

Ocean Practices for the Decade (OceanPractices)

Registration of Ocean Decade Actions by United Nations Entities

1. Lead Institution

International Oceanographic Data and Information Exchange (IODE)

2. Lead Institution Type

International intergovernmental organisation

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6. Partner details

The partners listed below have all indicated interest in collaboration: co-developing the OceanPractices Programme and co-designing the coordination structure and participating in the technical and cultural evolution of best practices. Their roles are diverse and will be fully determined in the first six months of the Programme when the work plan is further refined, but will centre on representing both thematic and regional perspectives and needs.

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7. Name of proposed Decade Programme

[Ocean Practices for the Decade](#)

8. Short title

OceanPractices

9. Summary description of proposed Decade Programme

Humanity's connection to the ocean is based on how we act and react to its multifaceted wonder. Our "ocean practices" are an essential bridge between humanity's cultural and natural heritage. The Ocean Practices for the Decade Programme ("OceanPractices") will support all ocean stakeholders in securing, equitably sharing, and collectively advancing this methodological heritage. By engaging diverse communities of practice and interlinking them through FAIR digital technologies, OceanPractices will transform how science and other stakeholders align their interests/capacities, creating ever-better practices, promoting sustainable human and ocean well-being. These practices improve interoperability and facilitate training so broader global participation naturally evolves.

10. Start & end date of proposed Decade Programme

Start: March 2021; End: December 2030

11. Estimated total budget of proposed Decade Programme

US\$17 million

12. Percentage of estimated budget that is secured

30%

13. Secured funding sources (donor name and approximate amount secured)

- IOC IODE/GOOS, US\$600,000 for 10 years ([IOC OBPS project](#) funding only)
- In-kind, US\$4,500,000 for 10 years
- Grants (H2020, NSF, etc.), US\$200,000 currently

14. Do you require support to find additional resources for your Decade Programme?

Yes

15. Would you like to be put in touch with partners working on similar issues or proposing Decade Actions that could have synergies with your proposed Action? Yes

16. Countries in which the proposed Decade Programme will be implemented

Global

17. Ocean basins in which the proposed Decade Programme will be implemented

All

2. Description of the proposed Decade Programme

18. What is the high-level objective(s) of your proposed Decade Programme?

The Ocean Practices for the Decade Programme has five high level objectives:

- HLO 1: Enable the development, adoption, and continuous evolution of context-sensitive methodologies and best practices related to ocean research, operations and applications to support the UN Ocean Decade objectives and goals.

- HLO 2: Accelerate the co-development and convergence of methodologies across ocean communities into community-accepted, trusted and interoperable best practices and standards
- HLO 3: Sustain a trusted and FAIR- and CARE-compliant system through which the ocean community permanently archives and accesses its methods, standards, guidelines and other methodological content.
- HLO 4: Expanding from HLO 3, facilitate the creation of a federated network of complementary and seamlessly interoperable methodology management systems, bringing together UN IGOs, non-UN IGOs, NGOs, regional and global programmes, projects and the private sector
- HLO 5: Foster community-led capacity development in ocean best practices to enable equitable access to information, technology and knowledge and facilitate more ocean science that is fit for purpose

Access to information and knowledge about the ocean to achieve the UN Ocean Decade's outcomes and objectives requires coordinated and interoperable observations and analyses from local to global scales and across disciplines. Thus, coordinating ocean methodology - including guidelines, policies, standard specifications, and protocols - that underpins cooperation and interoperability is essential. In the *Call for Actions Guidance Note*, the IOC encourages Ocean Decade programmes "to address interoperability and to develop and use best practices in their work", echoing previous calls from OceanObs'19 and elsewhere. Developing global consensus on how methods should interoperate and evolve into context-qualified best practices is a major challenge on the path to realizing the Ocean Decade's ambitions. To be effective for broad multidisciplinary use and to encourage convergence of methods where appropriate, these practices should be widely distributed, easily discoverable and readily accessible based on the FAIR principles (findable, accessible, interoperable, and reusable).

