## Dear panelists, welcome to the webinar!

#### Getting ready...

- Check your audio and video (bottom left of your screen). Note that both should be <u>muted</u> when you are not presenting/speaking
- Get ready for your presentation:
  - You will manage your presentation from your own computer using the PDF shared with you (apart from Veronika we will manage your slides
  - For **sharing your screen**: use the green function at the bottom of zoom. And **keep your presentation open** on your computer **on your first slide** (introductory slide with your name)
- During the webinar, do contribute to the Questions & Answers:
  - We will ask you questions verally from the Q&A box.
  - You can type in the Q&A box to respond to any questions related to your expertise.
- The webinar will be open at 13h55... sharp!

#### EU International Ocean Governance Forum



#### Welcome to the TWG3 launch webinar

Facilitation: Sheila Heymans, Britt Alexander, Acteon



Healthy

ocean

Sustainably way





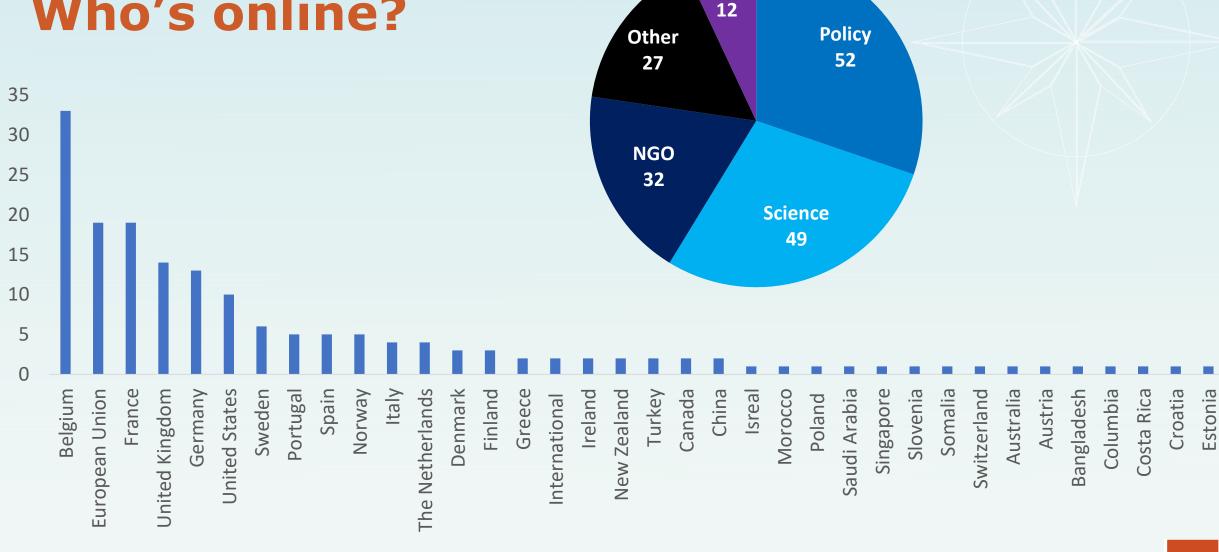
EU-Ocean-Governance-Forum@ec.europa.eu

### **Before we start**

#### Housekeeping rules

- For zoom <u>technical support</u>: use <u>chat</u>
- To ask questions during discussions: use <u>Q&A</u>
  - ⇒Let us know your name and which organization and country you are from.
  - ⇒Let us know who your question is for.
  - ⇒Vote for questions you think are important.
  - ⇒Speakers/facilitators will answer selected questions.
  - ⇒Unanswered questions will be used to guide future directions for the working group
- This webinar is being <u>recorded</u> and will be disseminated online and by email

### Who's online?



Business

### Focus of the webinar

Launching the International Ocean Governance (IOG) Forum process

Overview of the <u>IOG Forum</u>

Challenges
Solutions
Questions

• Overview of <u>Thematic Working Group 3</u> – *Strengthening International Ocean Research, Data and Knowledge* 

