



INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)

Thirty-second Session of the Assembly
UNESCO, 21–30 June 2023

Item 3.5 of the Provisional Agenda

REPORT OF THE IOC ACTIVITIES (2022–2023)
TO THE FORTY-SECOND GENERAL CONFERENCE OF UNESCO

Summary

According to Article 3.2 of the Statutes of the Intergovernmental Oceanographic Commission ([IOC/INF/1148](#)) and Rule of Procedure 49.2 ([IOC/INF/1166](#)), the IOC prepares regular reports on its activities, which shall be submitted to the General Conference of UNESCO. The present report covers the period 2022–2023 and focuses on the main achievements in the implementation of the first biennium of the IOC Programme and Budget 2022–2025, contributing to IOC’s Medium-Term Strategy 2022-2029 and UNESCO Medium-term Strategy 2022–2029 (41 C/4) with respect to Strategic Objective 2 “Work towards sustainable societies and protecting the environment through the promotion of science, technology, innovation and the natural heritage’ and Outcome 3 ‘Enhance knowledge for climate action, biodiversity, water and ocean management, and disaster risk reduction.

Upon consideration by the Assembly, the report will be presented to the 42nd General Conference of UNESCO as 42 C/REP/9, indicating that a more complete information, including analysis by IOC function, can be found in the report of the IOC Executive Secretary to the 32nd Session of the IOC Assembly ([IOC/A-32/3.2.Doc\(1\)](#) & [Addendum](#)). A separate ‘Report on the Implementation of the UN Decade of Ocean Science for Sustainable Development’ is presented to the 42nd General Conference as 42 C/REP/26.

The proposed decision(s) is referenced A-32/Dec.3.5 in the Provisional Action Paper ([IOC/A-32/AP Rev.](#)) of the 32nd session of the IOC Assembly.

Main Achievements

1. Since the United Nations proclaimed a Decade of Ocean Science for Sustainable Development (2021-2030), UNESCO's role in leading ocean-related work has increased its global importance. In order to strengthen international and regional cooperation, UNESCO-IOC seized opportunities to foster alliances and address global governance challenges. At the 'One Ocean Summit' in Brest UNESCO announced major commitments in the context of the Ocean Decade in the areas of ocean mapping and ocean literacy. 'Our Ocean Conference' in Palau, generated ocean commitments for and from SIDS, and the African Conference on Priority Setting & Partnership in Cairo launched the [Ocean Africa Decade](#) roadmap. The UN Ocean Conference in Lisbon gathered 24 Heads of State and Government and over 6,500 participants, adopted the [Lisbon Declaration](#) which explicitly recognizes the importance of the Ocean Decade and the role of the IOC of UNESCO in its coordination. The UN Climate Change Conference of Parties 2022 (UNFCCC CoP-27) strengthened the ocean and climate nexus, catalysing ocean-based climate action and setting a solid course for the climate change agenda in Africa. The 15th Conference of the Parties to the Convention on Biological Diversity (CoP-15) adopted the Kunming-Montreal Global Biodiversity Framework (*GBF*), including its marine dimension. UNESCO led the flagship ocean event, resulting in a significant increase in the visibility of marine and coastal issues, including the importance of ocean observations, and positioning IOC for a lead role in the GBF implementation. As the custodian agency for SDG Indicator 14.3.1 on ocean acidification, UNESCO continued to provide active support to its Member States, with progress in [The Sustainable Development Goals Report 2022](#). With the dedicated pool of resources increased by funding from NORAD, the OceanTeacher Global Academy (OTGA) platform delivered e-learning courses, primarily focusing on African countries. Another area of focus was on building resilience to ocean-related hazards in SIDS of the Caribbean and Pacific regions.

