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Ocean Best Practices System

Strategic Plan

2021-2025

(Update 2024)

Ocean Best Practices System

Strategic Plan

2021 - 2025

(Update 2024)

UNESCO



2021 United Nations Decade
2030 of Ocean Science
for Sustainable Development

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<https://www.oceanbestpractices.org/>

The screenshot shows the homepage of the Ocean Best Practices System. At the top left is the logo for 'Ocean best practices'. To the right is a search bar with the text 'Search' and a magnifying glass icon. Below the logo and search bar is a navigation menu with the following items: ABOUT US, NEWS AND EVENTS, REPOSITORY, COMMUNITY AND DEVELOPMENT, OUR WORK, and RESOURCES. The main content area features a large background image of a sunset over a body of water. Overlaid on this image is the text 'OCEAN BEST PRACTICES SYSTEM' in large, bold, white letters. Below this title is a subtitle: 'Providing technological advances and community approaches for all ocean methods to better understand and sustain our oceans'. At the bottom of this section are three white boxes, each containing an icon and a label: 1. A magnifying glass icon with a gear-like border, labeled 'SEARCH FOR PRACTICES'. 2. An icon of four people silhouettes around a central person silhouette, labeled 'SUBMIT A PRACTICE'. 3. An icon of a blue database cylinder, labeled 'EXPLORE OUR PROGRAMMES'. Below these three boxes is a dark blue horizontal bar with the text 'OUR VISION' in white, bold letters. Underneath this bar is the text: 'To have agreed and broadly adopted methods across ocean research, operations and applications.'

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1. Introduction: OBPS in Context

The Ocean Best Practices System (OBPS) has been created by members of the global ocean observing community, which includes observers, observing infrastructure engineers/designers/operators, data/information managers, modellers, and end users across applications. For this document we use the phrase “ocean observing” to be inclusive of ocean observations, data processing and management, modelling and applications. Therefore, we consider “ocean observations” as one element of ocean observing whereas, ocean observing is defined to cover the Ocean Information Value Chain -- from sample collection and sensors to end user applications (for reference - see [GOOS 2030 Strategy](#))

Ocean observing is a multidimensional process in which diverse groups and activities must be interfaced to ensure effective outcomes for society. Over decades, the community of ocean practitioners has created a large number of methodologies, best practices, standards, and related material. However, global coordination of best practices for the ocean community has only recently received strong interest in line with the progress towards an effective global and integrated ocean observing system.

Best practices emerge from time-tested experience, usually gathered within organisations such as universities, private and public research, institutions, and through collaborative projects and programmes. However, these practices are often retained locally and can disappear over time, resulting in fragmentation of the global methodological base, and unsustainable access to key best practices. Efforts to overcome fragmentation in access and use of quality methods have not been previously attempted on a global scale.

To address this, **OBPS was formed. Now, the OBPS is recognized by the global ocean community as a sustained operational service, serving as a methodological management system and as a facilitator for capacity development/training activities associated with best practice methodologies.** OBPS encompasses deposition of practices into a public archive, support for the adoption and endorsement of best practices, and development of training with an engaged community. The OBPS operations are supported by the Intergovernmental Oceanographic Commission (IOC) of UNESCO and its technology evolves through research and innovation grants. Community guidance through various fora defines key areas of OBPS evolution.

The OBPS capabilities evolved through projects such as AtlantOS, ODIP and the Ocean Obs Research Coordination Network. In 2016, the IODE joined the [AtlantOS/ODIP/RCN Best Practices Working Group](#) (BPWG) to work towards an enhanced global best practices repository. The existing IODE **Ocean Data Practices** repository (main partners IODE/WMO/JCOMM/ICES), was identified as a baseline capability. The name was changed in 2018 to **Ocean Best Practices** to reflect the broader ‘all ocean-related’ best practices scope of the service. The Ocean Best Practices System includes the repository with advanced search technology, a peer review journal on ocean best practices matters in *Frontiers in Marine Science*, support for training and capacity development, and an outreach and engagement programme with user/creator communities. In June 2019, the **IOC Ocean Best Practices System** was approved as an Intergovernmental Oceanographic Commission (IOC) Project, jointly funded by the IODE and GOOS Programmes through **Decision IOC-XXX/7.2.1** (IOC Committee on International Oceanographic Data and Information Exchange) submitted by the IODE Programme.

