

THREE COPS

One Ocean



Panel One

THREE COPS **One Ocean**

Panel One



Moderated by:
Kilaparti Ramakrishna
Woods Hole Oceanographic
Institution



**Ambassador
Peter Thomson**
UNSG's Special
Envoy for the Ocean



Lídia Bulcão
Secretary of State for
Maritime Affairs, Portugal



**Cecilia Kinuthia-
Njenga**
UNFCCC



Tiago Cunha
CEO, Oceano Azul

THREE COPS One Ocean

Panel Two

THREE COPS **One Ocean**

Panel Two



Moderated by:
Kilaparti Ramakrishna
Woods Hole Oceanographic
Institution



Mark Shimamoto
AGU



Lisa Levin
Scripps Institution of
Oceanography, UC San Diego



**Leonardo Valenzuela
Pérez**
Ocean Visions



Lilian Krug
Partnership for Observation
of the Global Ocean

3 COPs: One Ocean

Wed, 20 Nov 2024
18:30-20:00 (90 min.)
Side Event Room 5

Lisa Levin
Scripps Institution of Oceanography,
UC San Diego
llevin@ucsd.edu

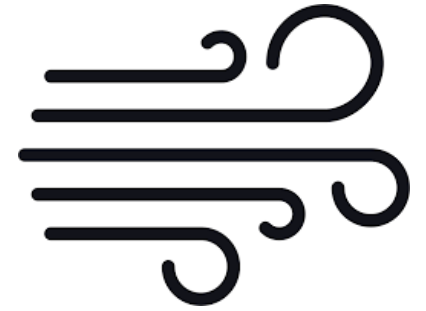
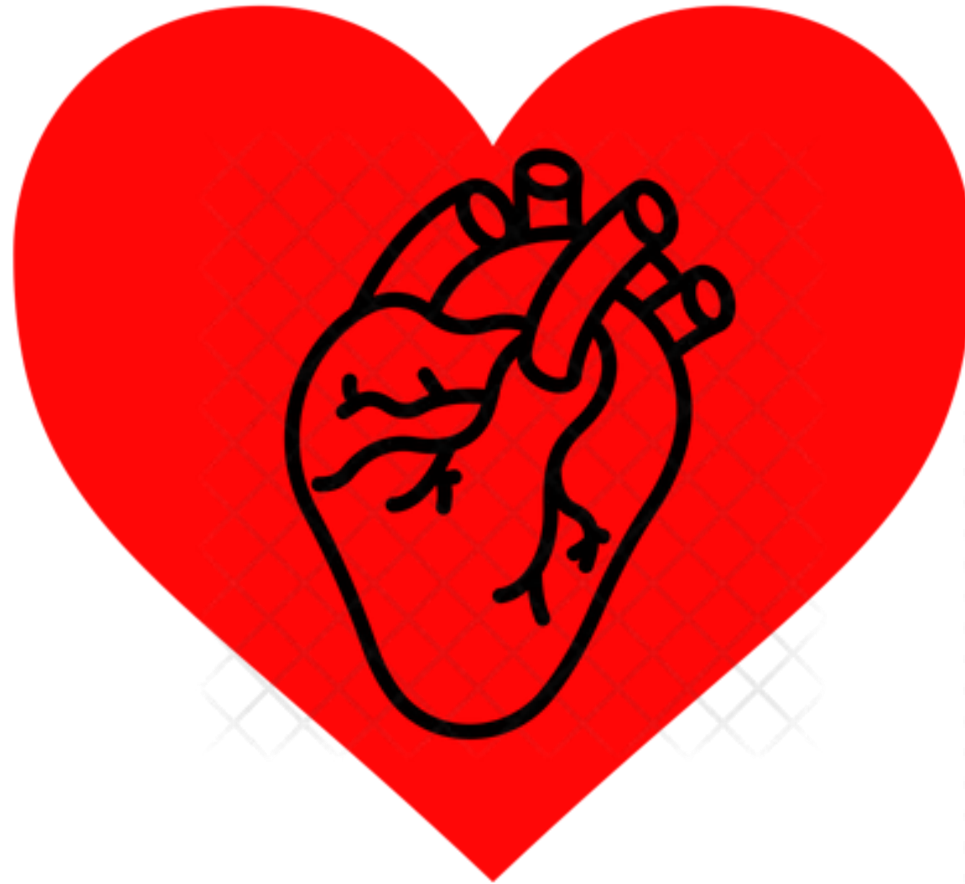


