Towards an international Ocean Indicator Framework

GOOS working group on ocean indicators

10th GOOS Steering Committee Part 2
(29 Nov. – 02 Dec. 2021)

GCOS • GOOS • WCRP
OOPC Ocean Observations Physics and Climate panel

OCEAN INDICATOR

The Global Ocean Observing System

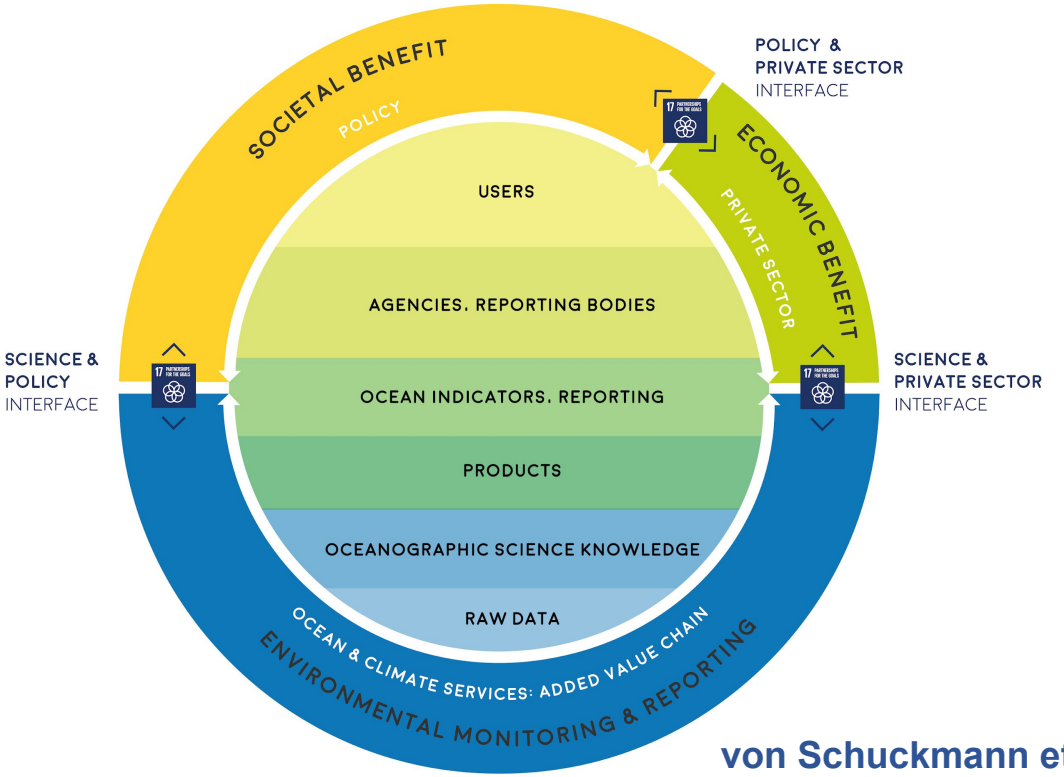
Biogeochemistry Panel

Biology and Ecosystems Panel

Biology & Ecosystem Panel

The Global Ocean Observing System

Environmental indicators build the link between the lower and upper part of the added value chain



von Schuckmann et al., 2020
(Journal of Marine Policy)

- Indicators are a key element to interlink the three pillars of sustainable development: environment, society and economy
- They can play a central role for engagement between observing systems, services, science and stakeholders
- Indicators need to be backboned by state-of-the-art products and science knowledge, together with realiable uncertainty information

Policy, management and governance instruments and the blue economy community require sustainable Ocean stewardship informed by best available Ocean science, data and services, and well targeted and framed ocean indicators across all ocean disciplines play a critical role.

The Global Ocean Observing System

An ocean indicator can be defined as:

A simple easy to understand tool to describe, measure and monitor a complex Ocean phenomenon. The Ocean indicator may change globally to locally, at different time scales, can be used for Ocean literacy, and to build a sustainable Ocean observing system for holistic scientific assessment and stewardship.' (von Schuckmann, K., E. Holland, P. Haugan, P. Thompson, 2020, Journal of Marine Policy)

The OceanObs19 conference statement includes:

'Indicators based on ocean observations help nations meet national goals and targets of the United Nations 2030 Agenda on Sustainable Development, the Paris Climate Agreement, the Sendai Framework for Disaster Risk Reduction, the Convention on Biological Diversity, and the Small Island Developing States Accelerated Modalities of Action Pathway. Ocean observations are fundamental to increase the scientific and information content of indicators, contribute to the United Nations Decade of Ocean Science for Sustainable Development (2021–2030) and are coordinated by Global Ocean Observing System (GOOS) and Group on Earth Observations (GEO).'

There is currently no internationally-agreed comprehensive set of ocean indicators to characterize physical, biogeochemical, or ecosystem processes, nor a common framework with agreed methodologies that would unite these individual efforts to create the common understanding and baselines required to monitor changes in the ocean in a transparent way.