The vast majority of the ocean community does not maintain its methodological knowhow in open access, sustained, and secure archives of up-to-date ocean practices. If we are not able to trace *how the* Outcomes and Objectives are met through Decade Actions, then building trust, supporting reproducibility, advancing and transferring competencies, and building a legacy beyond 2030 will all be severely inhibited. To address this, an advanced technology implementation of a Methodology Management System (MMS) is needed, even with such a System, serious cultural and organizational challenges would still exist that would defeat actions to achieve the Ocean Decade needs for globalization and interoperability.

These methodology challenges urgently need to be addressed:

- The concept of best practices is increasingly necessary but remains ambiguous
 - Tracing methods that create ocean-related data, information and knowledge is not transparent
 - There are limited processes to motivate and support the convergence of methods into endorsed best practices
 - Ocean Practices are undervalued and under-incentivized
 - Methodology archives and management systems in individual institutions or enterprises are strongly siloed and at times inaccessible
 - Linguistic and cultural barriers to discovering, responsibly using, and co-developing methodologies are still high
 - Training in the use of best practices can be difficult to access and individual mentoring is not scalable
- A systematic intersection of best practices and standards must be advanced to ensure the greatest possible comparability of applications across the globe.
- The need and importance of best practice to policy makers and funders is not always appreciated

Many of the above are a mix of technical, social and cultural issues which need a multidisciplinary approach to transform the current ocean research values to an environment that rewards open exchange and broad collaboration. Indeed, a global collection of independent - but continuously seamlessly interoperating - MMS will provide the technology needed to support a cultural shift in how ocean communities advance their practices. The Ocean Decade represents a unique time to focus on such a transformative shift, which will take a decade or more. The high level objectives listed at the beginning of this section underpin the response to the challenges above and allow the development and operation of an evolving system which fosters collaboration, consensus building and innovation by providing practices and standards across ocean sciences, engineering and applications.

19. What are the key expected outcomes of your proposed Decade Programme?

1. A participatory ocean where all ocean stakeholders can discover, understand, and co-develop the next generation of ocean practices with increased equity, accelerating inclusive capacity exchange and development
2. An oceanwide community of practice where local, regional, and global stores of evolving ocean knowhow and methodology are collectively safeguarded as a shared resource and trust for current and future generations to draw from in the creation of new practices for opportunities and threats we have yet to imagine.
3. A new commons of practitioner wisdom through which diverse experience across ocean stakeholders is readily available to guide the selection and endorsement of practices for use across regions, operational realities, and value systems of ocean communities in their support of science and sustainable development converge innovative methodologies into endorsement of methods
4. An ocean of holistic methods where technologies and new, open paradigms of methodology development
5. and communication bring disciplines together in support of holistic methods, realising transparency and advanced interoperability across disciplines and stakeholders
6. A future-facing federation of digitised knowhow for technology transfer and capacity development which equips all partners with interoperating digital archives of ocean practice, creating a global network to support the integration of methodologies into the digital ocean ecosystem.

* 20. Please describe the activities that will be implemented as part of the proposed Decade Programme

OceanPractices will be implemented through the following activities. Over the Decade, these Activities will be updated in response to changing needs.

1. **Consolidating discourse on ocean practices:** OceanPractices will provide an overarching framework for methodological discourse on scientific, technological, and societal topics determined by OceanPractices Programme partners and the broader ocean community. OceanPractices meetings will incentivise communities to converge methodological knowledge into context-dependent best practices. The digital OBPS Workshop IV (September 2020) successfully piloted this approach. Particular effort will be made to develop sustained links to global and regional policy stakeholders towards a goal of engaging social and natural scientists to work together in areas of economy, anthropology, ethics, ocean and marine policy, and law.