Highlights across IOC Functions

2. The Integrated Ocean Carbon Research (IOC-R) initiative delivered a *Summary of Ocean Carbon Research and Vision of Coordinated Ocean Carbon Research and Observations for the Next Decade* ([IOC/2021/TS/158](#)). The Global Ocean Acidification Observing Network (GOA-ON) has now more than 1,100 members from 98 countries (2015 comparative: 150 scientists, 31 countries) and is constantly growing. Nineteen (19) SIDS and 22 African countries joined the network, owing to projects in the Pacific Islands, Caribbean, the Middle East, and East Africa. Together with Australia, IOC now co-hosts the secretariat for the coordination of the International Partnership for Blue Carbon (IPBC). A revised Strategic Plan and a fully-fledged workplan were adopted to steer the day-to-day management of the partnership. The High-Level Ambition Group (HILAG) coordinated by France, Australia, and IOC aims at ensuring that commitments made in international fora translate into action on-the-ground. IOC continued to co-sponsor GESAMP Working Group 41 on Ocean Interventions for Climate Change Mitigations. The Global Ocean Oxygen Network (GO₂NE) submitted the 'Global Ocean Oxygen Decade' (GOOD) proposal and contributed to the *Ocean Observing System Report Card 2021* (OceanOPS), which focused on ocean oxygen. *Guidance on dialogue between IOC programmes and Indigenous and Local Knowledge (ILK)* ([IOC/INF-1430](#)) identifies opportunities to explore in the UN Ocean Decade. Significant effort was invested into the organization of the WCRP Open Science Conference (OSC) 2023 'Advancing climate science for a sustainable future', October 2023, Kigali, Rwanda.

3. The *in situ* Global Ocean Observing System now numbers more than 8,600 ocean observing platforms across 13 global ocean observing networks, with some 84 Member States (plus the European Union) supporting these networks, with 8 African States and 8 SIDS. The *Ocean Observing System Report Card* continues to be recognized as a key source of information, with the current total of 35 Essential Ocean Variables (EOVs). A University of New Mexico-OECD-GOOS collaboration has developed a paper that provides a new economic model that uses EOVs to reduce risk in assessment of marine resource or ocean management decisions. The GOOS Observation Coordination Group Data Strategy has been developed, alongside the data mapping work. The GOOS-IODE Ocean Best Practice System now has over 1,750 best practices archived, seven

GOOS Endorsed Best Practices and more under development. The Expert Team on Operational Ocean Forecasting Systems (ETOOFS) completed its guide *Implementing Operational Ocean Monitoring and Forecasting Systems*, aiming to improve the quality, capacity, and interoperability of ocean forecast products. Three ambitious UN Ocean Decade programmes—[Observing Together](#), [CoastPredict](#), [Ocean Observing Co-Design](#)—now have clear plans for transformational change of the ocean observing system around areas of clear societal need. The last two years also focused on strengthening the role of GOOS national focal points and GOOS Regional Alliances (GRA), rejuvenating the Pacific Islands GRA (PI-GOOS) and IOCARIBE-GOOS. Hosting agreement for the International Ocean Data and Information Exchange (IODE) Project Office in Ostend was renewed to December 2026, with new facilities at the InnovOcean Campus. In addition to running six Decade Actions, the Project Office hosts the Decade Coordination Office for Data Sharing (DCO Data Sharing). The IODE/GOOS Ocean Best Practices System (<http://www.oceanbestpractices.org>) (OBPS) Task Team adapted best practices to regions of limited infrastructure, initially focused on Africa. The second phase in the Caribbean could benefit from additional support by NORAD, with the extension to a global level endorsed as an Ocean Decade Project. The Ocean Biodiversity Information System (OBIS) continued to grow, with two new EU Horizon 2020 projects. OBIS also plays a crucial role in a new Flanders-funded project "eDNA expeditions in marine World Heritage sites", implemented with UNESCO's World Heritage Centre. OBIS2030, a biodiversity data hub for the Decade actions, aims to provide standardized, quality-controlled, and managed biodiversity data to create information tailored for decision-makers. The IOC Ocean Data and Information System (ODIS) expands as a key contribution to the data chapter of the Ocean Decade implementation plan. The Ocean InfoHub Global Search portal (<https://oceaninfohub.org>) continued to improve and refine offered services. 'An Ocean Data and Information System supporting the UN Decade of Ocean Science for Sustainable Development' (OceanData-2030) will play a central role in supporting the Ocean Decade mission to catalyze transformative ocean science solutions for sustainable development.