GOOS Working group on ocean indicators – a cross-GOSS initiative -

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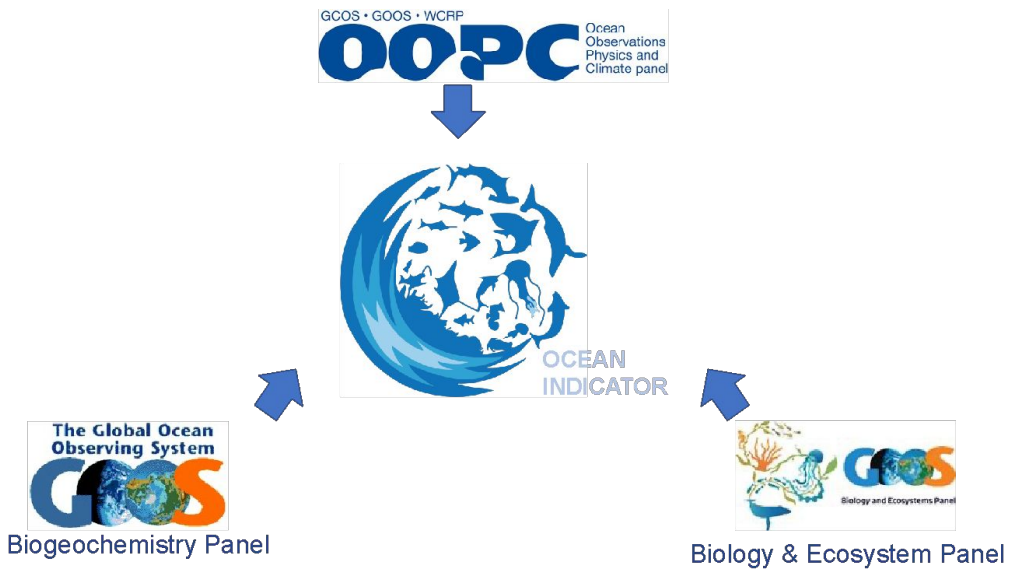
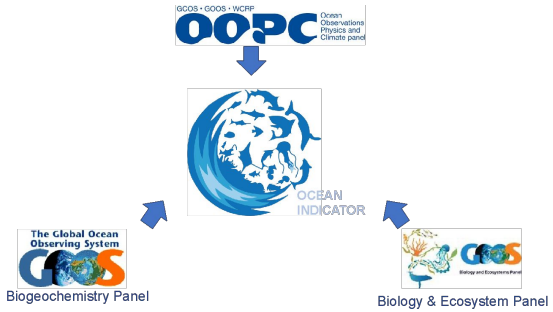
- **Sept. 2020: proposal on the development of an international global ocean indicator framework submitted to GOOS as part of OOPC** (Karina von Schuckmann, Marjolaine Krug, Sabrina Speich, Weidong Yu, Maria Hood). GOOS Strategic Objective 3 – Action 3.6 Global Ocean Indicators Framework
- **Nov. 2021: Establishment of cross-GOOS working group on ocean indicators** (K. von Schuckmann, N. Bax, E. Holland, G. Canonico, K. Currie, V. Garcon, S. Speich, T. Tanuha, A. Waite, W. Yu, E. Heslop, M. Hood, B. Martin Miguez, M. Telszewski, …)
- **Dec. 2021: Complement working group with additional expertise such as policy links, social & political science; expert for local & indigenous knowledge**

GOOS working group on ocean indicators

- initial membership -



Name	Affiliation	Role
Karina von Schuckmann	Mercator Ocean international, Toulouse, France	Co-chair
Nic Bax	CSIRO, Hobart, Australia	Co-chair
Elisabeth Holland	USP, Suva, Fiji	Co-chair
Gabrielle Canonico (to be confirmed)	NOAA, Silver Spring, USA	Member
Kim Currie (to be confirmed)	NIWA, Dunedin, New Zealand	Member
Veronique Garcon	LEGOS, Toulouse, France	Member
Sabrina Speich	LMD, IPSL, Paris, France	Member
Toste Tanuha	GEOMAR, Kiel, Germany	Member
Anya Waite (to be confirmed)	Dalhousie University (DAL), Halifax, Canada	Member
Weidong Yu	Sun Yat-Sen University, Guangzhou, China	Member
Emma Heslop	IOC/UNESCO, Paris, France	Support
Maria Hood	Mercator Ocean international, Toulouse, France	Support/ link to G7 future of the Sea
Belén Martin Miguez	WMO, Geneva, Switzerland	Support/Mapping
Maciej Telszewski	IOC/UNESCO, Institute of Oceanology of Polish Academy of SciencesPoland	Support



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Next steps….

Develop a science-driven baseline for a future development of an international ocean indicator framework

- Development of a perspective paper (publ. in 2022) which will contain:
  - Definition, criteria and purpose of ocean indicators
  - Mapping of existing activities and advancements on ocean indicators to build on existing activities, and to fill gaps
  - Solution-oriented topical areas under which a future ocean indicator framework could evolve
  - Identify benefit areas, ocean indicators targets and goals, and consider stakeholder needs.
  - Provide a long-term roadmap for the future evolution of an international ocean indicator framework

Develop a broader initiative or program for the development and implementation of an international ocean indicator framework

- Discussions for the GOOS scientific steering meeting:
  - Support for establishment of rigourous mapping for existing activities, particularly for ocean indicators for international policy and the ocean climate nexus
  - Discussion on opportunities for stakeholder engagement support for international policy (eg: consultation, submission for Earthy negotiation …?)

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THANK YOU !