Serves HLO1, HLO3, HLO4

2. **Implementing digital infrastructures:** Building on the example of the OBPS, OceanPractices will support partners in co-designing interoperating nodes in a system of systems for methodology management. Each node will be supported in adding elements to allow wider dissemination of ocean practices and to allow more inclusive consultation and validation. Further development of technologies to continually enhance discovery, convergence, and integration of ocean practices into the ocean digital ecosystem will be coordinated such that benefits can be shared across the ocean community. These include innovations in natural language processing, machine learning, artificial intelligence and knowledge representation, which programme partners can leverage to enhance the capacity of all stakeholders to manage ocean practices more effectively. The ultimate goal is to enable automated and machine-to-machine processing of methodological materials and the linking of these with other digital resources across similar federated systems (e.g. through the IOC Ocean Data and Information System, ODIS).

Serves primarily: HLO1-4

3. **Coordination:** Through the services and coordination activities in OceanPractices, the Programme will establish a primary point of contact for significant issues related to the creation, review and

dissemination of ocean practices. Coordination will promote links between scientific methodology and sustainable development activities across stakeholder groups. In this way, a trusted system will be established that will continue beyond the UN Decade. Coordination includes the dialogue between OceanPractices and stakeholders such as scientific journals (prompting for improved traceability of practices through the process of peer review publication), or the private sector. OceanPractices will

facilitate and contribute to developing strategies for methods for interoperable observations across IOC and UN programmes, including the Global Ocean Observing System, and data and information management and capacity development programmes sponsored by the International Oceanographic Data and Information Exchange.

Serves HLO1-4

- 4. Enable equitable access to information, technology and knowledge:** Practices are valuable when shared, thus OceanPractices will include training and capacity development activities to share capacities across regional, national, societal, and disciplinary boundaries. These activities leverage all other efforts listed here. Experts within the OceanPractices partnership, and teamed with IOC's OceanTeacher Global Academy (OTGA), will provide the knowledge base for diverse methodological course materials and contribute other resources. The OceanPractices digital infrastructures will serve training materials, including video and other media. The programme will also serve needs for context specific practices that support citizen science projects (e.g. Ocean Sampling Day) and likewise for raising awareness of the benefits following and improving standardised and quality-controlled practices.

Serves HLO1-5

5. Pilot activities: OceanPractices partners will collaboratively execute Pilot Best Practices activities (minimum 1 per year) to understand and assess the functioning of the OceanPractices Programme operations and services and to guide improvements. Pilot activities will cover activities from sensors to application and policy users, related capacity development applications, or convergence activities. *Serves HLO2, HLO5*

21. Please describe the theory of change that underpins your proposed Decade Programme

Our Theory of Change (ToC) is motivated by the ocean community's repeated calls for improved methodology development, and their needs to find the best practices to address their multifaceted needs. Our ToC centres on the recognition that successful change relies on rallying communities around achievable, mutually beneficial and collectively reinforcing visions, allowing time to facilitate new trusts and relationships, identifying the diverse community processes that bring positive change, and reinforcing these with sustainable and co-developed mechanisms. Each of these elements will be considered in the Programme's development, which relies on alignment and collaboration across ocean practice communities to support the OceanPractices Programme aims. A wide array of partners in OceanPractices enables diverse perspectives to be represented in motivating and engaging in change processes.

Enabling change, a shift from one state to another, for improved ocean practices will involve some elements of psychological and cultural turnaround. Although many are convinced by the benefit of maturing ocean practices into "best" practices, we need to go further to overcome passivity and silos. We need to both inspire and empower ocean practice producers, communities and funders, to have confidence in the validity of inclusive and context-defined best practice creation, and beyond, in the value of working towards integrated best practices that both converge and consider the users further along ocean value chains. The demonstration and benefits of such change will be represented by our partners across their communities to encourage greater appreciation and uptake of best practices.