4. Tsunami programme kept its strong capacity development focus, with regular tsunami exercises and drills to maintain operational readiness of response agencies, test communications, review standard operating procedures and promote emergency preparedness, conducted in all ocean basins, with continuous improvements. As an example, the CARIBE WAVE 23 exercise saw a marked increase in participants with disabilities. Tsunami Ready community recognition programme continued to expand, with the targeted funding for the Pacific and the Caribbean bolstered by NORAD contribution. In the backdrop of the COVID-19 pandemic, the International Tsunami Information Center (ITIC) and Indonesia BMKG were chosen as OTGA Specialized Training Centres and developed a series of online or blended trainings. Partnership Agreement between UNESCO-IOC and BMKG on the Indian Ocean Tsunami Information Centre (IOTIC) has been extended for the period 2022–2027. With the eruption of Hunga-Tonga Hunga-Ha'apai (HTHH) volcano on 15 January 2022, the Pacific Tsunami Warning Centre (PTWC) had to respond for the first time to such an event since the system is primarily focused on earthquake-generated tsunamis causing nearly 90% of the world's historical tsunamis. With observations of more than 1 m amplitude waves measured in several countries and several tsunami advisories or warnings issued, the post-event assessment was conducted. The 'Research and Development Implementation Plan for the UN Ocean Decade Tsunami Programme' was developed for the 32nd session of the IOC Assembly ([IOC/A-32/3.4.1.2.Doc\(1\)](#)). IOC and FAO joined forces to develop and test early warning systems (EWS) for Harmful Algal Blooms (HABs) in Africa. Based on a survey among African Member States, Namibia and Morocco were selected as pilot countries, with funding from NORAD and drawing on the expertise in the IOC-FAO Intergovernmental Panel on Harmful Algal Blooms (IPHAB) Task Team on the Early Detection, Warning and Forecasting of Harmful Algal Events. GlobalHAB has developed a best practice [Guidelines for the Study of HABs and Climate Change](#) and the first [Global HAB Status Report](#) completed. Under IOC leadership, the GESAMP Working Group on Biofouling Management (WG 44) builds a broader understanding on introduction and spread of non-indigenous species via biofouling across all maritime industries. Flanders-funded Pacific Islands Marine Bioinvasion Alter Network focused on an early-detection early-warning monitoring system for marine invasive species based on environmental DNA analyses in Fiji. Funding is sought to replicate this for other developing states and SIDS.

5. Continuing its custodian role for two Targets of SDG14, IOC made significant progress in the collection of new data from Member States towards the SDG Indicators 14.3.1 and 14.a.1, thanks to the *Global Ocean Science Report (GOSR) tracker* portal, hosted in Ostend. Concern over the impacts of altered nutrient inputs, N, P and Si, to coastal waters led the UN to include an 'Index for Coastal Eutrophication Potential' (ICEP) as indicator for SDG Indicator 14.1.1. With the support of UNEP and NORAD, IOC plans to complete its work on this indicator methodology in 2024. Pending the next full edition of the *Global Ocean Science Report (GOSR)* in 2025, the *GOSR Tracker* publication provides key up-to-date numbers, e.g., human and technical capacity in addition to some preliminary assessments of the effects of COVID-19 on Ocean Science. In the context of the third cycle of the World Ocean Assessment (WOA) 2021–2025, under the UN Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects, IOC focused on a dedicated brief highlighting synergies between the Regular Process and the Ocean Decade and will support UN DOALOS in developing a coherent capacity-building programme with the aim of strengthening the ocean science-policy interface at national, regional and global levels. The IOC pilot *State of the Ocean Report (StOR)* was presented to the wider public at the UN Ocean Conference in Lisbon. Following the review by the IOC Assembly in 2023, this annual report will support actions by multiple stakeholders in the context of the UN Ocean Decade and by providing evidence to support WOA. As regards the General Bathymetric Chart of the Oceans (GEBCO), important developments during include: (i) progress in raising the percentage of ocean floor mapped under GEBCO and Nippon Foundation-GEBCO Seabed 2030 Project, currently at 25%; (ii) celebrations of the 120th Anniversary of GEBCO in 2023; (iii) the development of a GEBCO Charter/Code of conduct to consolidate the ethical expectations of all GEBCO's participants; (iv) the development of a GEBCO Mid-term Strategic Plan, and (v) the review of GEBCO governance.

