The Global Ocean Observing System

unesco Intergovernmental Oceanographic Commission

WORLD METEOROLOGICAL ORGANIZATION

UN environment United Nations Environment Programme

International Science Council

14th GOOS Steering Committee meeting (SC-14) | 19-21 February 2025 (Paris)
Background paper

Session:

2. Deliverables for observation system design and development

Agenda item:

2.2 Biodiversity Plan

Introduction/Background

Including links to relevant documents, mandates etc.

At the GOOS SC-13 meeting, it was recognised that implementing international agreements (e.g., the Global Biodiversity Framework, BBNJ, etc.), and meeting international targets and the needs of national biodiversity strategies and action plans will require feasible, effective, and practical approaches to monitoring marine biodiversity and ecosystems worldwide. A GOOS biodiversity plan is needed to define GOOS's role in responding to these and other relevant requirements, to help member states address marine biodiversity loss and change globally, and to inform actions to conserve existing benefits and ecosystem services from the ocean at all scales.

The GOOS SC-13 tasked the BioEco Panel with leading the development of the GOOS biodiversity plan, both building on coordinated efforts from all GOOS components and considering partnerships to address current and future needs for assessment, reporting, and conservation of marine biodiversity.

"Action 4.3 - Lead cross-panel/ community effort to co-design and coordinate an integrated and responsive marine biodiversity observing implementation plan to meet current and future assessment, reporting and conservation requirements (GOOS SC and BioEco Panel). "

The GOOS biodiversity plan will also contribute to a comprehensive "whole of IOC biodiversity strategy" that is currently under development and which aims to align with global agreements. Therefore, the GOOS biodiversity plan is to serve as a roadmap to coordinate global efforts in marine biodiversity observing across all GOOS structures and components, with data sharing in collaboration with IODE/OBIS and work with key international partners active in marine biodiversity monitoring (including GEO, POGO, UNEP, WCMC, etc.). This is required to ensure GOOS best supports IOC to fulfil their mandate for providing global biodiversity information that responds to local, national, and international needs to match sustainable development goals, while ensuring an understood, healthy, diverse and sustainable ocean.

Current status

The draft of the GOOS biodiversity plan is under development, building on objectives and actions identified at an in-person BioEco Panel workshop held on 3 February 2025. The workshop identified the following six objectives, which are intended to align with the IOC Biodiversity Strategy still in draft and to help mature the BioEco observing system:

1) Establish a robust, interoperable EOV data framework to pave the way for a global, holistic, and coordinated long-term ocean monitoring effort that supports timely biodiversity assessment and place-based management. This includes the development of a standardised metadata schema across all EOVs and supporting and further developing tools such as the BioEco Portal to enable the identification of spatio-temporal gaps in data coverage and help prioritise future observation/monitoring efforts.
2) Support capacity building within observing networks for each BioEco EOV to maximize marine biodiversity data flows into the global IOC digital ecosystem (IODE/OBIS and ODIS). This will involve recommending data flows for each EOV and establishing strong and sustainable partnerships with GRAs, OBIS nodes, and regional data centres to encourage and facilitate data submission and integration.
3) Develop clear targeted communication about the value of the EOV framework for repeatable, comparable, integrated and standardised marine biodiversity observations and FAIR and open data to foster collaboration and coordination across all ocean observing communities.
4) Build collaborative links with marine stakeholders and rights holders worldwide to co-design use cases demonstrating the applied value of real-time, near real-time, and other scales of BioEco data delivery; support data and forecasting needs; leverage technology advancements and agreed standards and protocols; and align with operational service requirements.
5) Strengthen global biodiversity monitoring through expanded participation in international and transboundary partnerships and communities of practice. Build and strengthen GOOS partnerships with local, regional, and global stakeholders, including GRAs, MBON, OBIS, POGO and other communities, to foster collaboration and avoid redundancy in monitoring and data collection efforts and simplify access to ocean biodiversity data.
6) Establish a framework to regularly assess the maturity of BioEco observing networks and programmes and the quality of BioEco EOV data against agreed attributes, consistent with OCG.

Work/Project plan

Including Deliverables (e.g. Activities/Actions/ KPIs) and Budget / Resource needs

➔ 2025

➔ 2026-2027

2025

The main deliverable is the GOOS biodiversity plan itself. The intention is to have a first draft of the document ready for GOOS community review by 15 March 2025, in order to propose a well-developed draft by the end of April 2025.

Other deliverables that will provide a baseline for the implementation of the GOOS biodiversity plan include:

- Updated BioEco EOV specification sheets that include community input to raise awareness and ensure buy-in.
- Tailored communication material, such as infographics, social media campaigns, etc., to improve visibility, understanding and engagement of BioEco observing communities.
- Agreement on minimum metadata and data requirements to contribute to the global ocean observing system that are clearly specified and implemented.
- Baseline assessment of the Technical Readiness Level of all BioEco EOVs that will help identify where efforts should be targeted to mature the system.
- Finalised proof of concept of (near) real-time delivery of biological data flows into OBIS from EOV networks and programmes (e.g. AniBOS OCG network).
- BioEco programme metadata flows into the GOOS BioEco Portal via the ODIS architecture to support system monitoring (with support from OBIS/IODE).