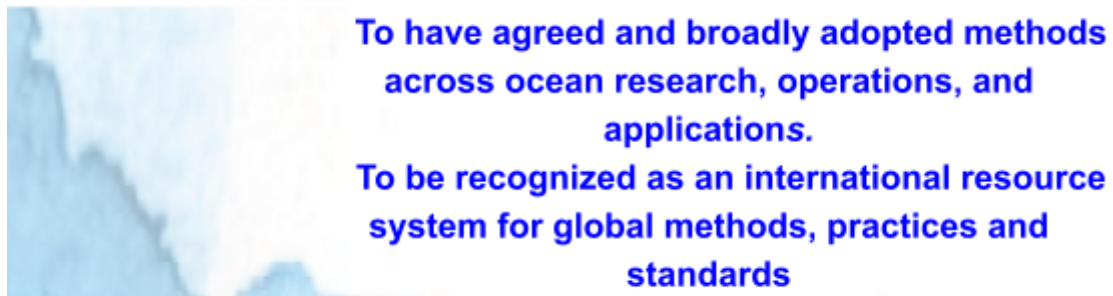
This strategic plan and its annual Work Plan are built on community input and support the OBPS vision and mission. This strategic plan is for a period of 5 years consistent with a decadal vision and includes priorities for the United Nations Decade of Ocean Science for Sustainable Development (2021-2030). It covers the needs related to both the operations of the Ocean Best Practices System and the utility of the OBP process for the large and diverse representatives of the broad ocean community, which includes observers, data managers, modelers, and end users and their applications.

A new strategic plan is due in 2025, however, with the significant progress made in some OBPS strategic outcomes and international activities increasingly impacting the OBPS and its services, an interim update is timely.

2. OBPS Vision and Mission

2.1 Vision

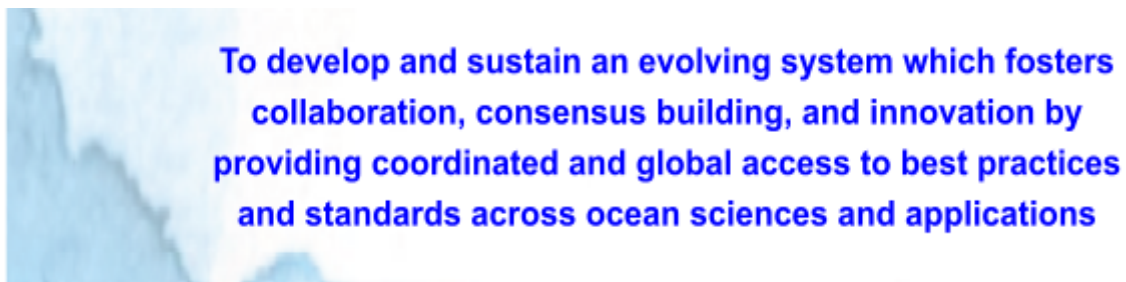
The OBPS cross-cutting vision will serve the needs for broad interoperability and sustainable capabilities:



This vision will be achieved through the development, adoption, endorsement, and use of best practices (BPs) to increase efficiency, reproducibility, and interoperability of all “ocean research, operations and applications”, including the full spectrum of observations, data management, modeling, and end-user applications.

2.2 Mission

To achieve this vision, a mission statement guides the OBPS strategic Implementation:



The OBPS will accomplish the mission by establishing itself as a sustained and recognized international resource system for global methods, practices and standards working with ocean communities in a joint and coordinated effort in producing, reviewing and sustaining BP documents and related material.

3. OBPS Key Strategic Service Areas

Sustainability

A primary goal for the OBPS is evolution from a project to achieving a position within the sustained infrastructure of its IOC Programme Sponsors and to seek a solid base for continuous funding. Outcomes for continuous funding added in this 2024 update include plans for the OBPS to transition to an *Association internationale sans but lucratif* (AISBL), whilst remaining part of the IOC family; and to successfully bid for international project funding that can take forward OBPS strategic objectives to ensure OBPS is a sustained community resource.

