



Karina von SCHUCKMANN
Oceanographer specialized in
ocean climate monitoring



**MERCATOR
OCEAN**
INTERNATIONAL

Ocean science for policy



unesco

Intergovernmental
Oceanographic
Commission



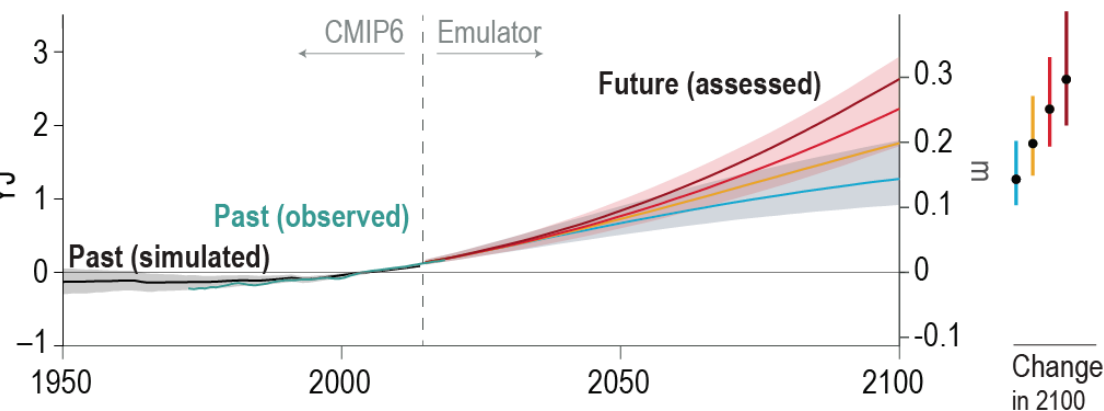
**2021
2030** United Nations Decade
of Ocean Science
for Sustainable Development

Connecting the world around Ocean Prediction: *A vision for the Decade and Beyond* – 8 April 2024

Unprecedented change and pressure in the ocean: the triple planetary crisis

CLIMATE CHANGE

(b) Global ocean heat content and thermosteric sea level



IPCC, 2021

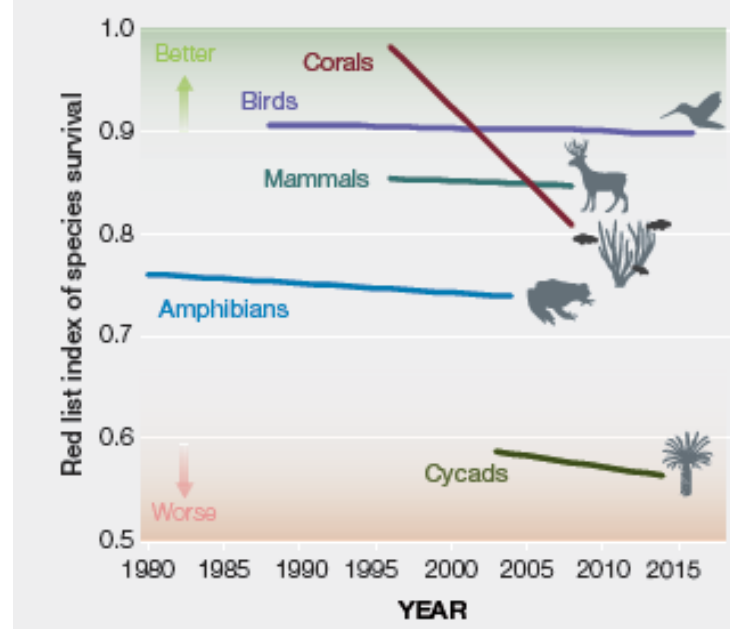
POLLUTION



Geoblueplanet.org

BIODIVERSITY LOSS

(c) Declines in species survival since 1980 (Red List Index)



IBES SPM, 2021

➔ urgent need to strengthen the transfer of science-based knowledge at the science-policy interface