2021 United Nations Decade
2030 of Ocean Science
for Sustainable Development



**SUSTAINABLE
DEVELOPMENT GOALS**
17 GOALS TO TRANSFORM OUR WORLD

The ocean is the heart of the planet –
controlling major cycles of water, carbon,
wind, nutrients and ultimately life.



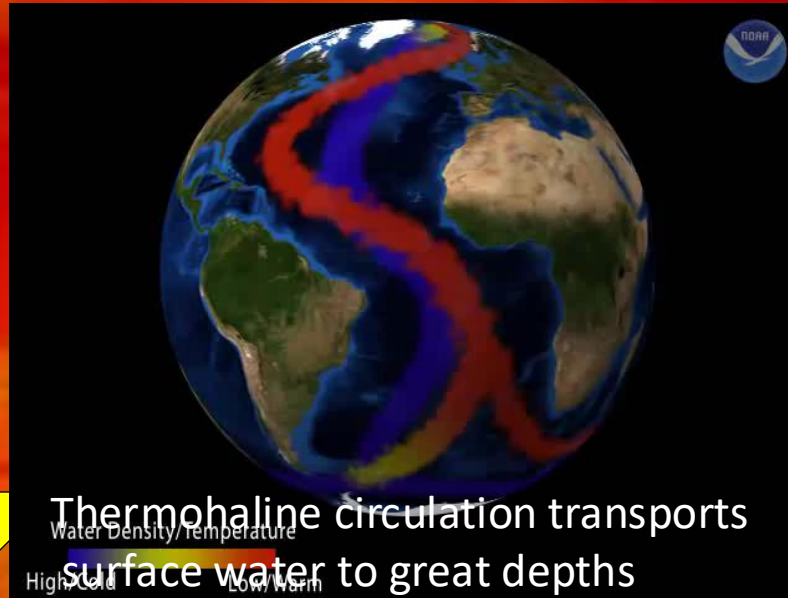
Ocean controls climate by taking up heat & carbon

Heat

93%

Stratification
Solubility

Productivity
Export decline



Oxygen
Loss

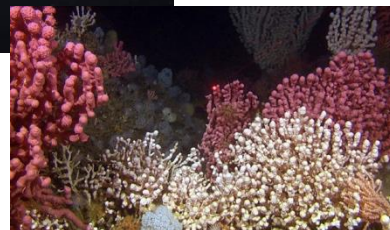
CO₂

26%

Ocean
Acidification

Climate COP (UNFCCC)

- **Without the ocean the planet would be too hot for human life.** But this uptake has a cost:
- **Sea level rise** and associated flooding inundating our islands and coastal cities
- Cost to marine life - **rising temperatures** that create heat waves and cause coral bleaching
- **Loss of oxygen** and **increase in acidity** threaten life from shallow to deep waters – causing species redistributions, loss of biodiversity, changing food webs, loss of income.
- **There are still many questions about the ocean circulation and heat budgets – and the changes in chemistry – changes in AMOC – response of fisheries**



Biodiversity COP (CBD)



Kunming - Montreal
GLOBAL BIODIVERSITY FRAMEWORK

- 70% of the planet's known biodiversity sits in the ocean.
- That biodiversity is responsible for
 - the creation of **oxygen** in the ocean (the phytoplankton and algae),
 - **food webs** that feed us fish and shellfish and provide livelihoods,
 - the **regeneration of nutrients** that fuel productivity
 - **uptake and transfer of carbon** into deep water that regulates our climate
 - increasingly for **novel medicines** that help cure inflammatory diseases, cancer , covid and other maladies.

