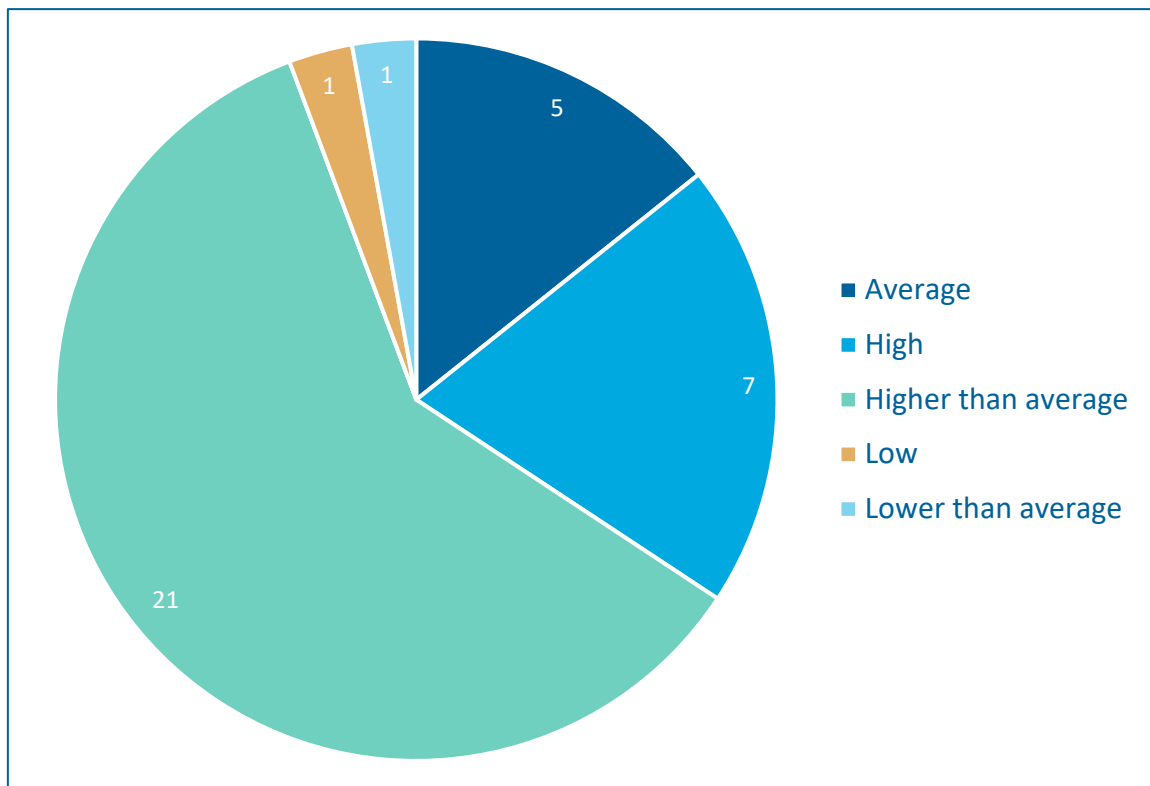


Figure 24. Rating of capacity of your organization to engage with stakeholders. IOC SOPM survey, 2023

Q40 What do you think is needed to improve stakeholder engagement and collaboration opportunities in the context of sustainable ocean planning and management? Select all that apply.

Out of the total of 4 respondents, increased resources and funding for stakeholder engagement initiatives was noted by 3 as the most needed. This was followed by Capacity development programs on effective stakeholder engagement, Establishment of multi-stakeholder platforms for collaboration and inclusion of local communities and indigenous groups in decision-making processes with two respondents each. The following needs were noted as important by a respondent:

- Enhanced communication and coordination with other NGOs and stakeholders
- Development of participatory decision-making processes
- Public awareness campaigns on the importance of stakeholder involvement

- Creation of multi-stakeholder platforms for sector-specific collaboration
- Enhanced community engagement programs and partnerships