Intergovernmental Oceanographic Commission

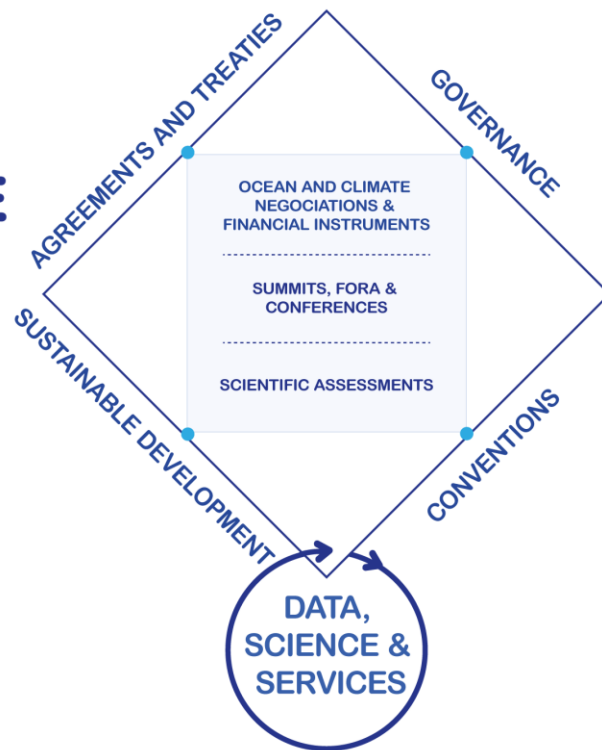


2021-2030 United Nations Decade of Ocean Science for Sustainable Development

Connecting the world around Ocean Prediction: *A vision for the Decade and Beyond* – 8 April 2024

The elevation of the Ocean to a prominent role in global diplomacy reflects its importance in the Earth system.

THE OCEAN CLIMATE NEXUS



von Schuckmann et al., 2020

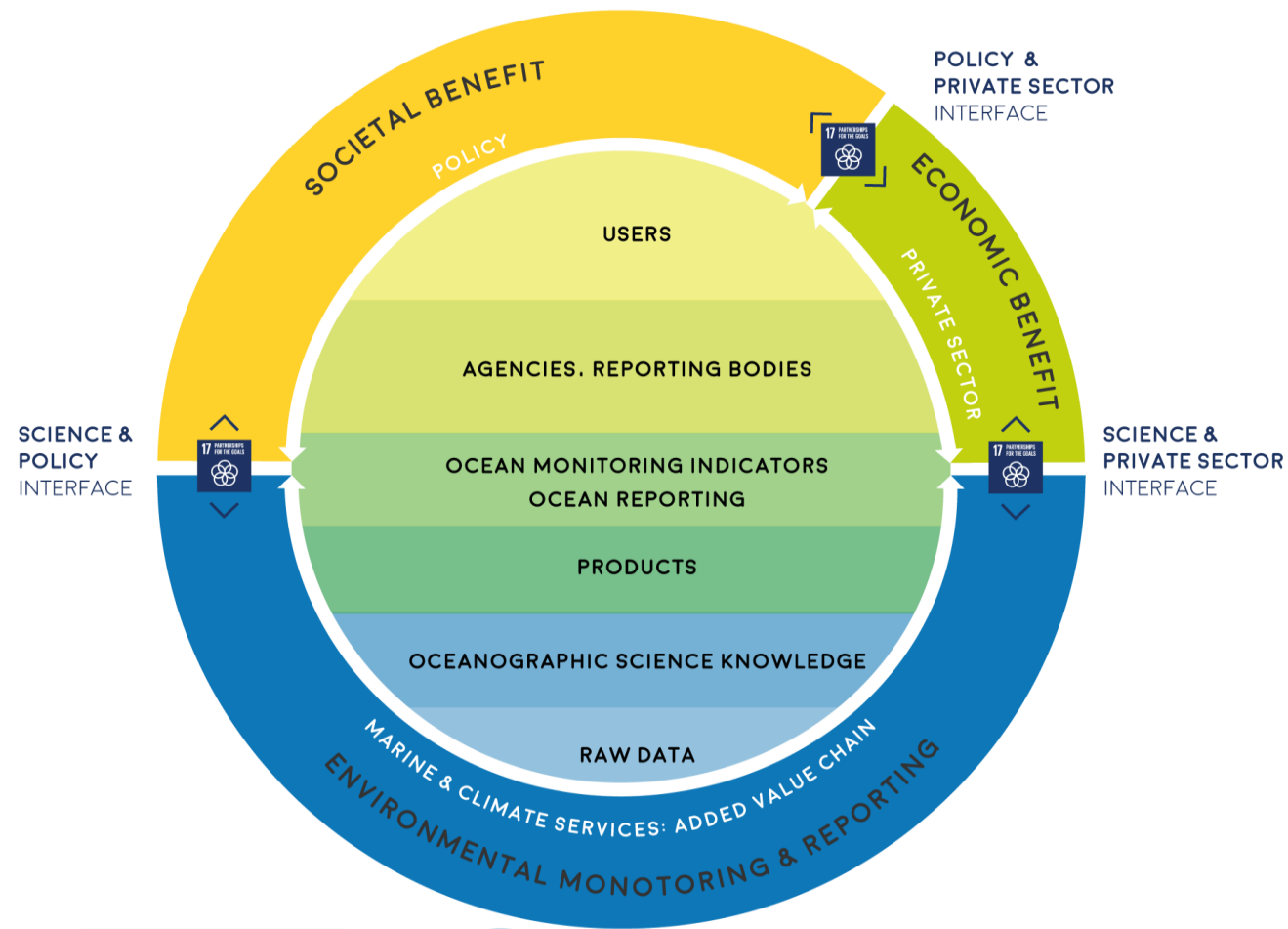
Unique opportunity to elevate the critical role of the ocean & to increase awareness on unprecedented change