Most of that biodiversity remains undiscovered, roles in the carbon cycle are poorly constrained, and vulnerability to pollution, plastics, fishing and climate are understudied, especially in deep water.

The CBDs biodiversity framework and the 30x30 goal cannot be met without conserving ocean biodiversity!

For Desertification COP –

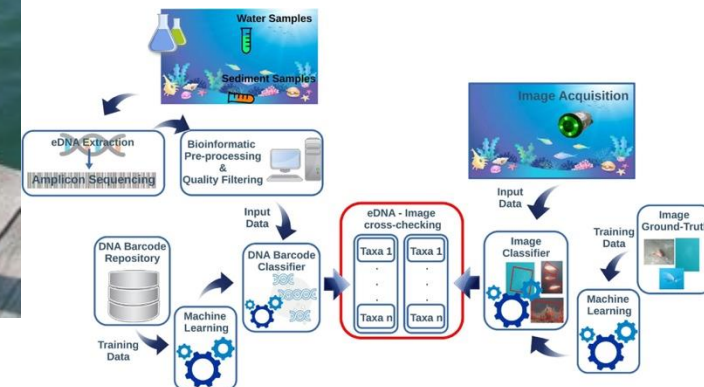
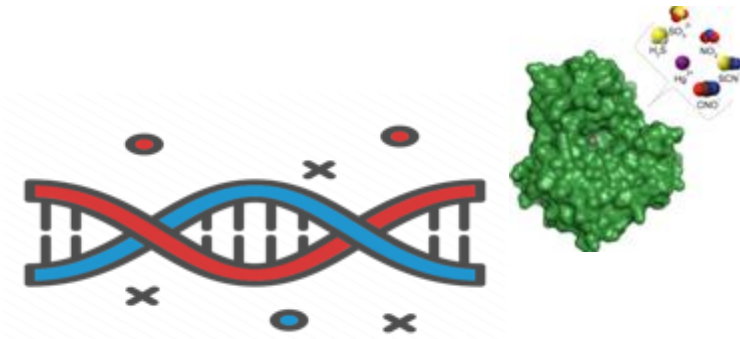
Ocean dynamics affect :

- the planet's ability to take up heat,
- Hydrologic cycle
- Patterns of drought, wildfires & creation of atmospheric rivers that control rainfall & flooding.



Science is at the heart of ocean understanding and solutions

- **New tools (metabarcoding, eDNA)** for detecting biodiversity from water and sediment samples – but these still need groundtruthing – collection of samples.
- **Novel sensing and imaging** - use of 4k/8K video, Artificial Intelligence, acoustic tools for mapping marine life, methane.
- **ARGO float innovations** – BGC Argo (pH, O₂, Chlor a) and Deep Argo to 6000 m will improve models, allow monitoring of carbon cycle and potentially mCDR experiments.
- **New models** for understanding and predicting changes in ocean environments and resulting changes in habitat suitability will help characterize and conserve biodiversity, economic vulnerabilities, predict climate hazards. Also need grounding in physical, chemical and biological observing (moorings, Go-SHIP)
- **Driving actions** such as marine spatial planning, creation of climate-smart MPAs, fishing regulations, decisions about resource extraction.
- UNFCCC needs to **track ocean properties** as it does terrestrial parameters.