This ToC will guide our partners in implementing OceanPractices Activities 1 and 3 to realise Outcomes 1-4 (in pursuit of HLO1 and 2), which will be accelerated and supported through Activities 2 and 4 (supporting Outcome 5, HLO3 and 4). Activity 5 will be instrumental in demonstrating fitness for purpose across nations and capacity levels to provide tangible, interim programme outputs to inspire and activate change (in line with HLO5), a process deeper than just function thanks to its resonance with our ToC.

The key will be in engaging the community to have common goals and a common vision at each step of the ocean observing value chain (co-design, observing, information documentation and management, product

delivery, and feedback to co-design), across the Ocean Decade coordinating units will need to work in concert, emphasizing that interoperability and use of common operating practices are a requirement and not simply a recommendation.

22. Will your proposed Decade Programme enhance the sustainability of ocean science initiatives, including infrastructure or individual / institutional capacity, in light of the current Covid-19 pandemic?

Yes

23. If yes, how will your proposed Decade Programme enhance the sustainability of ocean science initiatives, including infrastructure or individual / institutional capacity, in light of the current Covid-19 pandemic?

COVID has motivated ocean sciences (as all global activities) to accelerate and expand transitions to cross border and global collaborations. People are learning to work virtually and to collaborate by virtual platforms. While not optimum, collaboration in this way will provide much broader access for research engagement. Best practices will need to be defined and adopted to improve response to current (and perhaps future) limitations to traditional collaborations. This is part of the cultural shift mentioned earlier. With potential limitations on ship access and in-person operations more generally, development of remote/autonomous operations will be expanded. Best practices will be important for consistent and trusted remote operations.

Digital training will become increasingly important as fewer in-person training opportunities (summer schools, etc) are available. This training will still be based on the exchange of best practices. Looking at another impact, use of best practices improves efficiency of research operations. To the extent that COVID expenditures and economic losses pressure science resources, effective and efficient operations will receive special attention - particularly as we move to global operations under the Ocean Decade. Use of best practices can improve operations and also encourage trust for reuse of data and information.

*** 24. Please describe the coordination / management structure for the proposed Decade Programme**

The OceanPractices Programme will be organized and managed by the Steering Group of the IOC Ocean Best Practices System (SG-OBPS) (noted in the participant list above). The Programme will report into the SG-OBPS, and will be led by the co-chairs of the SG-OBPS, with secretariat and staff support. During the first 6 months of the Programme (initial implementation phase), a governance structure will be established taking into account the management and coordination structures of the partners and their areas of speciality.

A dedicated OceanPractices Programme coordination office will be established. The Programme office will have dedicated work packages for sustained activities such as communications, training and strategic technology coordination. These work packages will align with the high level objectives presented above. Also, under the Programme governance, shorter term (probably multi-year) focused projects will be carried out for key developments including the pilots identified in section 20 above. These may be in the form of multi-year projects or task teams. An example of a task team is the current OBPS-SG Early Career Ocean Professional (ECOP) team activity that is addressing Best Practices to foster equity in research.

The Programme will have a General Assembly of the partners on an annual basis (virtual or hybrid if necessary). Other stakeholders will be invited to the assembly whenever appropriate. There will be an Advisory Board to ensure that multi-stakeholder and young researcher guidance is coordinated and available to the Programme management. The stakeholders will include members across the value chain from observers to end users. The Steering Group will provide the overall programme guidance and will meet monthly or more frequently. The Steering Group will be the interface with the IOC Ocean Decade organization.

3. Contribution of Proposed Decade Programme to the UN Decade of Ocean Science for Sustainable Development (refer to the Ocean Decade Implementation Plan for details)

25. To which Sustainable Development Goal(s) (SDG) will your proposed Decade Programme contribute? Please select a maximum of three SDGs

GOAL 1: No Poverty.