Future steps for the IOG Forum and working groups

# **Agenda**

#### Session I: Setting the scene of the IOG and TWG3

Time (CEST)	Item	Speaker
14:00	Welcome and housekeeping	Sheila Heymans (EMB)
		<b>Commissioner Virginijus</b>
	Opening remarks	Sinkevičius, Environment, Oceans
		and Fisheries (Video message)
	International Ocean Governance - key to	Peter Thomson, UN Special Envoy
	achieving Sustainable Development Goals	for the Oceans (Video message)
	The EU International Ocean Governance	Veronika Veits (European
	Forum in a nutshell	Commission, DG MARE)
	TWG3 Overview	Sheila Heymans (EMB)

# **Agenda**

#### Session II: Presenting the TWG3 sub-topics

Time (CEST)	Topics	Speaker
14h35	Topic 1 – Improving the Ocean Science- Society-Policy Interface	Julian Barbière (IOC-UNESCO)
	Topic 2 –Supporting Ocean Research	Jörn Schmidt (Kiel University)
	Topic 3 – Strengthening Ocean Observations	George Petihakis (Hellenic Centre for
		Marine Research)
	Topic 4 – Improving Research Alliances	Martin Visbeck (GEOMAR)
	Topic 5 – Supporting Data Frameworks	Sara Garavelli (Trust-IT services)

The presentations which will be given in the context of these webinars represent the views of the presenter and not of the European Commission and the European External Action Service.

# **Agenda**

#### Session III: Final words and next steps

Time (CEST)	items	Speaker
	Summary of discussions and follow- up steps	Sheila Heymans (EMB)
15h50		Sigi Gruber (European Commission, DG RTD) & Stefanie Schmidt (European Commission, DG MARE)
16h00	End of the webinar	

**Chair of TWG3** 



# Opening remarks

Commissioner Virginijus Sinkevičius

**Environment, Oceans and Fisheries** 

Video message

# International Ocean Governance as key to achieving Sustainable Development Goals

**Peter Thomson** 

UN Special Envoy for the Oceans

Video message

# The EU International Ocean Governance Forum in a nutshell

**Veronika Veits** 

European Commission, DG MARE

# International ocean governance: an agenda for the future of our oceans

50 actions to ensure our oceans are:

- safe
- secure
- clean
- sustainably used



Improve the international ocean governance framework



Reduce pressures and facilitate sustainable blue economy



Strengthen international ocean research and data

#### **EU International Ocean Governance Forum**

Progress report: Improving International Ocean Governance – Two years of progress

All actions are successfully being implemented. Many already delivered, while work will continue on some actions.



# Council Conclusions on Oceans and Seas (14249/19)

- INVITES the Commission to analyse the SCROCC report and propose policy response options; CALLS for increased policy action at all governance levels
- SUPPORTS the follow-up and further development of the IOG Agenda
- CALLS ON the EU and its Member States to promote and build capacity for better ocean governance

# International Ocean Governance Forum dedicated to oceans and seas worldwide

- Provide a platform to share understanding, experiences and good practice
- Mobilise stakeholders within and beyond Europe
- Support follow-up and further development of the IOG agenda



# Discussion paper

- Key challenges
- Opportunities
- Consultation questions
- Future perspectives for EU action



#### EU International Ocean Governance Forum

Discussion paper for Thematic Working Group 3

STRENGTHENING INTERNATIONAL OCEAN RESEARCH, DATA AND KNOWLEDGE

Authors: Sheila Heymans, Britt Alexander (European Marine Board)



#### 1. INTRODUCTION

This working group will focus on how the EU can advance the role of ocean science in international ocean governance, and in supporting the upcoming UN Decade of Ocean Science for Sustainable Development¹ (2021–2030, the Ocean Decade) and the UN Decade on Ecosystem Restoration² (2021–2030). The needs of ocean governance are the prerequisite and driving force behind creating an international ocean knowledge base that feeds into decision-making. Therefore, improving ocean knowledge through co-designed science and research, innovation, observations, data, and operational climate, ocean and marine biological modelling (among other types of modelling) is crucial for supporting sustainable decisions and actions in tackling threats to ocean health and their cumulative impacts. The management and sustainable use of marine resources under a changing climate must be based on sound scientific knowledge and data to facilitate the development of a sustainable blue economy. This requires well-func-

into knowledge (defined as facts, information, and skills acquired through experience or education) which is then used as evidence to address policy questions. Such capacities to virtualize the ocean ecosystem through data and modelling helps develop what-if scenarios supporting short-term to long-term decision-making for ocean governance, particularly when building strategies for climate change mitigation and resilience, and the sustainable exploitation of ecosystems services.