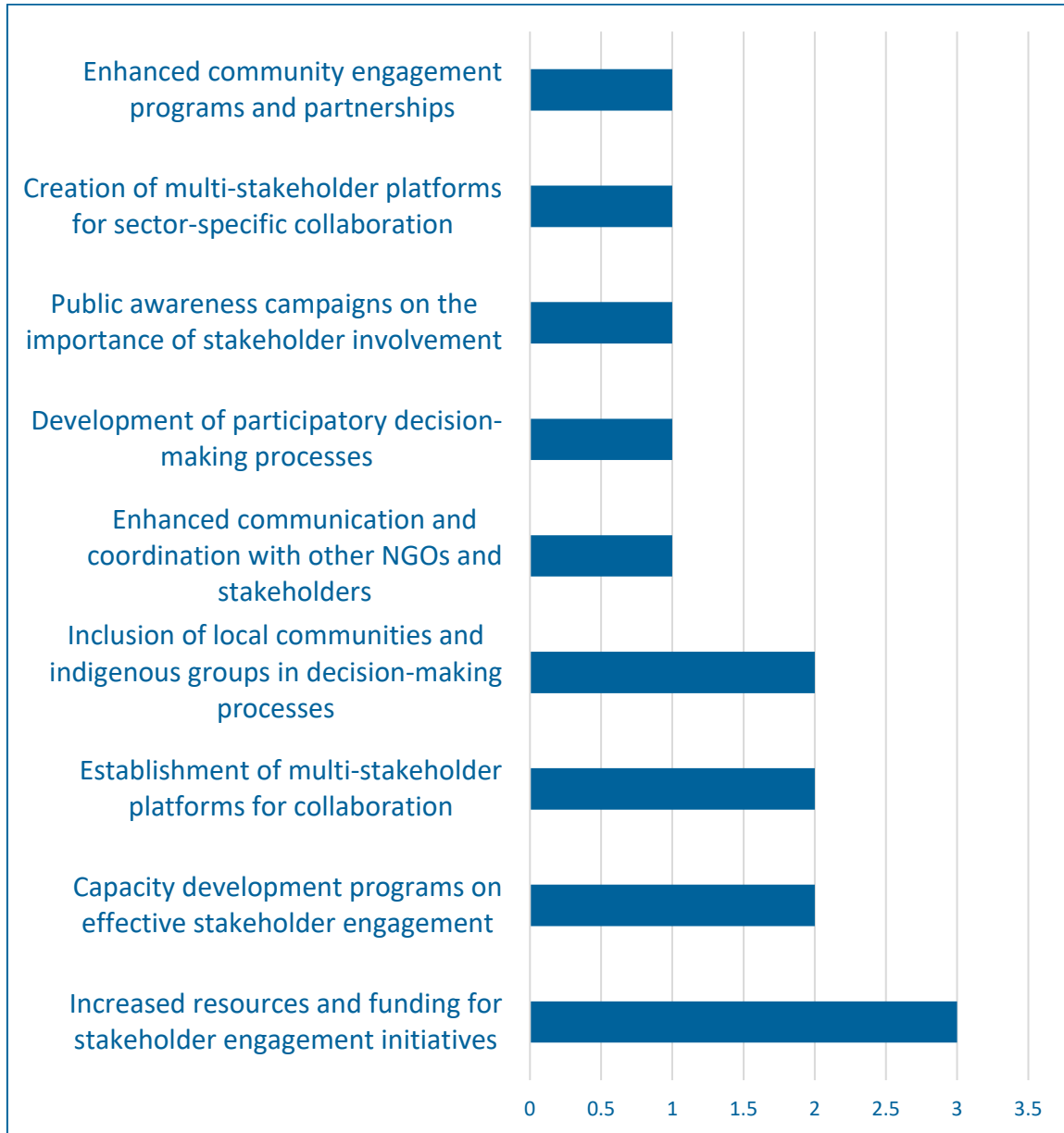


Figure 25. Stakeholder engagement and collaboration needs. IOC SOPM survey, 2023

Summary

The Sustainable Ocean Planning and Management survey (2023) highlighted that MSP is the most used approach or framework for sustainable ocean planning and management. The MSP programme was also the most used and engaged IOC initiative. 80% of respondent noted that capacity development and training was either highly important or important for SOPM. The findings showed that most organisations have access to some knowledgeable staff and have higher-than-average capacity to engage with stakeholders in the process of SOPM. The capacity development needs identified as relevant for MSP include the following:

Knowledge and data needs noted by respondent included:

- Ocean Resources assessment
- Cumulative impacts assessments
- Ecosystem functioning (understanding food webs), impact of climate change, and ecosystem services.
- Natural capital/ resource economic assessment specifically for decision makers
- Improving the understanding of plan implementation and decisions
- Improving data collection, access, harmonisation, and management

Institutional capacity needs identified included the following:

- Collaboration with relevant institutions and organisations
- Tools and technologies for data analysis and decision-making support
- Training programs
- Funding opportunities and financial support
- Sustainable financing mechanisms
- Access to ocean data and information
- Tailored policy frameworks and regulations
- Communication and engagement strategies

Societal capacity needs identified included:

- Awareness campaigns
- Community engagement programmes and partnership

4 Global MSP capacity gaps

The key MSP capacity gaps identified from both the desk reviews and the survey on the status of MSP (2024) include the following.