An essential component of a sustained OBPS is a **sustained repository** - a permanent repository that has **continuing funding and resource strategies in place** for increasing submissions, data curation, preservation, and dissemination, and enhancing the technological functionality. This will ensure that the stored information remains relevant, reliable, and accessible over time.

Scalability

At inception the OBPS defined a remit to focus primarily on practices in “ocean observations”. It soon became apparent from community needs articulated at international conferences, workshops, events, and surveys etc. that the expectation from the community was the broadest interpretation, covering all practices in ocean science and related sciences research, data and information, and applications across the ocean value chain. Disciplines that fall under this umbrella include biology, chemistry/geochemistry, computing/data management, environment/pollution, geology/geophysics, meteorology/atmosphere, physical oceanography, research support, resources/fisheries, technology/engineering, modeling and analyses, administration and social sciences such as ethics, ocean literacy, ocean governance and policy, and broader interdisciplinary topics and methods which impact knowledge of the oceans and that the ocean may impact. Further, OBPS is global in coverage and is inclusive of the global marine environment, covering the open ocean and coastal environment extending from deep water to estuarine/brackish and freshwater environments.

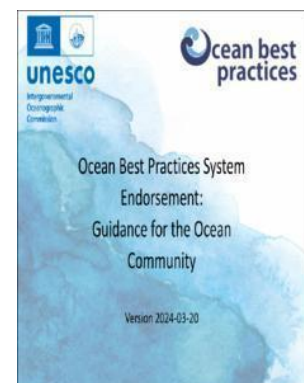
While the OBPS is demonstrating the value of access to a collection of methodologies, it acknowledges that it cannot collect ALL ocean related methods, nor should it, when these methodologies are available in other organisation’s methodological management systems. In 2024, under Strategic Objective 4, a pilot Ocean Practices Federated Network will be implemented with founding partners OBPS, FAO, and ICES to facilitate a federated search of practices across distributed methodological management systems.

Governance

As OBPS has continued to develop, it has documented project structure and governance reflecting its diverse activities. In December 2022 the OBPS published its *Objectives and Governance Structure* including Terms of Reference (ToR) for the Steering Group. As part of its strategic vision it introduced a succession mechanism by creating the position of Co-Chair-Elects and in 2023 agreed the formation of an Advisory Board to advise and guide OBPS strategies. As a coordinated activity of the IOC Programme sponsors IODE and GOOS, OBPS works with their advice such as the IODE *Rules of Procedure for IODE Programme Components, Programme Activities and Projects*.

Ocean practitioners and stakeholders have identified key services needed from the OBPS for the distribution, creation, and uptake of materials related to BP. These include operations focusing on:

- **Convergence:** The OBPS will assist the community to find broader, potentially global, agreement on documentation on the various operations and practices. While the convergence process itself is conducted by the respective expert communities, the OBPS is a facilitator providing searchable content and metadata from the repository. In 2024 it has facilitated an endorsement process as a precursor to convergence and provides training and documentation on potential steps to follow for a successful convergence process, and by providing templates for BPs documentation and media.
- **Endorsement:** Identifying selected methods that have gone through a comprehensive community review process, supports users in selecting which methods to adopt. Endorsement is the process which elevates documentation and may be done with respect to a group's internal quality standards or more universal standards. Different activities are required from the OBPS to support the endorsement process such as metadata enhancements, an adaptation of the search interface, formulating and reviewing the endorsement criteria against minimal standards and providing version control. In 2024, building on a partnership with GOOS, OBPS has implemented, with key global communities, a process and platform to register and express endorsements of practices by recognized organisations and/or commissioned expert groups. These endorsements, and the evidence which supports them are recorded in OBPS repository, and are passed on through a number of ocean data and information organisations for far-reaching visibility.
<https://doi.org/10.25607/OBP-1983>



- **OBPS Repository:** Users have identified easy discovery, access and feedback as areas of continuing development for the repository, This includes support for convergence and endorsement including a rating of BPs which in 2024 has progressed with the paper publication submission ‘*Ocean Practices Maturity Model*’ outlining a rating process to assess whether a practice complies with ‘best’ practice criteria.