The Global Ocean Observing System (GOOS) 2030 Strategy (IOC-UNESCO, 2019) highlights that the world needs a step change in ocean observations. Observations today are the backbone for ocean and weather forecasts and predictions and projections for the global climate system, and their optimal spatial and temporal resolution across the global ocean will reduce uncertainties in forecasts, predictions and projections.

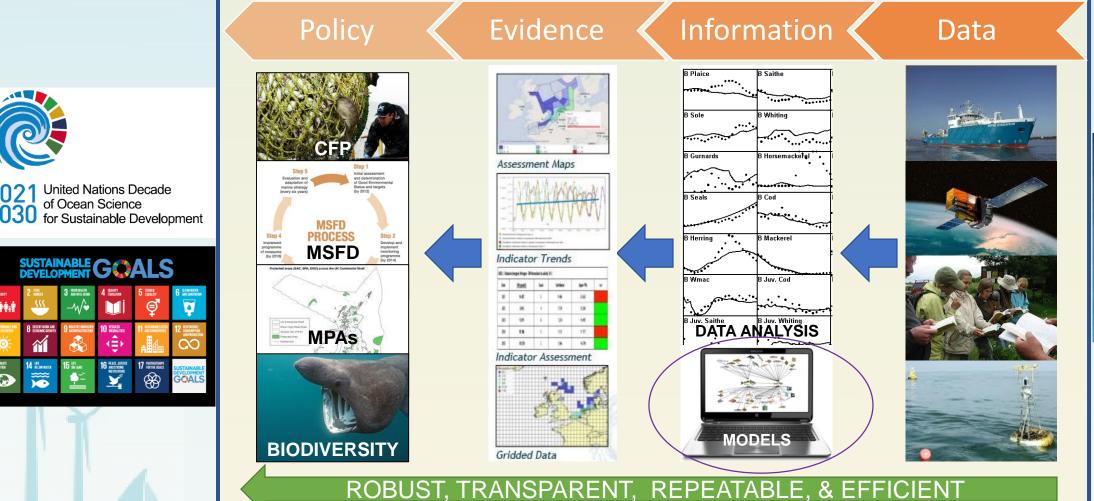
- A starting point for debate to be built upon
- Written by consortium supporting the IOG initiative
- Reviewed by the European Commission and external experts



### **Overview:**

Focus on how the EU can advance the role of ocean science in international ocean governance

Hyder et al. 2015. *Marine Policy*, **61:** 291-302





## Ocean science:



The Current Status of Ocean Science around the World





- Inclues all disciplines: physics, biology, chemistry, geology, hydrographic, health, social sciences, engineering, humanities, as well as multidisciplinary sciences.
- Seeks to understand complex, multiscale systems (physical and sociological) and requires observations, modelling and other forms of knowledge creation.
- Objective: to understand how the ocean works, changes over time, responds to natural and anthropogenic pressures.
- **Uses:** Assess the status of ocean ecosystems, resources, and make sustainable use decisions.

# **Governance applications:**









- Understand how the ocean influences climate change, is impacted and responds to climate change and other stressors (human uses);
- Assess ocean resources and their sustainable exploitation;
- Understand the interaction between uses of the ocean under the Blue Economy;
- Protect ocean ecosystems and ecosystem services; and
- Understand the resilience of the ocean to these pressures.



## Forum ambition and focus:

- Highlight challenges & opportunities for making ocean research more responsive to needs of decision-makers;
- Better able to support management of human pressures;
- Link with TWG1: Improving the international ocean governance framework:
  - -> provide advice on improving a responsive backbone for IOG and ensure conservation and sustainable use of ocean resources;
- Link to TWG2: Reducing pressure and link to sustainable blue economy:
  - -> consider how to **improve data collection** & **dissemination** based on user needs & mechanisms to **provide knowledge to blue economy**;
- Strengthen international ocean knowledge system to support UN 2030 17 SDGs and European Commission's Green Deal.