Intergovernmental Oceanographic Commission



2021-2030 United Nations Decade of Ocean Science for Sustainable Development



The added-value chain is the core of Ocean and climate services that connects raw products and blue knowledge to high-quality data products, and **indicators**.



unesco

Intergovernmental
Oceanographic
Commission



2021
2030 United Nations Decade
of Ocean Science
for Sustainable Development

von Schuckmann et al., 2020

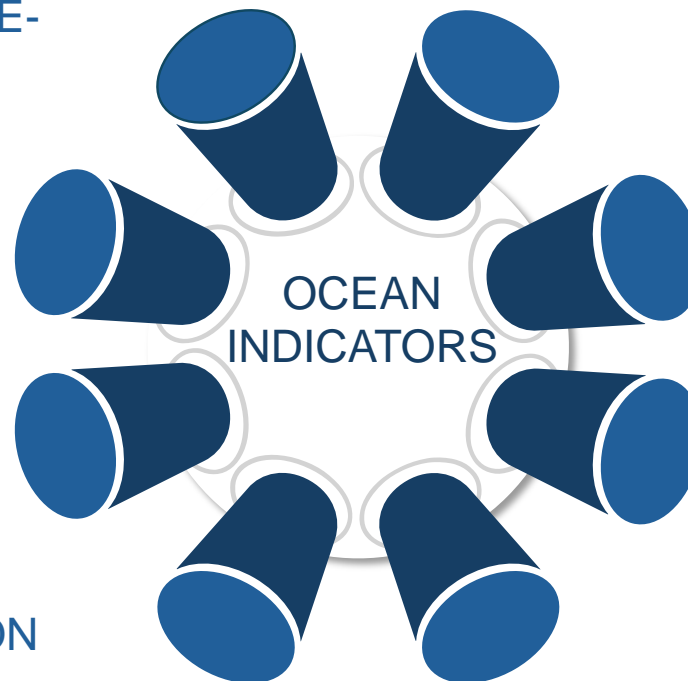
The multifaceted role of Ocean indicators