The repository (and website) hosts basic email feedback and help desk facilities and also for individual repository records, a user-driven star rating system has been implemented. A proposed mechanism to permit the logged-in user to open a dialogue with the method’s creator is envisaged. Privacy and General Data Protection Regulation (GDPR) concerns, and the lack of funding have held back this initiative. However, new feedback software is now becoming available which encourages the OBPS to revisit this requirement.

To guide depositors in understanding the repository document inclusion policy, guidelines have been developed in 2024. These guidelines are a significant enhancement to the content scope description and are now updated in the *Repository Policies and Terms of Use* and *Guidelines for Depositors* and *Guidelines for Editors*. This document inclusion policy will assist depositors and editors with decisions on content applicability.

The OBPS repository contains multiple types of methodological documentation and other media such as videos and training courses. In order to maintain the consistency of the inventory for very different users and diverse topics, submissions are reviewed for relevance, in accordance with the document inclusion policy, provenance, the capacity of individuals to provide input in the name of a community, file format and quality of metadata. In the next evolution of the repository, the submission process will enable an automated ingest of BP documents and metadata.

- **OBPS Enhanced Discovery Service (EDS),** The Amazon Web Service hosted EDS offers sophisticated searching applied to individual metadata fields and various permutations of search filters. It is a bespoke search technology which would benefit from continuing development and maintenance which the present IT support and funding to the repository and AWS-EDS cannot sustain. There are enhancements that are required which will be advised by a detailed review of the search technology.

- Training and Capacity Development:** The OBPS enables the provision and access to training videos, documents and tools created by the community for the community. Capacity development in the OBPS repository will take different forms, from webinars and video tutorials through to establishing links with training providers such as IOC/IODE OceanTeacher Global Academy and Marine Training, to access full courses. The OBPS seeks project funding to address the strategic need for regional training in methods and best practices. In 2024 it successfully obtained NORAD project funding to establish the ADAPT Project which will provide training, as well as supporting collaborative development of guidelines on ocean observation and best practices, using the Caribbean as a pilot region. A focus will also be on introducing ocean sciences students to the concept of using and creating BPs, with a planned pilot initiative in 2024, to work with Universities to embed 'best practices and standards' into the Marine Science Curricula
- Frontiers OBPS Research Topic:** the opportunity to publish material related to all aspects of best practices creation and application is well accepted by the community and OBPS will continue its partnership with *Frontiers in Marine Science* to support the peer-reviewed journal Research Topic: *Best Practices in Ocean Observation*. OBPS SG will continue to volunteer as members of the Editorial Board and provide new members to let other members transition out after six years of service.
- Community engagement:** Involves raising awareness, presentations on the OBPS, facilitating exchange between different groups, highlighting the importance of BP and providing information to stakeholders. As a coordinated activity of the IOC Programme sponsors, IODE and GOOS, OBPS proposes to leverage this important partnership in its advocacy campaign. OBPS is investing in communication, outreach and community engagement through its Steering Group; through its transition to an AISBL which will allow a much wider participation and advocacy; the new 2024 Advisory Board; Work Packages; Ambassadors Programme; Task Teams, and through the Community of Practices and Network of its Ocean Practices for the Decade Programme. Further, the OBPS Workshop will continue to organise an annual dialogue with the community. 2024 sees advocacy support in the form of a redesigned website, poster and infographics,



Steps to developing an ocean best practice



4. Challenges to be Addressed by OBPS

There are challenges to sustain and expand the key strategic service areas identified in Section 3, for the ocean community. Despite all that has been accomplished since 2016 - significant challenges still remain towards achieving the OBPS vision.