# **Selection of topics:**

Focus on how the EU can advance the role of ocean science in international ocean governance

- 1. Improving Ocean Science-Society-Policy Interface Julian Barbiere (IOC-UNESCO)
- 2. Supporting Ocean Research Jörn Schmidt (Kiel University)
- 3. Strengthening Ocean Observations George Petihakis (HCMR)
- 4. Improving Alliances Martin Visbeck (GEOMAR)
- 5. Supporting Data Frameworks and Ocean Services Sara Garavelli (Blue-Cloud)



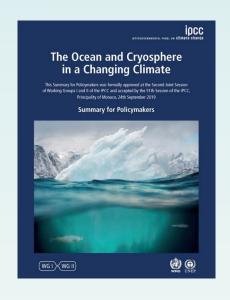


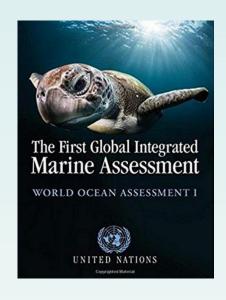


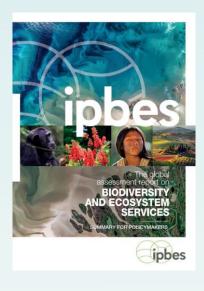


#### **EU International Ocean Governance Forum**

A strategic and comprehensive approach to co-design marine research, to translate, and embed scientific knowledge into policy measures is needed to prevent the transgression of planetry boundaries.







UNFCCC, IPCC, UN World Ocean Assessment, IPBES reports, G7 Future of Seas and Oceans Initiative, IOC-UNESCO, Global Ocean Forum, World Ocean Network, ICES, WIOMSA, HELCOM, OSPAR, European Marine Board

## **Improved Ocean Science-Society-Policy Interface**

#### Challenges

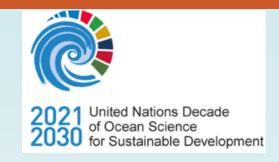
- How to better listen and respond to decision makers and citizens so we can **co-design** the research, data and knowledge they need.
- How to use knowledge to create **effective operational tools** for ocean health monitoring and decision-making at multiple scales: from international to EU, regional and national scale.
- How to develop **effective science-society-policy interfaces** and decision making processes that are designed to effectively use data and knowledge, and that are more evidence-based.
- How to develop joint learning processes and communication channels to pass on scientific knowledge to policy makers and encouraging them to take it up.
- How to integrate and transfer global to local scale ocean science into operational ocean services.
- How to strengthen citizen engagement and ocean literacy among decision-makers and feed it into narratives that resonate.



## **Improved Ocean Science-Society-Policy Interface**

#### **Opportunities**

- Federate and streamline different ocean communities at regional to global levels into an integrated system for increased and improved ocean science-policy cooperation within scientific bodies for capacity building.
- Better integrate and support regional and international ocean assessments.
- Develop a strategic and comprehensive approach to **co-design marine research**, translate, and embed scientific knowledge and data into regional and international policy measures (e.g. SDGs, EU Green Deal).
- Strengthening ocean literacy among decision-makers and citizens. More programmes for ocean education can be developed and more professionals trained in science communication.
- Open access to data and scientific publications. Develop more incentives for researchers to make their results and data open-access, and support services for open-access research and data.
- Develop **stronger infrastructures** to translate research into actionable knowledge for decision-makers.



### 'The science we need for the ocean we want' (vision)

Knowledge is used for action to ensure that the ocean contributes fully to sustainable development by 2030 and beyond

'The ocean we have'

Global ocean science capacity and ocean literacy

Generate knowledge through ocean science relevant to society Widely deploy ocean knowledge applications, tools and services

Policy and decision making based on best scientific knowledge

'The ocean we want'