GOAL 2: Zero Hunger

GOAL 3: Good Health and Well-being

GOAL 4: Quality Education

GOAL 5: Gender Equality

GOAL 6: Clean Water and Sanitation

GOAL 7: Affordable and Clean Energy

GOAL 8: Decent Work and Economic Growth

GOAL 9: Industry, Innovation and Infrastructure

GOAL 10: Reduced Inequality

GOAL 11: Sustainable Cities and Communities

GOAL 12: Responsible Consumption and Production

GOAL 13: Climate Action

GOAL 14: Life Below Water

GOAL 15: Life on Land

GOAL 16: Peace and Justice Strong Institutions

GOAL 17: Partnerships to achieve the Goal

26. How will your proposed Decade programme will contribute to the SDGs selected? Please Explain

The OceanPractices Programme will support progress towards multiple SDGs. Below, we focus on those where we expect major impact.

Foremost, the Programme will contribute to SDG14 by developing global methodological capacity to steward our oceans and the life (including human life) they sustain. Through aggressively pursuing Target 14.A, the Programme and its partners will support all other targets in this Goal and support joint ocean research for the sustainable use of ocean resources.

Coordinated ocean practices are essential in detecting and understanding how climate change impacts the oceans and how we can mitigate and adapt to its effects. Thus, the Programme supports SDG13 through Target 13.2 by providing guidance on community-agreed measures for integration into national policies and strategies. Here, the focus is also on building transparency and trust for policy makers and national agencies.

The Programme's core value of building partnerships around practice across stakeholder groups will support SDG17. In pursuit of Target 17.6, the Programme will enhance sharing by supporting access to and development of ocean methodologies addressing the sustainable use of the ocean, facilitating North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation, and enhancing knowledge sharing.

27. How will your proposed Decade Programme contribute to the vision and mission of the Decade?

Identifying, initiating, and executing the science needed to support society in securing the ocean we want (and, indeed, determining what diverse stakeholders in society want from the ocean) cannot be credibly done without a deep transformation in how we diversify, coordinate, and co-develop our practices. Without community-agreed, widely accessible, multistakeholder, and multi-, trans-, and interdisciplinary methodologies, science will remain in silos and only indirectly support sustainable development (e.g. through gradual integration into operations or commercialisation).

The OceanPractices Programme will support the ocean community in transforming how it co-develops its practices, aligning the interests and capacities of scientific stakeholders with those in other sectors of society

to more directly couple science and sustainable development. Because it addresses methodological development - a process at the heart of all ocean activities - the Ocean Practices for the Decade will serve to interconnect all Ocean Decade programmes in creating, archiving and disseminating new, more inclusive forms of ocean methods to promote local capacities.

The Programme will empower multinational partners interconnecting their stores of ocean practices with cutting-edge (but easily deployable) FAIR digital technologies. The resulting federated system will allow the ocean community to permanently cross-archive, discover, and access the full diversity of its knowhow. This will facilitate the transfer of marine technology to all countries, in particular to SIDS and LDCs, and help to overcome barriers to diversity and equity, including gender, generational, and geographic diversity. In short, the Programme will allow ocean stakeholders practices, will create opportunities for new ocean science meeting the needs and requirements of all ocean stakeholders, and will in turn support the mission of the Decade 'to catalyse transformative ocean science solutions for sustainable development, connecting people and our ocean'.

28. To which Decade outcome(s) will your proposed Decade Programme contribute?

Outcome 1: A clean ocean where sources of pollution are identified and reduced or removed.

Outcome 2: A healthy and resilient ocean where marine ecosystems are understood, protected, restored and managed.

Outcome 3: A productive ocean supporting sustainable food supply and a sustainable ocean economy.

Outcome 4: A predicted ocean where society understands and can respond to changing ocean conditions.

Outcome 5: A safe ocean where life and livelihoods are protected from ocean-related hazards.

Outcome 6: An accessible ocean with open and equitable access to data, information and technology and innovation.