4.1 Individual MSP knowledge gaps

The desk review and survey indicated that more participants, members of organisations and officials at the higher level of government would need training on MSP. Others suggested extending the face-to-face MSP Challenge training days from two to seven to allow deeper engagement and hands-on practice. The desk review and results from the survey indicated that as knowledge about MSP increases, there is a clear need for more tailored training that addresses the needs of professionals and practitioners. Existing gaps with the current MSP trainings include incorporating climate change analysis into MSP, drafting of legal framework for MSP, the application of GIS and marine mapping, the design incentive and disincentive systems for effective MSP implementation, the delivery of environmental assessments, the analysing of integration between terrestrial and marine spatial planning, and the advancement of MSP approaches for multi-layered marine space. Respondents also emphasized the importance of strengthening skills in conflict management, stakeholder engagement, socio-economic integration. Another aspect highlighted was the need of having training opportunities grounded in the national context, supported with practical examples, field visits, study exchanges and interactive tools such as the MSP Challenge game to provide participants with learning experiences that mirror the real-world challenges and solutions.

The survey further indicated that respondents were not aware of some of the recent IOC MSP capacity building activities and materials such as the Online MSP training via the OGTA which was introduced in late 2024.

4.2 Institutional capacity gaps

The survey indicated there is a need of human resources and technical support to develop and implement the plans however, without funding and a sustainable financing mechanism for MSP, plans could face constraints during the process and execution.

There are existing gaps in institutional access to up-to-date transboundary and global marine data and technology, time-series analysis and more detailed scale data. This includes data on marine ecosystems, oceanography, human activities, and the interrelations between different regions utilising marine spaces. In-person training opportunities such as the MSP Challenge Game, are also needed to improve MSP capacity as the hands-on exercises allow the participants to better visualize the purpose of MSP and create a sense of empowerment for personnel and institutions themselves, understanding the dynamics of the planning process and sharing knowledge with peers.

4.3 Societal capacity gaps

Societal capacity needs mainly focused on the need to educate the general public and society on MSP, its process and relevance. Survey respondents noted the need of strengthening the skills of planners and practitioners, particularly in communication and negotiation with communities. Awareness campaigns, community engagement

programmes and multi-stakeholder partnerships were recommended as effective ways to build societal understanding and ownership of MSP.

Another need identified was the exchange of knowledge and experience between countries advanced in MSP and those that are just beginning. This includes both technical and non-technical aspects, facilitated through transboundary projects, peer to peer exchanges and tailored training programmes. The need to share information on the challenges and success from countries with experience in MSP was recommended, so that countries in the initial stages of MSP implementation can benefit from practical insights and avoid repeating mistakes.

Additionally, recommendations identified in building trust and long-term relationships among stakeholders the means of ensuring that local communities, civil society and private sector are meaningfully engaged in MSP processes.

5 Recommendations

This section outlines recommendations for IOC and collaborators to address global MSP capacity needs identified from the desk review and survey. It presents the case for change based on evidence from this study and outcomes for each recommendation.

5.1 Tailored training and workshops

The case for recommendations: The IOC training opportunities on MSP have been delivered through the online trainings via the OceanTeacher Global Academy and in-person trainings with the MSP Challenge Game. Both tools are important in addressing the MSP training needs highlighted in this report. About 60% of respondents of the survey noted that in-person trainings (e.g., MSP Challenge Game) are needed to improve MSP capacity. Findings from the survey and desk review shows that there is the need for more tailored and practical training opportunities.