Clean

Safe

Healthy & Resilient

**Productive** 

**Predicted** 

Accessible

### Improved Ocean Science-Society-Policy Interface

#### Consultation Questions

- How can we ensure that ocean research is translated into actionable knowledge for decision makers?
- How can we ensure that knowledge is swiftly taken up by policy developers and decision makers?
- Can we make open-science the norm internationally given the paywall for open science is often not manageable, particularly in the Global South and even some European countries?
- What programmes/initiatives should be developed to improve ocean literacy among policy-makers?
- How can the World Ocean Assessment (WOA) be strengthened (perhaps in cooperation with IPBES and IPCC) to
  deliver a more authoritative and policy relevant State of the Ocean Assessment, that is policy relevant and delivers
  an assessment of the attainment of SDG14 and other ocean related SDGs?
- How to better integrate and support regional assessments, as developed through regional seas agreements such as the Oslo-Paris Convention (OSPAR Commission) and the Helsinki Convention (HELCOM commission) as well as regional science bodies such as ICES and WIOMSA?
- How can international collaboration continue in the framework of UN SDG's, space and ocean research, and marine resource exploitation through specialized UN and national authorities?



#### **EU International Ocean Governance Forum**



#### Challenges

- Supporting a science policy dialogue for a sustainable blue economy
- Transdisciplinarity 

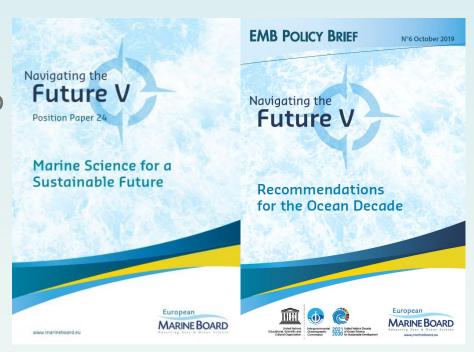
  co-design, co-production and co-implementation
- International collaboration to address knowledge gaps and research priorities



#### Challenges

Key knowledge gaps are (based on Navigating the Future V):

- Understanding multiple-stressors to develop ways to reduce them
- Understanding ocean ecosystems, including humans, for ecosystem-based management frameworks
- Understanding extreme events to prevent loss and damage
- Understanding the land-estuaries-coast-ocean continuum

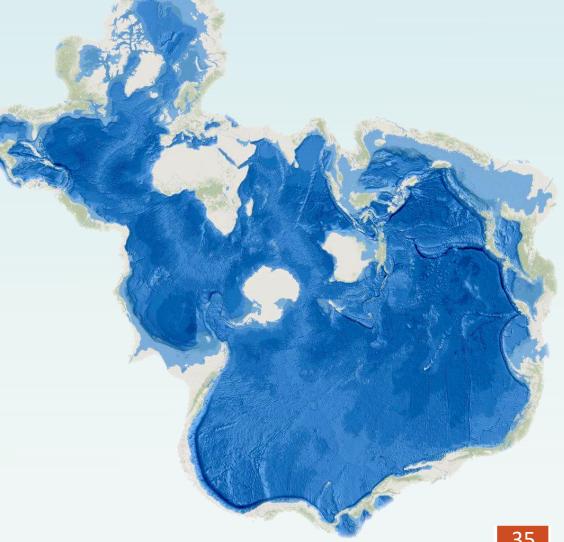


#### **Opportunities**

 Apply transdisciplinary science approaches to generate knowledge for societal challenges

 Develop smart ocean observing systems supported by maritime sectors and citizens

- Improve models and model frameworks to address trade-off analysis
- **Support governance** structures to consider trade-offs and increase resilience
- Develop training programs to apply Artificial Intelligence in ocean science



#### Consultation Questions

- How can we design marine research programmes that are transdisciplinary and based on sustainability science with the aim of producing quality-controlled knowledge that can be used in decision-making?
- How can we design marine research programmes that allow for adaptability to rapidly changing climate and technological advances in research methods?
- How can we foster the transition from research to operational ocean services, accessible to local and international communities for decision-making, impact assessment and development of best practices?
- How can we foster the development of co-creation between actors based on new digital technologies that would foster the development of new policies and best practices?
- How can we leverage EU research infrastructures to better support international ocean research and governance e.g. the European Research Infrastructure Consortium (ERIC) and the European Strategy Forum on Research Infrastructures (ESFRI); and
- How can we optimize marine research to provide solutions to human pandemics like COVID-19? Can we accelerate research on oceans and human health and improve governance measures to protect marine biodiversity with human health benefits?