Outcome 7: An inspiring and engaging ocean where society understands and values the ocean in relation to human wellbeing and sustainable development.

29. How will your proposed Decade Programme contribute to the Decade outcomes selected (200 words)?

Ocean Practices for the Decade will particularly contribute to Outcome 6 by providing the coordination and infrastructure elements that enable a co-development of practices for the ocean community, and in alignment with other stakeholders. The Programme will support the creation, archiving, and dissemination of ocean practices and will provide cutting-edge FAIR digital technologies to enable access to the full diversity of knowhow of the ocean community. The technologies that have been developed and will evolve are open source and will be shared across the organizations archiving and distributing methodological documentation. This includes the HLO4 for a federation network of Methodological Management Systems This way Ocean Practices for the Decade will empower multinational partners interconnecting their ocean practices. The education and training elements of the Programme will help overcome the barriers to diversity and equality.

30. To which Ocean Decade Challenge(s) will your proposed Decade Programme contribute?

Challenge 1: Understand and map land and sea-based sources of pollutants and contaminants and their potential impacts on human health and ocean ecosystems, and develop solutions to remove or mitigate them.

Challenge 2: Understand the effects of multiple stressors on ocean ecosystems, and develop solutions to monitor, protect, manage and restore ecosystems and their biodiversity under changing environmental, social and climate conditions.

Challenge 3: Generate knowledge, support innovation, and develop solutions to optimise the role of the ocean in sustainably feeding the world's population under changing environmental, social and climate conditions.

Challenge 4: Generate knowledge, support innovation, and develop solutions for equitable and sustainable development of the ocean economy under changing environmental, social and climate conditions.

Challenge 5: Enhance understanding of the ocean-climate nexus and generate knowledge and solutions to mitigate, adapt and build resilience to the effects of climate change across all geographies and at all scales, and to improve services including predictions for the ocean, climate and weather.

Challenge 6: Enhance multi-hazard early warning services for all geophysical, ecological, biological, weather, climate and anthropogenic related ocean and coastal hazards, and mainstream community preparedness and resilience.

Challenge 7: Ensure a sustainable ocean observing system across all ocean basins that delivers accessible, timely, and actionable data and information to all users.

Challenge 8: Through multi-stakeholder collaboration, develop a comprehensive digital representation of the ocean, including a dynamic ocean map, which provides free and open access for exploring, discovering, and visualizing past, current, and future ocean conditions in a manner relevant to diverse stakeholders.

Challenge 9: Ensure comprehensive capacity development and equitable access to data, information, knowledge and technology across all aspects of ocean science and for all stakeholders.

Challenge 10: Ensure that the multiple values and services of the ocean for human wellbeing, culture, and sustainable development are widely understood, and identify and overcome barriers to behaviour change required for a step change in humanity's relationship with the ocean.

31. How will your proposed Decade Programme contribute to the Decade Challenges selected?

The OceanPractices Programme will support the ocean community to deliver community-agreed, widely accessible, multistakeholder methodologies needed to enable delivery of the actionable data and information that is required to address Challenge 7. Easy access to methodologies, that include also training material, will provide a base for capacity development and equitable access to data, information, knowledge and technology addressing Challenge 9.

32. To which Decade Objective(s) will your proposed Decade Programme contribute?

Objective 1: Identify required knowledge for sustainable development, and increase the capacity of ocean science to deliver needed ocean data and information

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.

Objective 3: Increase the use of ocean knowledge and understanding, and develop capacity to contribute to sustainable development solutions.

33. How will your proposed Decade Programme contribute to the Decade Objective(s) selected?

The Ocean Practices for the Decade Programme addresses methodological development that will serve to interconnect all Ocean Decade programmes in creating, archiving and disseminating ocean methods. The Programme will enable delivery of methodologies that facilitate local and regional knowledge for sustainable development and addressing Objective 1. The digital infrastructure that is part of the Programme enables the ocean community to permanently cross-archive, discover, and access the full diversity of its knowhow. This is the base for an interconnection of all Ocean Decade programmes and addresses Objective 2. By supporting access to and development of ocean methodologies addressing the sustainable use of the ocean, the Programme will facilitate North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing and addressing Objective 3.