FACILITATE THE SCIENCE-POLICY NEXUS

ASSESS CAPACITIES

DRIVE INNOVATIONS

FOSTER COLLABORATION



BACKBONE ASSESSMENTS

INTERLINK SYSTEMS

STRENGTHEN COMMUNICATION

GUIDE PRIORITIES



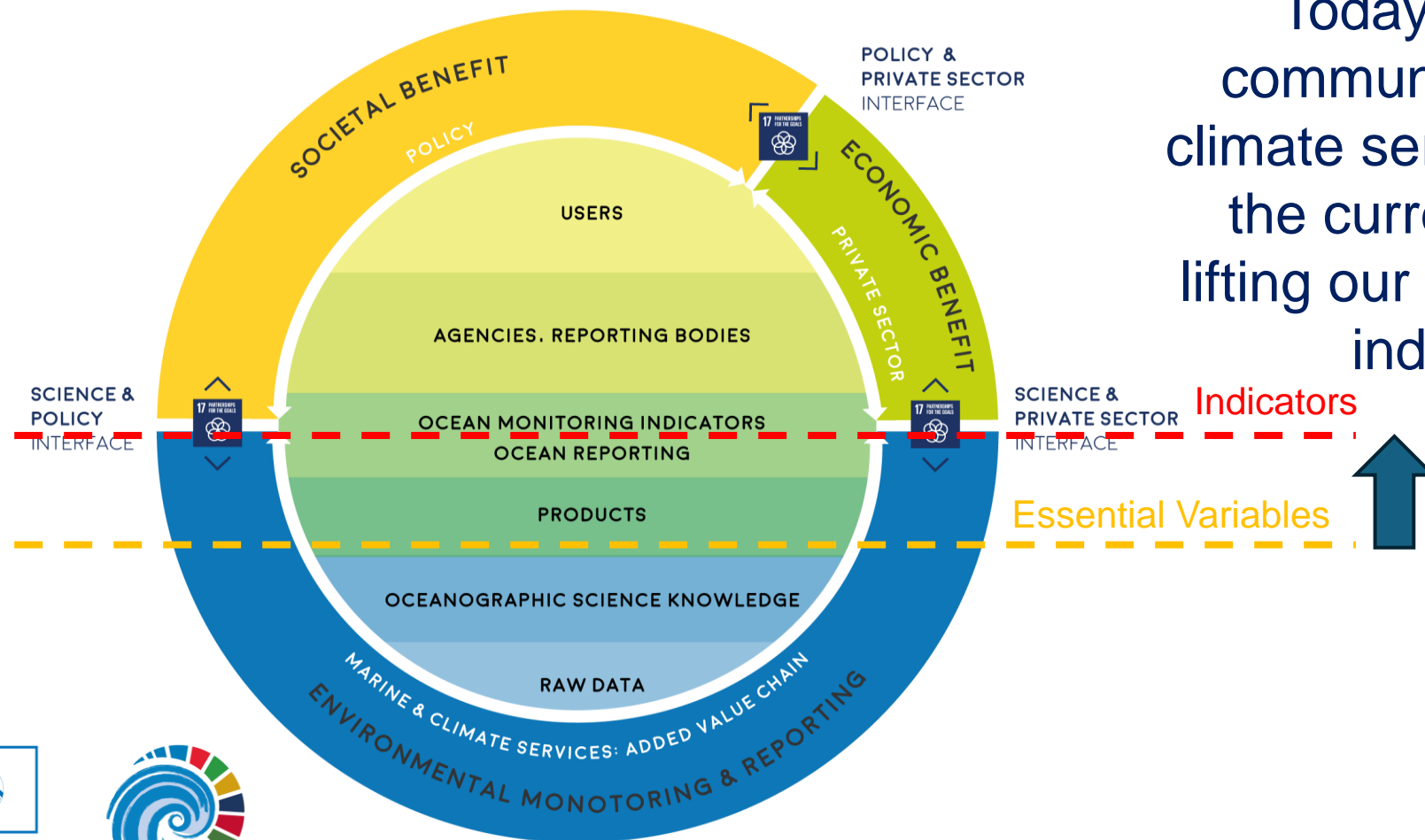
unesco

Intergovernmental
Oceanographic
Commission



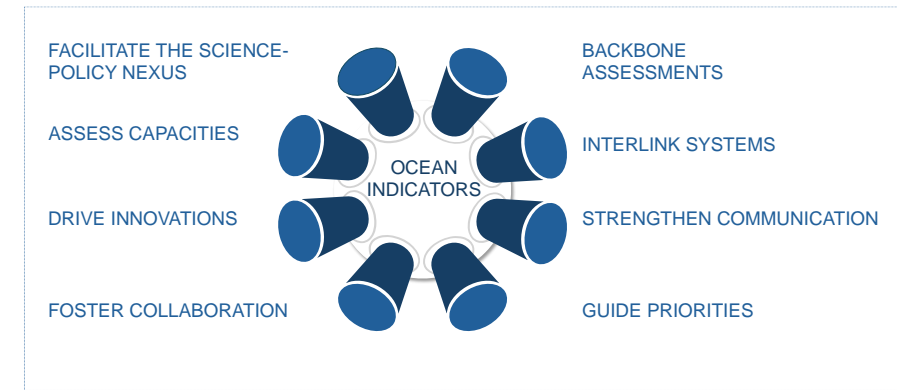
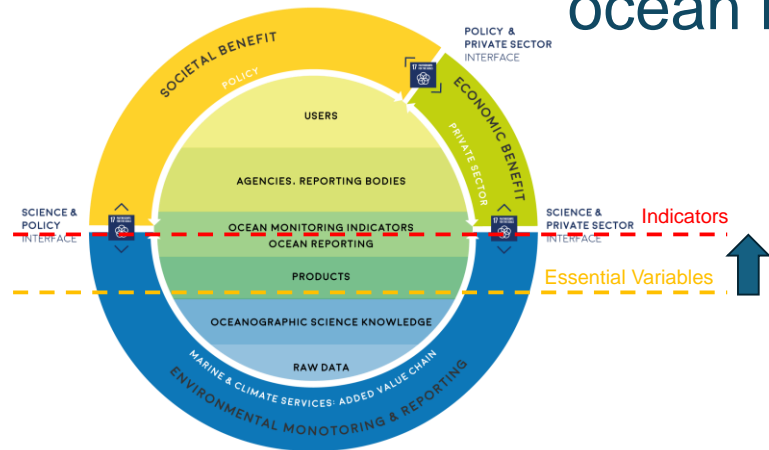
2021
2030 United Nations Decade
of Ocean Science
for Sustainable Development