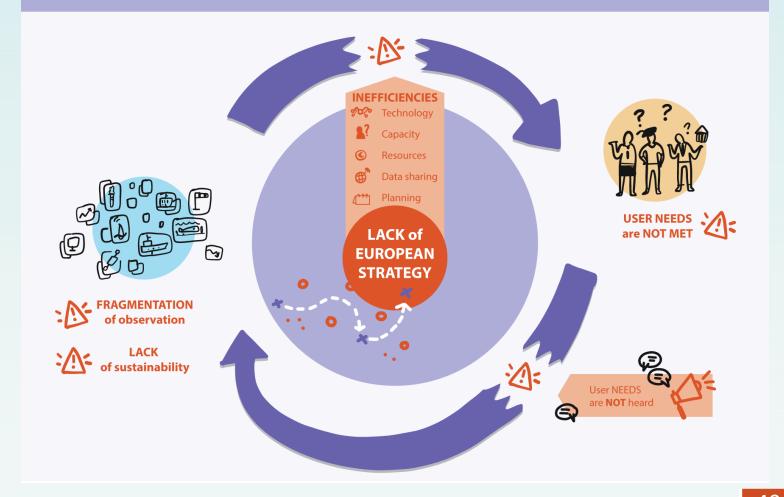
#### **EU International Ocean Governance Forum**

The UN 2030 Agenda, the adaptation and mitigation of climate change impacts, the prevention of the transgression of planetary boundaries and the achievement of the SDGs will require a strategic approach to ocean observing.

### Challenges

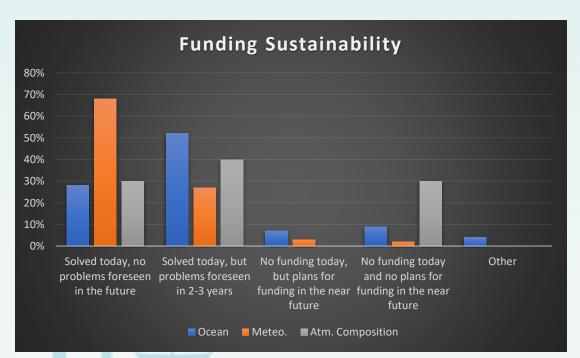
- Fragmentation in observing effort
- Lack of coordination
- User needs are not heard and met

#### THE UNTAPPED EUROPEAN POTENTIAL IN OCEAN OBSERVING



#### Challenges

 A lack of financial sustainability for ocean observations, most of which are funded on an adhoc basis with only 1 – 4 year horizon of certainty.



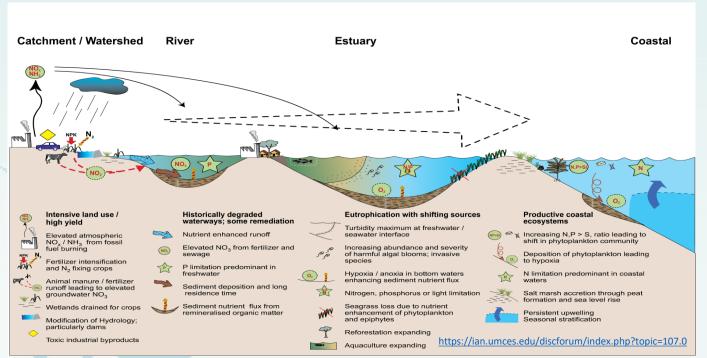
Funding sustainability	Ocean	Meteo.	Atm. Composition
Solved today, no problems foreseen in the			
future	28%	68%	30.00%
Solved today, but problems foreseen in 2-3			
years	52%	27%	40.00%
No funding today, but plans for funding in			
the near future is under way	7%	3%	
No funding today and no plans for funding			
in the near future	9%	2%	30.00%
Other	4%		

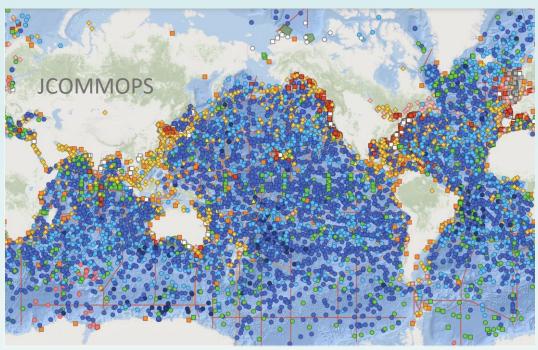
 Only 28% of ocean observations are sustainable, compared to 68% of meteorological observations.