2026-2027
Implementation of the GOOS biodiversity plan to enable a fit for purpose long-term observing system for a healthy and living ocean: The plan provides a framework for an observing system that is global, adaptable to global change, and maintained at regular intervals by the observing system contributors. However, success requires GOOS to establish strong partnerships in implementation and secure funding and manpower to engage, train, and convince practitioners and stakeholders globally to measure EOVs routinely within their national waters and international waters - from the coast to the deep sea - and contribute to IOC digital ecosystem. Co-design by GOOS and the IOC member states - with an emphasis on direct engagement with users at local, national, and regional levels on requirements, standards, and observing system capabilities - will ensure local relevance and support sustained contributions to the global system. This is important if GOOS intends to support marine biodiversity monitoring across scales of space and time that meet societal needs.

Budget/resources requirements for 2025- 2027

<u>Essential:</u>
To implement the biodiversity plan, funding core support for the panel is essential.
Full time Science Officer / Panel Lead position to provide strategic support to the Panel co-chairs and EOV leaders; coordinate Panel meetings, work on specification sheets, and other activities; and build/strengthen connections with other GOOS structures (GRAs, OCG, ETOOFS, etc.) and partners (MBON, OBIS, POGO, G7 FSOI, etc.).

Support officer position with data management knowledge to work across GOOS, OBIS, and OceanOps; help build EOV observing communities and networks; and provide practical support to the BioEco Panel co-chairs and EOV leaders to help strengthen EOV dataflows, data visibility and data monitoring.

Desirable:
Financial resources to undertake workshops and raise awareness of the role of GOOS and IOC in global marine biodiversity monitoring to improve community engagement in their activities.

Expected outcomes for GOOS

The expected outcomes of the GOOS biodiversity plan are:

- Matured global ocean observing networks for marine biodiversity and ecosystem monitoring through coordination and integration of efforts and improved data management and metadata flows.
- Consistent, regular, reusable, and traceable data collection that ensures GOOS supports IOC in meeting global mandates (e.g. CBD GBF, BBNJ, WOA) while also supporting national/regional needs.
- Improved data coverage, reduced data gaps, and streamlined data collection and submission processes, ensuring data are up-to-date, accessible and usable for reporting and decision-making.
- Increased awareness about GOOS and the BioEco Panel's work, increased uptake of BioEco EOVs by observing networks worldwide, and improved GOOS and IOC recognition in global assessments (e.g., WOA, IPBES), while encouraging data sharing and collaboration among stakeholders.
- Enabled decision-making for operational services by providing reliable, timely, and accessible biological EOV data, while demonstrating effective system integration, showcasing the operational capacity of a truly multidisciplinary observing system.
- A system to visualize the spatio-temporal observational coverage for BioEco EOVs (through the BioEco portal).

Considerations for the GOOS Steering Committee

We would like the SC to consider

1. In order for GOOS and IOC to effectively fulfill their mandate for biodiversity reporting, it is essential to identify appropriate funding to sustainably support the BioEco Panel in implementing the GOOS biodiversity plan. This is as a matter of the highest priority to avoid critical lapses in staff support for the Panel, such as that most recently experienced in December 2024.

2. A draft biodiversity plan is expected to be ready by mid-March and the GOOS SC will be asked for input and comments. This will need to be provided on time if the biodiversity plan is to be submitted to the IOC Executive Council.
3. The BioEco Panel requires GOOS active and immediate support in establishing strategic partnerships with organisations relevant to the work of GOOS and the Panel on biodiversity observations and data. These include GEO and POGO as first priorities, as well as WCMC and UNEP.
4. Deep engagement between OBIS and OCG is needed to help align data workflows and to enable interoperability of the systems that can reflect an integrated multidisciplinary observing system. This should include support to improve the BioEco Portal, which plays a role similar to OceanOPS for biology.
5. Engaging communities is essential to improve the uptake of BioEco EOVs and support should be provided to undertake workshops, which could be aligned with conferences or other meetings.

Proposed decisions/recommendations

- The GOOS SC **recommends appropriate resourcing** to support the BioEco panel to implement the GOOS biodiversity plan
- The GOOS SC **notes** the timeline for delivery of the GOOS biodiversity plan and the need for **expedited review** of the draft plan to meet the required timeline for its consideration in IOC-33
- The GOOS SC **recognises** the significant progress of the BioEco Panel in updating all of the BioEco EOV specification sheets, documenting EOV data schemas for improved metadata and data flows, and increasing communication and outreach to advance the uptake of BioEco EOVs in the ocean observing community, all of which will serve as baseline for the implementation of GOOS biodiversity plan