Genetic Resources

Major science gaps

Meta-analysis of the 6 IPCC AR6 reports identified major deep-ocean science gaps that inform seven key areas for research priority:

- (1) meridional overturning circulation
- (2) ocean deoxygenation and acidification
- (3) primary production
- (4) ocean carbon cycle
- (5) ocean ecosystems
- (6) fisheries
- (7) ocean-based climate interventions



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Future directions for deep ocean climate science and evidence-based decision making

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Introduction: A defining aspect of the Intergovernmental Panel on Climate Change (IPCC) assessment reports (AR) is a formal uncertainty language framework that emphasizes higher certainty issues across the reports, especially

Policy
Brief



Spilhaus Projection

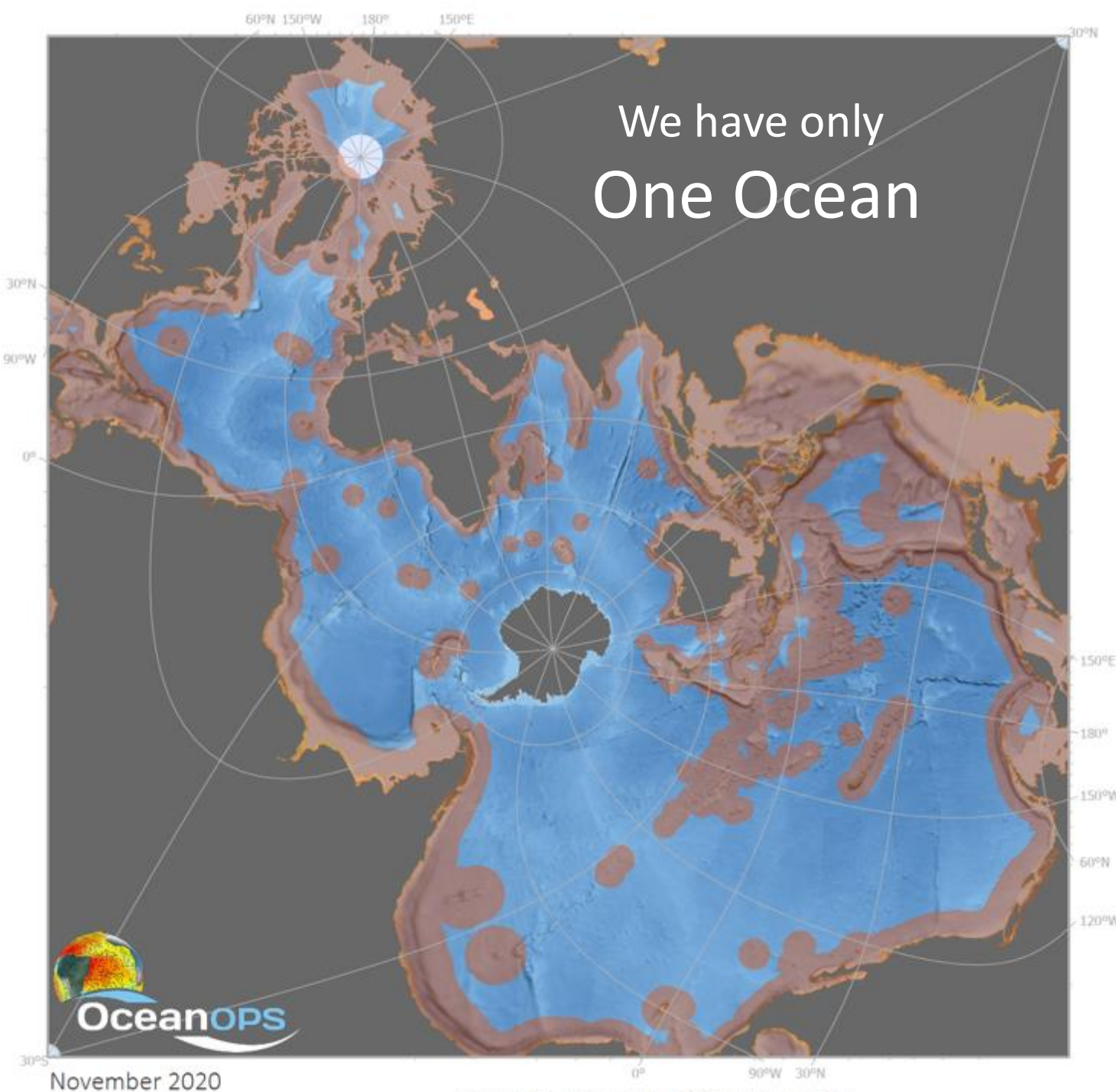
Tan = EEZs +
Extended
Continental
Shelf

ABNJ – 60%

Conservation and
Sustainable Use of Marine
Biological Diversity of Areas
beyond National Jurisdiction
(BBNJ Agreement)