Buch, E., Fernandez, V., Srzic, I. and A. Vermeulen (2019), Sustainability Survey, EEA/IDM/15/026 - Services supporting the EEA's implementation of cross-cutting activities for coordination of the in situ component of the Copernicus Programme

### Challenges

- A lack of capacity in the Global South for ocean observations.
- Some areas of the ocean are difficult to reach e.g. the deep sea.

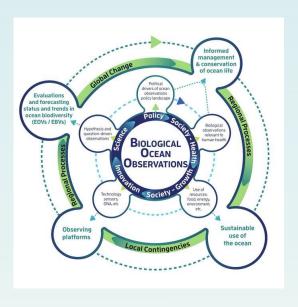


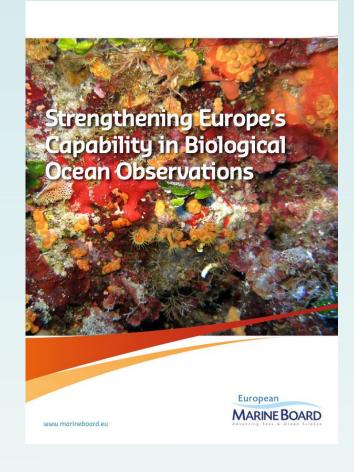


The **coastal ocean** the most productive and dynamic part of the world ocean, which makes it a significant source of resources and services for mankind. But it is **very complex** which affects observational effort.

#### Challenges

 Global ocean observations predominantly include physical and biogeochemical parameters. The further development of biological observations and observations of human activities is a key challenge.





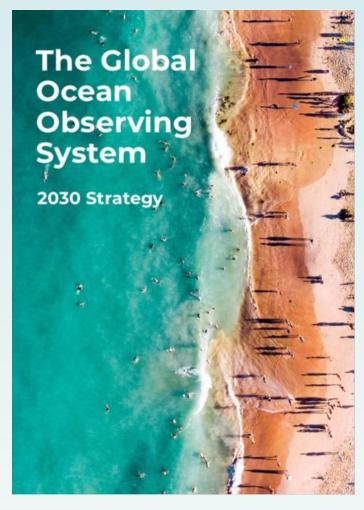


- Standardized measurements, scientific and technical innovations, **FAIR data access and management**, capacity development, technology transfer.
- There are currently many gaps in coverage of bathymetric surveys.

#### **Opportunities**

 A a truly integrated global ocean observing system that delivers the essential information needed for our sustainable development, safety, wellbeing and prosperity





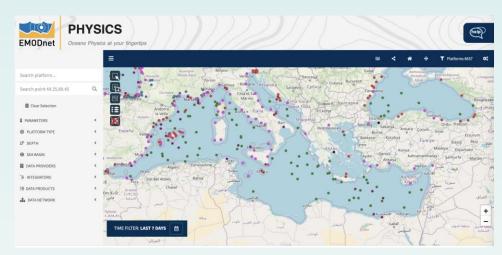
A **coordinating framework** to align and integrate Europe's ocean observing capacity (European Ocean Observing System - EOOS).

#### **Opportunities**

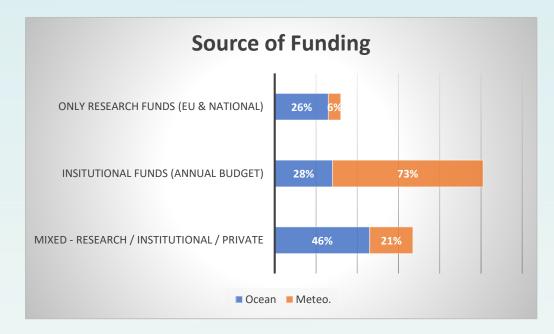
Capacity development for observations in the Global South.