34. With respect to the Decade Objectives selected above, to which Decade Sub-Objective(s) will your proposed Decade Programme contribute?

1.1: Provide the scientific basis for regular integrated assessments of the state of the ocean and identify priority gaps at different scales and in different geographies to frame efforts in exploration, observations and experimentation.

1.2: Promote new technology development and enhance access to technology to generate ocean data, information and knowledge.

1.3: Enhance and expand existing ocean observing systems across all ocean basins to deliver information on standardized essential ocean variables including social and economic, geological, physical, chemical, bathymetric, biological, ecological parameters, and observations on human interactions with the ocean.

1.4: Develop mechanisms that support community-led science initiatives and the recognition and inclusion of local and indigenous knowledge as a fundamental source of knowledge.

1.5: Undertake regular assessments of the state of ocean science capacity to identify and overcome barriers to generational, gender and geographic diversity, and promote sufficient and sustainable investment.

2.1: Generate a comprehensive inventory, mapping, and understanding of the role and function of ocean components including their human interactions and interactions with the atmosphere, cryosphere and the land sea interface.

2.2: Generate a comprehensive understanding of thresholds and tipping points for ocean components, including human interactions.

2.3: Innovate and expand the use of historical ocean knowledge to support sustainable development solutions.

?2.4: Improve existing, and develop new generation ocean models for improved understanding of the past, current and future states of the ocean, including human interactions.

?2.4: Improve prediction services and increase predictive capability for oceanic hazards or events including extreme

weather and climate.

2.5: Expand cooperation in ocean-related education, training, capacity development and transfer of marine technology.

3.1: Broadly communicate and promote the role of ocean science for sustainable development across diverse stakeholder groups including through formal and information education and an expansion of ocean literacy approaches across stakeholder groups.

3.2: Develop interoperable, open access platforms and applications to share data, information and knowledge in a format that connects knowledge generators and users.

3.3: Undertake interdisciplinary, multi-stakeholder co-design and co-delivery of ocean solutions including policy, decision making, integrated ocean management frameworks, applications and services, and technology and innovation.

3.4: Expand and enhance spatial planning processes to contribute to sustainable development across regions and scales.

3.5: Expand and enhance inclusive and integrated management frameworks and tools, including nature-based solutions, to maintain ecosystem functioning, provide for adaptive processes under changing ocean conditions, and incorporate community values and needs.

3.6: Expand and enhance services, applications and management tools for building and mainstreaming preparedness and adaptive responses to multiple stressors and hazards.

3.7: Expand and enhance tools, applications and services that integrate and facilitate use of data, information, and knowledge on ocean-related natural capital including the social, cultural, environmental, and economic characteristics of the ocean.

35. How will your proposed Decade Programme contribute to the Decade sub-objectives selected?

The methodological development that is carried out within the Ocean Practices for the Decade Programme will serve to interconnect all Ocean Decade programmes in creating, archiving and disseminating ocean methods. The database of community-agreed, widely accessible, multistakeholder, and multi-, trans-, and interdisciplinary methodologies and the cutting-edge FAIR digital technology to access the database content will specifically serve Decade sub-objectives 1.2, 1.3, 2.4, 3.2, 3.4 to 3.7. By enabling the ocean community to permanently cross-archive, discover, and access the full diversity of its knowhow ocean practices and knowledge is served to all countries in particular to SIDS and LDCs, and help to overcome barriers to diversity and equity, including gender, generational, and geographic diversity, serving Decade sub-objectives 1.4, 1.5, 2.5.

