

Component / Task team:

OOPC/Ocean Indicators

Report submitted by:

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Report on workplan progress

Introduction/Background

Including links to relevant documents, mandates etc.

Ocean science, supported by ocean data and disseminated through ocean, weather, and climate services, provides the foundation for evidence-based decision-making. To maximize the impact of ocean science, there is an urgent need to translate raw data into practical guidance and tools that can be directly applied by policymakers and practitioners. Ocean indicators are crucial for monitoring the state and health of the ocean, and when effectively designed, they support informed decision-making. Moreover, they play a key role in ecosystem- and knowledge-based approaches, which are essential for ocean governance, management, and stewardship, ensuring the protection, sustainability, and resilience of the ocean. Reconciling inconsistencies in methodologies, data sources, and baselines used to generate ocean indicators is essential to prevent the dissemination of fragmented or contradictory ocean information. An international, multidisciplinary approach will enhance the coherence of ocean knowledge, better informing policy and decision-making. The Global Ocean Observing System (GOOS) has established a task team on ocean indicators, bringing together experts from various fields to advance the characterization of a core set of indicators for monitoring changes in the marine environment. The task team has now build the foundation for a scientifically agreed-upon baseline for developing robust ocean indicators through international and multidisciplinary collaboration. By providing a standardized framework, this agreed foundation aims to improve the accuracy, consistency, and utility of ocean-related data for global monitoring and decision-making. This standardization is critical for aligning international efforts, tracking progress under global environmental agreements,

and offering actionable insights for climate adaptation, sustainable development, and climate-resilient pathways. Next steps should focus on implementing the GOOS baseline for ocean indicators, including the development of targeted information sheets for experts and policymakers, as well as demonstrating the application of the nine proposed pilot indicators within the observation-to-decision-making space. This should be complemented by establishing more formal links to relevant GOOS tools (e.g., GOOS visibility frameworks, the IOC Ocean State Report), engaging with international policy dialogues (e.g., on adaptation and ocean early warning), and fostering transdisciplinary context-setting, including the development of coherent ocean narratives.

Updates on work

Progress against workplan:

The task team on ocean indicators driven by the 3 panels of GOOS has now established methodological framework for building standardized ocean indicators (e.g., definition, evaluation approach), and developed criteria for indicator development, and demonstrate the application of the framework. Moreover, a set of 9 pilot indicators across the three major GOOS panel themes has been proposed (Fig. 1). A scientific publication is now published in the Journal of Marine Policy (von Schuckmann et al., 2026; <https://doi.org/10.1016/j.marpol.2025.106922>). Moreover, first demonstrators for the so-called ocean narratives have been published (<https://doi.org/10.5194/sp-6-osr9-3-2025>; <https://sp.copernicus.org/articles/6-osr9/2/2025/>), amongst others supported by European project. Also, a link to G7 Future of the Seas has been established (<https://www.g7fsoi.org/>).

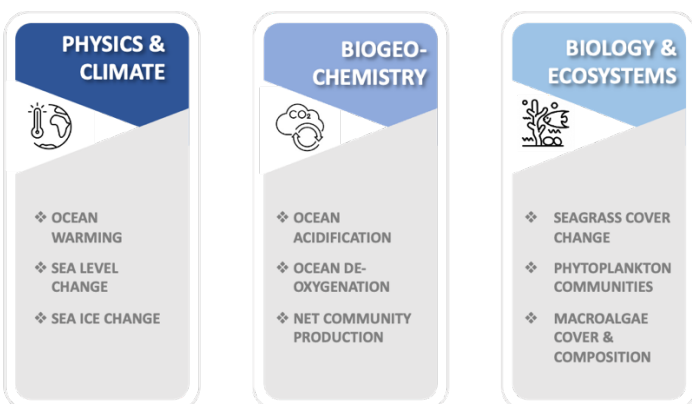


Fig. 3: Overview on the 9 pilot indicators as proposed by GOOS on ocean indicators for three environmental dimensions of the ocean: physics & climate, biogeochemistry, biology and ecosystems.

Looking ahead

Prioritised deliverables (2026-2027)

Short-term (2026):

- Cross-panel activities: Develop a policy brief based on the scientific paper (potentially with support from G7 Future of the Seas) & Develop drafts for fact sheets for each of the 9 GOOS pilot indicators;
- Identify opportunities for a more formal inclusion of the GOOS indicator method and pilot indicators, such as more visibility on the GOOS webpage

Resources needed: Engagement from the three panels and secretariat support; Support from Communication officer

Mid-term (2027-2028):

- Benefit from the proposed pilot indicators for regular reporting on the ocean state, variability and change as part of annual reporting (e.g., IOC State of the Ocean Report).
- Engage with international assessment activities seeking for integration of the pilot indicators in relevant reporting assessments (e.g., IPCC, WOA, IPBES, WMO).
- Explore and demonstrate the use of ocean indicators (eg, the 9 pilot indicators) for international dialogues, such as Global Goal on Adaptation (GGA) or BBNJ, and Early Warning.

Long-term: Engage and create momentum for the development of ocean narratives to connect GOOS ocean indicators with socioeconomic indicators, as well as to interlink to ongoing global dialogues (e.g., UNFCCC GGA). Continued dialogue with the GOOS panels for the expansion of the framework (eg, further relevant indicators).

Expected outcomes for GOOS

As a result of this workplan, GOOS would deliver:

Implementation of the new international framework for ocean indicators, jointly developed by multiple ocean expertise across GOOS panels, and in support of the global ocean observing system

A new tool for strengthening evidence-based and consistent regular reporting from the global ocean to the regions, which would be formalized with the IOC OSR and ensure regular update on the state and change of the ocean across the dimensions physics & climate, biogeochemistry and biodiversity and ecosystems.

Leverage the relevance of EOVs through the indicators approach for international policy dialogues, such as the GGA or in the BBNJ context.

A new tool essential for the development of ocean narratives, which allow for leveraging the critical role of the ocean, and associated ocean measurements, driven by linkages of ocean change and functioning to socioeconomic relevance.

GOOS would benefit from:

- Strengthened link between the 3 panels of GOOS, fostering multidisciplinary collaborative approaches
- Established and implemented connection between the ocean indicator framework and the EOVS framework, stressing the importance of observations/data to support the assessments
- Greater visibility and contribution of GOOS to ocean policy processes

Considerations for the GOOS SC

- How should this activity develop to make sure it is fully integrated into GOOS? Webpage, formal recognition by the SC and or IOC?
- Could there be a section led by GOOS based on these Indicators in the IOC State of the Ocean Report?

Proposed action/decision

- Steering Committee ... appreciates the progress undertaken in the framework of the Task Team on Ocean Indicators, welcomes the publication of a paper by the Task Team and supports the continuation of the work.