Ocean indicators: Challenge today



Today, the scientific community and ocean & climate services are faced to the current challenge of lifting our capacity up to the indicator level

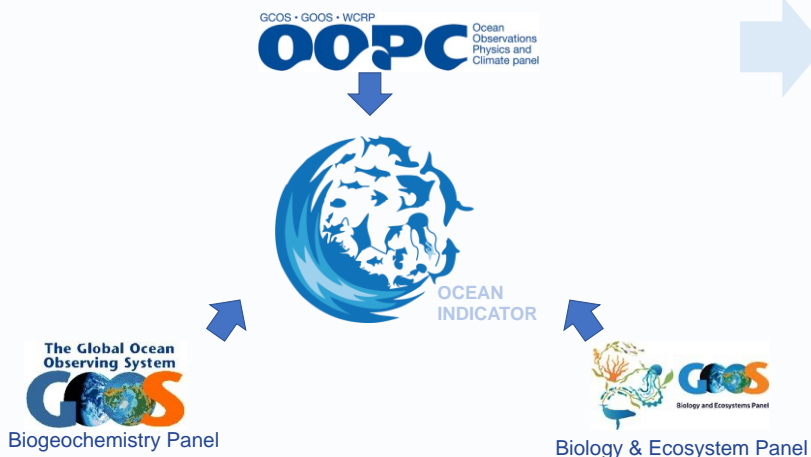
Albeit of wide-reaching use and applications, clear criteria and definition of ocean indicators are today lacking



There is currently no internationally-agreed comprehensive set of ocean indicators to characterize ocean 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 environment in a transparent and authoritative way.

An international initiative towards an ocean indicator framework, uniting physical, biogeochemical and biodiversity expertise

The cross-panel GOOS task team

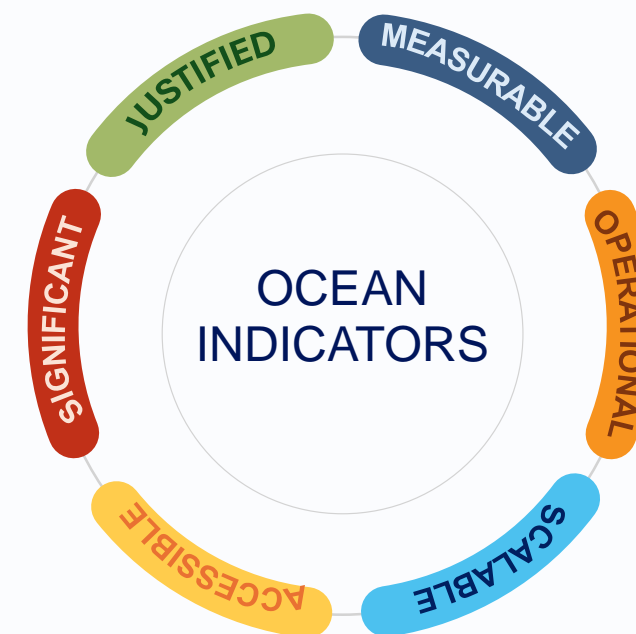


A definition for Ocean indicators

An ocean indicator refers to a measure based on scientifically justified theory and verifiable data that informs on change of an ocean phenomenon or in ocean health across a range of temporal and spatial scales.

The ocean indicator underpins ocean and climate assessments relevant to inform policy and decision making, to guide the ocean observing system, and to raise awareness.