Recommended outcomes:

- Design tailored training for climate change, biodiversity integration, governance, and government relations, MSP legislative framework, MSP scenarios, conflict resolution in MSP, data collation and analysis, GIS and marine mapping, land sea interface, implementation in MSP, monitoring and evaluation in MSP
- Encourage site visits and country experience exchange during training and workshop sessions
- Establish fellowship and mentoring programmes that are focused on MSP
- Extend and strengthen training and workshops on MSP through longer and more practical sessions, and improve inclusion of higher-level officials and diverse stakeholders
- Create awareness about existing IOC training opportunities and disseminate MSP training materials

5.2 Funding research and projects on MSP

The case for recommendations: Funding support was the most important institutional gap noted by the MSP 2024 survey respondents. The two key areas for funding support were around awareness and knowledge about funding and resources information about national and international funding mechanisms that can support the development and implementation of national and transboundary MSP. The assessment further noted that direct support for MSP studies, pilot projects and development of marine spatial plans are needed by MSP institutions as well as resources for enabling inclusive participation of stakeholders in MSP processes.

Recommended outcomes:

- Support for the implementation of national thematic studies and development of new MSP pilot projects
- Conduct capacity needs assessment at a regional level to design capacity needs according to the context of each region
- Support for the development of national and regional MSP and spatial management plans including training, financing, cooperation

- Funding to building long-term national capacity for MSP development and implementation
- Provide and disseminate information on possible sources for marine spatial planning projects

5.3 Supporting ocean data for MSP at national and regional levels

The case for recommendations: The desk review and survey highlighted data fragmentation and variation in data formats due to data production procedures and technical specifications as recurring issues. The need for a coordinated approach to data collection and management was noted by survey respondents. Consolidated databases and decision support tools for MSP were further recommended to address these gaps. The harmonisation of data between countries was noted as ongoing but far from completed.

Limited engagement with the private or business stakeholders on data sharing was also raised by respondents. Beyond that, a general lack of willingness and agreement on data sharing policies was noted. Existing knowledge gaps around cumulative effects of human activities, especially on the marine environment, is not fully understood. There is lack of tools to assess anthropogenic impacts to marine ecosystems (e.g., lack of relevant input data on pressures and their impact).

Recommended outcomes:

- Support the exchange of up-to-date transboundary and global marine data and technology, including time-series analysis and more detailed scales, such as data on marine ecosystems, oceanography, human activities, and the interrelations between different regions utilising marine spaces
- Support the development of data-sharing mechanisms across institutions and sectors
- Funding to sustain ocean data collection, management, visualization and accessibility to high resolution spatial data, and provision of modelling software and licenses
- Provide information on the most advanced tools and technologies used in marine spatial planning, such as geographic information systems (GIS), simulation models, cumulative impacts, and monitoring platforms
- Provide access to marine and coastal data, including socio-economic and ecological information
- Support the regional efforts to harmonize data collection and standards
- Develop capacities at national level to interpret and apply data in MSP processes

5.4 Providing MSP guidance

The case for recommendations: The survey showed that tailored guidelines on MSP are required by 47% of the survey respondents. IOC's support in the development of guides and manuals applied by national governments, and the dissemination of good practice models regarding MSP were also noted as needed to support marine spatial plan development and implementation.

Recommended outcomes:

- Develop tailored international guides and manuals as well as support national and regional MSP guidelines development
- Update guides and manuals and provide access to the latest guides and manuals published by IOC
- Develop good practices manuals or toolkits showcasing lessons learned and innovations
- Develop practical guidelines for conflict resolution in MSP processes
- Guidance on how to draft legal and institutional frameworks for MSP

5.5 Enhanced collaboration and networking

The case for recommendations: This assessment highlighted the need to provide institutional capacity to address fragmentations and enhance cross sectoral and inter-ministerial collaboration for MSP. Collaboration with relevant institutions and organisations was noted as important by 61% of respondents. The SOPM survey further highlighted that collaboration with relevant organisations is the most important when it comes to the capacity needed to improve SOPM. The MSPglobal National Focal Points noted that MSPglobal created a platform for collaboration at national and transboundary levels as well as improving understanding of different interest and priorities for MSP. The creation of multi-stakeholder platforms for sector-specific collaboration was further recommended as part of the assessment.

Recommended outcomes:

- Support transboundary or regional collaboration through workshops or forums, especially to address transboundary issues. This must include support for countries to initiate contacts with the responsible institutions
- Establish MSP Community of Practices at regional level for a continuous and structured dialogue across borders between experts on MSP (i.e. planners, technical experts, researchers), and to exchange knowledge, lessons learned and relevant experiences in the region
- Provide opportunities for individuals and institutions to build collaborative networks and opportunities to participate in international projects, training, conferences and workshops



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