36. Please check which of the following criteria are relevant to your proposed Decade Programme as far as they are relevant to your proposal:

Accelerate the generation or use of knowledge and understanding of the ocean, with a specific focus on knowledge that will contribute to the achievement of the SDGs and complementary policy frameworks and initiatives.

Is co-designed or co-delivered by knowledge generators and users, and does it facilitate the uptake of science and ocean knowledge for policy, decision making, management and/or innovation.

Will provide all data and resulting knowledge in an open access, shared, discoverable manner and appropriately deposited in recognized data repositories consistent with the IOC Oceanographic Data Exchange Policy[1] or the relevant UN subordinate body data policy.

If you check this criteria, please provide in the question below details of where data will be deposited and where it exists, attach a data management plan.

Strengthen existing or create new partnerships across nations and/or between diverse ocean actors, including users of ocean science.

Contribute toward capacity development, including, but not limited to, beneficiaries in Small Island Developing States, Least Developed Countries and Land-locked Developing Countries.

Overcome barriers to diversity and equity, including gender, generational, and geographic diversity.

Collaborate with and engage local and indigenous knowledge holders.

37. How will your proposed Decade Programme contribute to the Decade criteria selected?

Accelerate the generation or use of knowledge and understanding of the ocean, with a specific focus on knowledge that will contribute to the achievement of the SDGs and complementary policy frameworks and initiatives.

By supporting the ocean community in transforming how it co-develops its practices and aligning the interests and capacities of scientific stakeholders with those in other sectors of society, the OceanPractices

Programme will directly couple science and sustainable development. It will help build global methodological capacity to steward our oceans and life (including human life).

Is co-designed or co-delivered by knowledge generators and users, and does it facilitate the uptake of science and ocean knowledge for policy, decision making, management and/or innovation.

By supporting access to and development of ocean methodologies addressing the sustainable use of the ocean, The OceanPractices Programme will facilitate North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing. Thus the Programme will facilitate the uptake of science and ocean knowledge for various stakeholders.

Will provide all data and resulting knowledge in an open access, shared, discoverable manner and appropriately deposited in recognized data repositories consistent with the IOC Oceanographic Data Exchange Policy[1] or the relevant UN subordinate body data policy.

One structural element of the OceanPractices Programme is the digital infrastructure that will allow the community to permanently cross-archive, discover, and access the full diversity of its knowhow and based on FAIR digital technology. It is a recognized data repository, namely the OBPS repository at the IODE. All 4 subpoints are being addressed.

4. Communications

38. Please describe how you plan to communicate about your proposed Decade Programme including the main target audiences and methods of communications

The communication strategy for the OceanPractices Programme is essential to foster collaboration, consensus building and innovation by providing practices and standards across ocean sciences, applications, and communities at large. The strategy will be divided into three coordinated efforts, one focusing on communications across the OceanPractices Programme ("internal communications"), the second is communications with IOC and other decade components ("Ocean Decade communications") and third is communications with the broad ocean stakeholder communities ("external communications"). The internal communication will involve exchange through the General Assembly, the Advisory Board, Projects and Task Teams, Early Career Ocean Professionals (ECOPs), and possibly one or more special purpose boards (such as community groups, indigenous groups, or others). The targets for the Decade communication are determined through dialogues with the Decade office. Finally, the targets for the external communication include science, research, end users, and policy makers as well as the public interested in oceans and ocean literacy. This approach is adapted from the OBPS communication strategy. The contributions of all partners to the communication plan is an essential part of a strategy for broad based outreach. The communication target and methods will be detailed in a communication plan once the contributions of each partner to the plan has been confirmed.

39. Have you developed a communications strategy or plan as part of your proposed Decade Programme? If so, please attach it as part of the supporting documentation.

No

Supporting Documentation

Pearlman et al. (2021) Evolving and Sustaining Ocean Best Practices to Enable Interoperability in the UN Decade of Ocean Science for Sustainable Development, Front. Mar. Sci. (Submitted)

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