Criteria for Ocean indicators



Intergovernmental
Oceanographic
Commission



2021
2030 United Nations Decade
of Ocean Science
for Sustainable Development

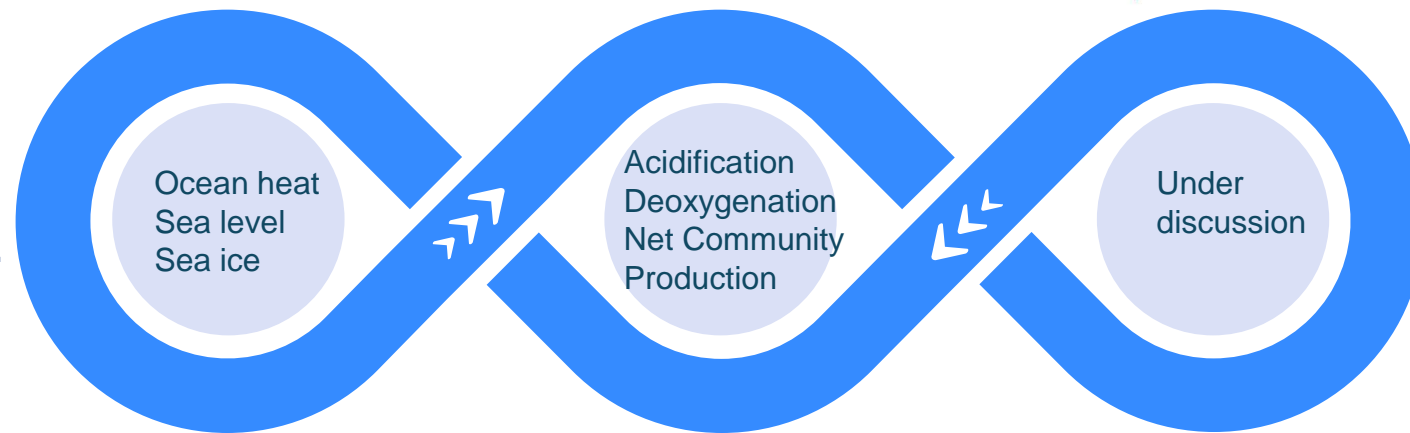
A PILOT STUDY: TOWARDS A SET OF HIGH-LEVEL INDICATORS



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

GOS BGC Panel
The Global Ocean Observing System

GOS
Biology and Ecosystems Panel



PHYSICS & CLIMATE

BIOGEOCHEMISTRY

BIODIVERSITY

A PILOT STUDY: TOWARDS THE IMPLEMENTATION OF A SET OF HIGH-LEVEL INDICATORS

Ocean Prediction
UN DECADE COLLABORATIVE CENTRE

Copernicus Marine Service | MERCATOR OCEAN INTERNATIONAL

Ocean Reporting

Synopsis of the ocean state

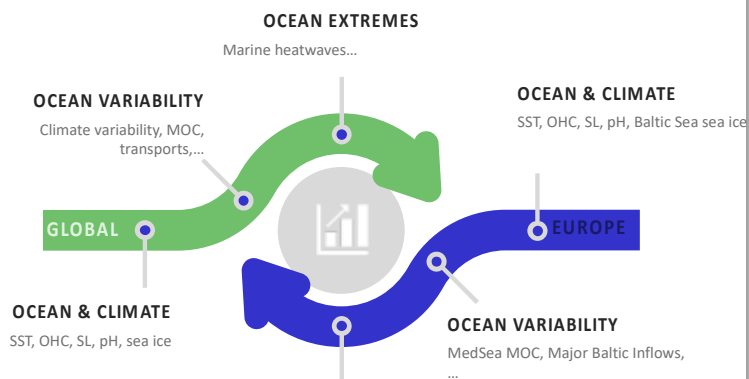
A diagram showing a flow from 'GLOBAL' to 'EUROPE'. It includes boxes for 'OCEAN VARIABILITY' (Climate variability, MOC, transports...), 'OCEAN & CLIMATE' (SST, OHC, SL, pH, sea ice), and 'OCEAN EXTREMES' (Marine heatwaves...). A central bar chart icon is also present.