The following methodology challenges are among those that urgently need to be addressed:

1. The concept of BPs is increasingly necessary but remains inconsistently understood.
2. The importance of interoperability of observations as well as data systems needs to be more widely promoted and realised to study the ocean as a global system.
3. Documenting ocean BPs is under-incentivized in academia and research.
4. The interfaces and synergies between BPs and standards are insufficiently clear which limits interoperability of ocean methods and data.
5. Tracing methods across the value chain of ocean-related data, information and knowledge is not transparent and may not currently exist.
6. There are limited processes to motivate and support the convergence of fragmented knowledge and documentation into coherent documentation.
7. Linguistic and cultural barriers to discovering, responsibly using, and co-developing methodologies are still high.
8. The endorsement of documentation by community groups needs to be formalised and facilitated for many areas of best practices.
9. Methodology archives and management systems in many individual institutions or enterprises are still strongly siloed and often inaccessible (except internally);
10. Getting access to training materials on applying BPs is often difficult and individual mentoring is not scalable.
11. Policy makers and funders do not always understand or appreciate the need for and importance of best practices.

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 and ensures interoperable data and metadata. A series of strategic objectives for the OBPS provided in Section 5 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 broadly accepted practices and standards across ocean sciences, engineering and applications.

5. OBPS Key Strategic Objectives

To work towards our vision, and align with our mission, the OBPS has defined four Strategic Objectives (SO) that will guide its operations. Through the SOs, we enunciate priority areas defined by users and the broad community, who expressed their needs during workshops, conferences, and through surveys, by interacting with projects and programmes, and through feedback from users in their dialogue with the OBPS. Over the last four years, there has been consistent feedback on user needs, which now form key elements of this 2024 updated strategic plan.

Strategic Objective 01:

To secure the OBPS as a long-term sustained and trusted system through which the ocean community persistently archives and converges their methods, standards, guides, and other methodological content into context-sensitive best practices

This Strategic Objective addresses challenges 1,3,5,7,11 (see **Section 3: OBPS Repository**)

SO-01 Outcomes

- The OBPS is a trusted, certified, responsive and sustained community resource.
- The OBPS hosts BPs that are tailored to a broad spectrum of resource / capability environments.
- OBPS has broad community participation and ownership in the development and operations of the System, through a robust advocacy and feedback mechanisms.
- The OBPS provides functionality which allows use by traditional knowledge holders and communities with multiple ways of storing and transmitting practical knowhow.
- The OBPS will utilise technology enhancements to offer an efficient repository and search functionality

Strategic Objective 02:

To accelerate the endorsement and convergence of methodologies and conventions across ocean communities into trusted, adopted and interoperable best practices and standards

This Strategic Objective address challenges 2,4,8 (see **Section 3: Convergence and Endorsement**)

SO-02 Outcomes

- Trusted protocols for creation, convergence, and endorsement of BPs.
- Interoperability across all dimensions of ocean stakeholders' needs through propagation and linking of BPs, methodologies and standards.
- Broad community engagement in the creation and adoption of best practices.

Strategic Objective 03:

To foster community-led and equitable capacity development in ocean best practices

This Strategic Objective addresses challenges 10 (see **Section 3: Training and Capacity Development**)

SO-03 Outcomes

- Training resources delivered by OTGA and other training providers linked through the OBPS repository.
- Seek project funding for capacity development initiatives
- Provision of a portfolio of courses on BP development, consensus building and submission created by the community for the community.
- A dynamic Ambassador Programme providing communication and outreach training for best practices advocacy to inform the next generation.
- OBPS courses embedded in relevant university curricula and *Continuing Professional Development (CPD)* opportunities.

Strategic Objective 04:

To facilitate the creation of a federated network of interoperating ocean practices systems across all rights-holders and stakeholders

This Strategic Objective addresses challenge 9 (see **Section 3: Scalability**)

SO-04 Outcomes

- A global collection of independent methodology management systems, seamlessly interoperating with the OBPS, that will provide the technology needed to support a cultural shift in how diverse ocean communities advance their practices.
- The OBPS continuously exchanges (meta)data with related methodology management systems through ODIS¹ and other digital infrastructures, federating queries across partner systems, promoting access to best-practices methodology content hosted elsewhere.
- A process to identify, harness, and co-design cross-system technologies to detect gaps and opportunities for convergence in distributed ocean methodology holdings.

[end]

¹ ODIS (**IOC Ocean Data and Information System**) will interlink distributed, independent, systems (within and outside of the IOC) through a decentralized interoperability architecture (ODIS-Arch), to form a digital ecosystem