We have only
One Ocean

- Critical for Planet Health
- Highly Interconnected
- Sensitive to Human Perturbations



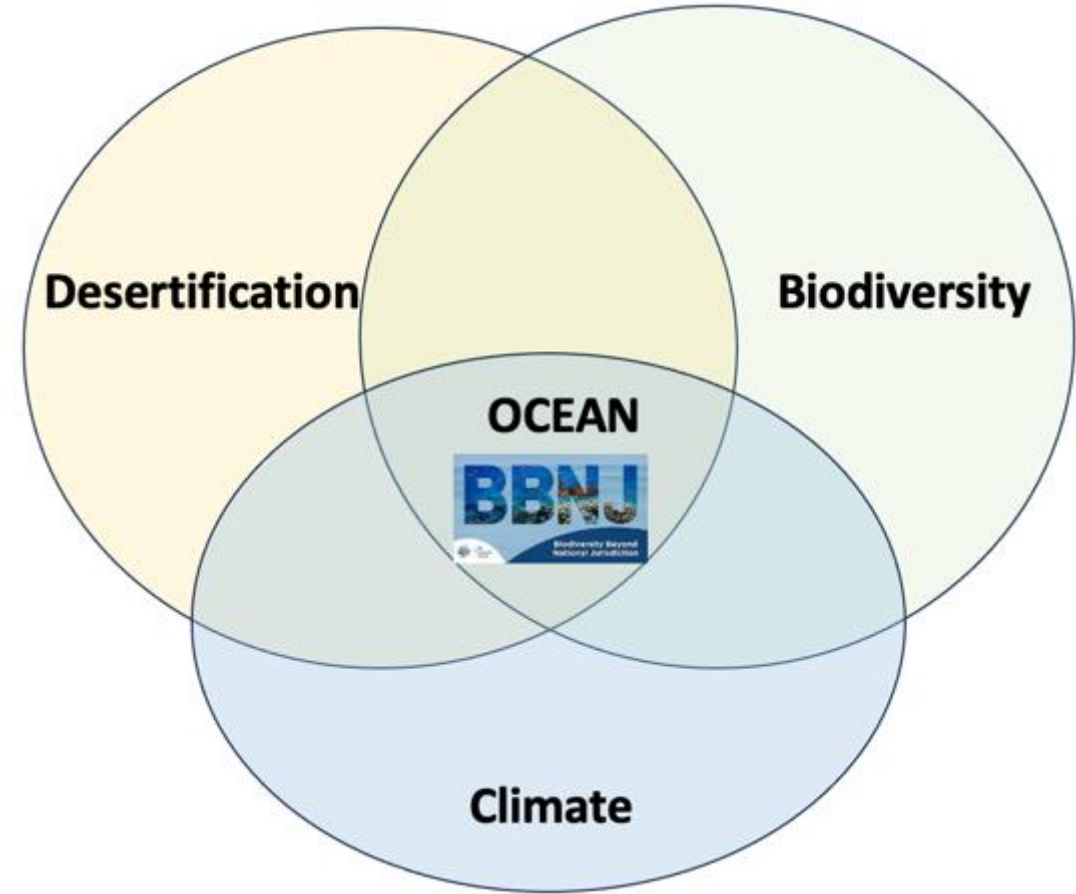
November 2020

Generated by www.ocean-ops.org, 2020-11
Projection: WGS 1984 Spilhaus Ocean Map in Squ

A 4th COP?