6. IOC actively contributed to the negotiation process on an International Legally Binding Instrument (ILBI) on the conservation and sustainable use of marine biodiversity of areas beyond national jurisdiction (BBNJ). The Agreement refers to the possible cooperation with UNESCO-IOC in the implementation of the clearing-house mechanism to be created under the auspices of the new treaty. Several targets of the Kunming-Montreal Global Biodiversity Framework are directly relevant to the work of IOC and the Ocean Decade, in areas of ocean science, biodiversity assessment, ocean observation and data management, marine spatial planning and capacity development. The [5th International MSPforum](#) and the 3rd International Conference on MSP marked the launch of the [Updated MSProadmap \(2022–2027\)](#) and the new phase of IOC cooperation with DG MARE in this area. Under the 5th Phase of the GEF IW:LEARN project (International Waters Learning Exchange and Resource Network: Strengthening transboundary water management of the GEF International Waters portfolio), IOC will lead regional capacity building activities on MSP for the GEF portfolio of LME projects. In close collaboration with UNDP and the Sargasso Sea Commission, IOC is working on the first ever Ecosystem Diagnostic Analysis for a high seas ecosystem to form the technical basis for a stakeholder-endorsed Strategic Action Programme (SAP) for future stewardship of the Sargasso Sea. In the context of the [Ocean Action 2030](#) coalition launched to support the development and implementation of Sustainable Ocean Plans, IOC is developing an Ocean Decade Programme on Sustainable Ocean Planning. The implementation of the Decade over the last two years being reported to the General Conference in a separate document, it is important to highlight the critical role of the IOC regional subsidiary bodies in engagement and visibility, building of a strong and supported portfolio of Decade Actions, and the establishment of the central and decentralized architecture for the governance and coordination of the Decade. Concerted and targeted efforts commenced to increase engagement in SIDS and Africa. An initial scoping study and resource needs assessment for the establishment of a Decade Coordination Office (DCO) in the IOCAFRICA Sub-Commission has been completed and a Tropical Americas and Caribbean Taskforce will oversee development of a regional Ocean Decade strategy. Work is continuing with partners in the South Pacific to establish a Decade Collaborative Centre. The new IOC Sub-Commission for the Central Indian Ocean (IOCINDIO) is expected to further bolster engagement in that region.

7. The revised and updated IOC Capacity Development (CD) Strategy will guide future actions, with the launch of the Ocean CD-Hub providing easy access to training opportunities. The OceanTeacher Global Academy (OTGA) continued to grow, offering online, on-site and hybrid

courses across expanded subject areas and supported by a global network of Regional Training Centres (RTCs) and Specialized Training Centres (STCs) to deliver customized training for ocean experts and practitioners. OTGA currently has 17 RTCs/STCs (Argentina, Belgium, China, Colombia, Ecuador, Denmark, Fiji, Ghana, India, Indonesia, Kenya, Malaysia, Mozambique, Norway, Portugal, Uruguay, Brazil, and USA). In addition, the IOC Science and Communication Centre on Harmful Algae, University of Copenhagen, serves as a Specialized Training Centre for HAB. The IOC Project Office for IODE, host of the OTGA, has its ISO 29990 certification renewed, as a Learning Services Provider for non-formal education and training and was accredited by the Belgian Accreditation Body (BELAC) having satisfied the requirements of the International Standard. Ocean Literacy has been designated a Decade Action and integrated into the framework for the Ocean Decade, with new promising partnerships. A network of the IOC WESTPAC Sub-Commission Regional Training and Research Centres complement OTGA. They function in Indonesia, China (2), Philippines, Viet Nam, and some other centres are in the making.

8. IOC Regional Subsidiary Bodies continue to serve as key vehicles for the work on the ground. Bolstered by support from NORAD, the development of the regional node for the Ocean Information Hub in Africa and in the Caribbean progressed well. Marine Spatial Planning is another area of focus, with the support of Sweden. WESTPAC continued its long standing approach to capacity development through co-design and ownership by Member States and the well-established mutual assistance and cooperation in the region. IOCINDIO uses an approach based on Training-Through-Research supported by two UNESCO Category 2 Centres in India and the Islamic Republic of Iran.

Resources mobilized and key partnerships established

9. It is encouraging to note that financial contributions were provided not only from traditional donor countries but also from foundations and research institutes, attesting the growing interest of various stakeholders in ocean-related issues. [New partnership agreements have also been signed with the Pacific Community \(SPC\)](#) and the Indian Ocean Rim Association to boost ocean science collaboration and with the IMOCA sailing class to deploy oceanographic equipment in remote areas and use international race events to communicate about the importance of ocean observations in generating data and science for sustainable development.

Major challenges in implementation and remedial actions taken

10. Mobilization of resources for the Ocean Decade 2021–2030, in addition to the implementation of core IOC programmes, remained a key challenge during the transition from the Decade planning to the action phase. Recognizing that such an unprecedented global endeavour requires adequate and more stable resources, the Base Case scenario proposed in the Draft 42 C/5 foresees a strategic increase in the regular budget allocation for the IOC.

11. The IOS Evaluation of the IOC's strategic positioning and the related Action Plan and the paper on the 'Sustainable delivery and expansion of IOC activities' 2 will help guide future efforts in this regard, including the key need to secure more stable 'core' voluntary contributions.