From global to regional
From science to policy

- Towards the regionalization of Ocean indicators
- Towards a coherent chain of temporal traceability of Ocean indicators

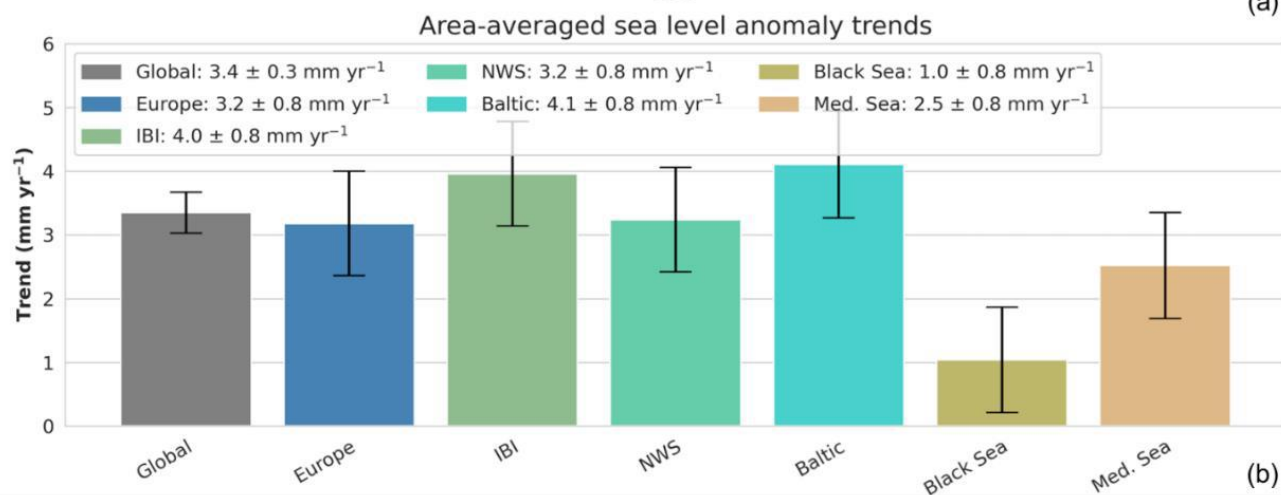
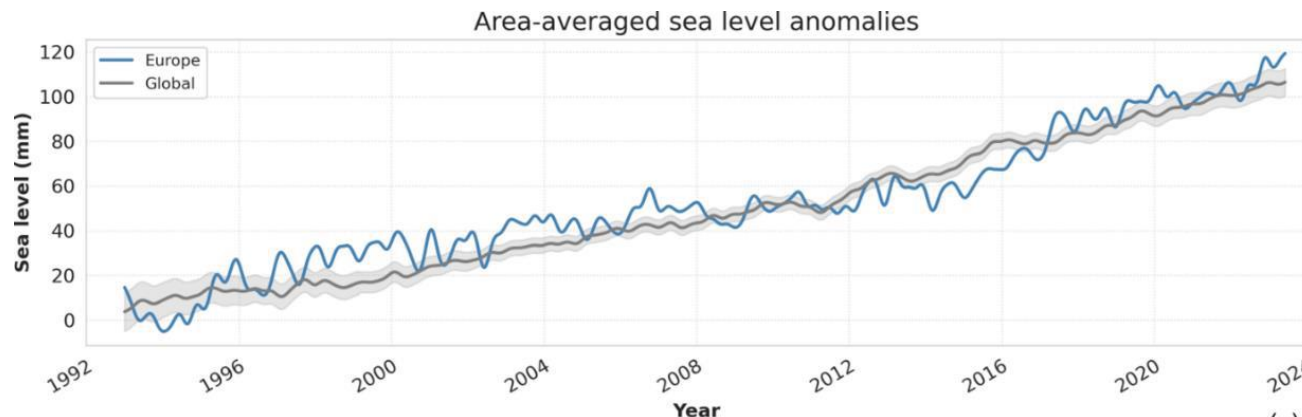
Ocean Reporting

Synopsis of the ocean state



From global to regional
From science to policy

EXAMPLE: SEA LEVEL RISE



Copernicus Ocean State Report, issue 8, under review
(to be published September 2024)

THANK YOU !

karina.von.schuckmann@mercator-ocean.fr



unesco

Intergovernmental
Oceanographic
Commission



2021
2030 United Nations Decade
of Ocean Science
for Sustainable Development

Connecting the world around Ocean Prediction: *A vision for the Decade and Beyond* – 8 April 2024