- BBNJ COP will be initiated one year after ratification of the BBNJ agreement
- **Marine Protections**
- **Environmental Impact Assessments**
- **Marine Genetic Resource/Digital sequence benefit sharing**
- **Capacity Development and Tech Transfer** within that new instrument will be critical to enabling the ocean to fulfill all its life support functions into the future



Observing the Global Ocean



Partnership for
Observation of the Global Ocean

World-wide cooperation for a sustainable, state-of-the-art global ocean observing system that serves the needs of science and society.



ocean-climate.org

NASA

Birmingham City University



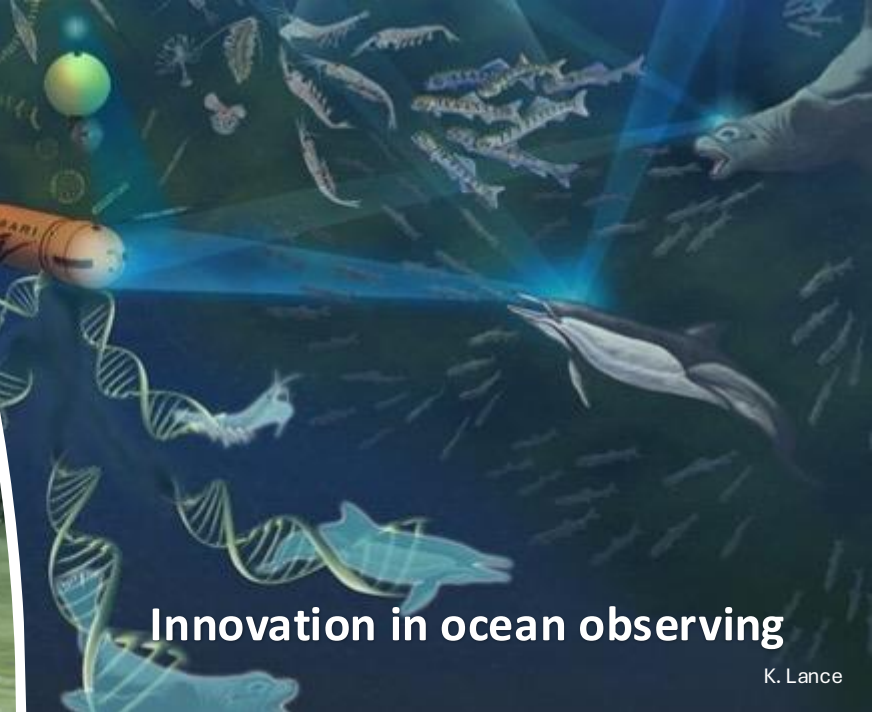
Partnership for
Observation of the Global Ocean

Implementing partner



Low-cost technology

ODN



Innovation in ocean observing

K. Lance

Our strategy



عربي
English
Español
Français
Português

<http://pogo.ocean.org>



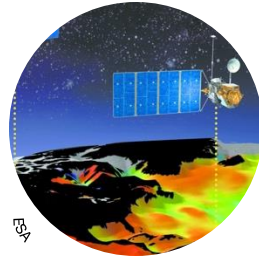
Capacity development

POGO



Outreach & Advocacy

Effective action starts with ocean data



Advancing ocean observations to support the objectives of UNFCCC, CBD and UNCCD

- Carbon and Climate Observations
- Expanding Ocean Acidification Data
- Biomolecular Innovations
- Passive Acoustic Monitoring
- Monitoring Land-Ocean and Ocean-Atmosphere interfaces
- Understanding Ocean-Climate-Biodiversity connections
- Enhancing predictive models
- Capacity development
- Supporting integrated solutions

Connecting the Ocean to Global Agendas

- **Bold investments in ocean observing systems**
- **Stronger partnerships across nations and sectors**
- **Collective commitment to sustain and expand ocean observations**

More on
POGO

 www.pogo-ocean.org

 [pogo_ocean](https://www.instagram.com/pogo_ocean)

 Area B, Stand 31



*We can achieve together much
more than what we can do
alone*

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One Ocean