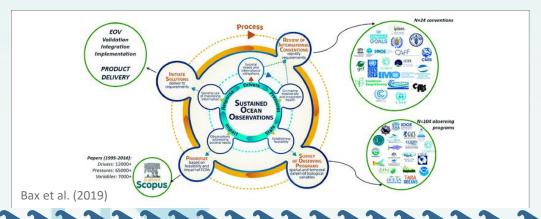
Equitable observations (equal in number and frequency) in all

ocean basins.



Sustained funding for ocean observations.

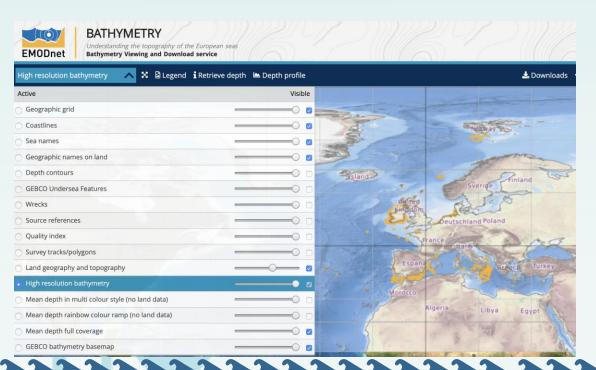




and biological observations and observations of human activities (sustenance, extractive, exploitive, recreational).

### **Opportunities**

• Improvements in ocean observation technologies and data handling.





• Increase efforts to make **bathymetric** survey **data** sets from government, research and industry available to contribute to the global Seabed2030 initiative.



Through meaningful partnerships, we continue to build a sustainable ocean observing system that will generate knowledge for society. With timely, reliable, and accessible information, ocean interactions can be maintained sustainably and societies will prosper.

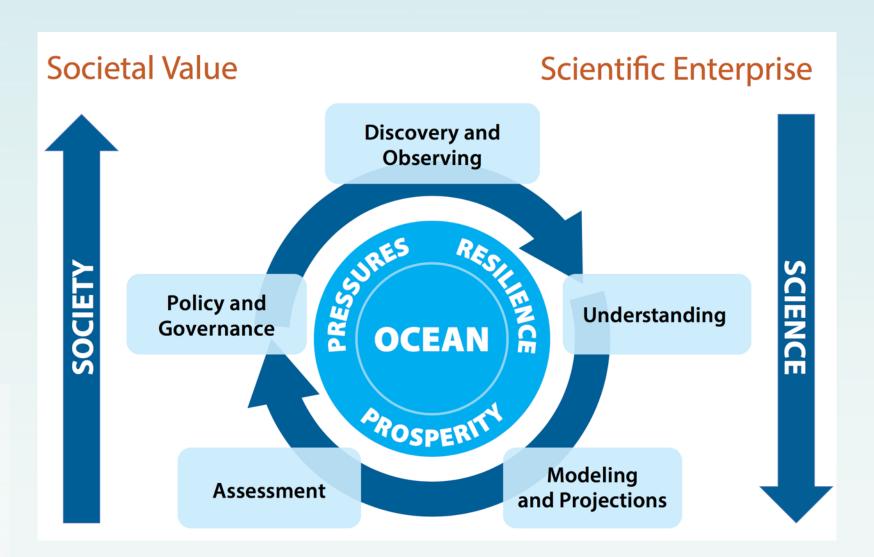
#### Consultation Questions

- How do we ensure sustained funding for ocean observations?
- How can we enable capacity development for biogeochemistry (including for CO<sub>2</sub> and pollution) and biologica observations?
- How do we observe human activities: sustenance, extractive, exploitive and recreational?
- How can we enable capacity development for ocean observations in the Global South?





## The Ocean Value Chain – from Knowledge to Action



#### **EU International Ocean Governance Forum**

### **Current landscape:**

European/Regional Actors:







All Atlantic Ocean Research Alliance Atlantic Ocean Research Alliance Banos/Bonus BlueMed BlackSea Connect



UN DOALOS **IOC-UNESCO** FAO **UNEP Regional Seas** IMO WMO







Copernicus - CMEMS



OSPAR / HELCOM



ICES / PICES / CIESM NAFO / GFCM CCAMLR





GOOS / GEO Blue Planet EOOS **AtlantOS MONGOOS** 

**ARCGOOS** 





# Improving (Regional) Research Alliances

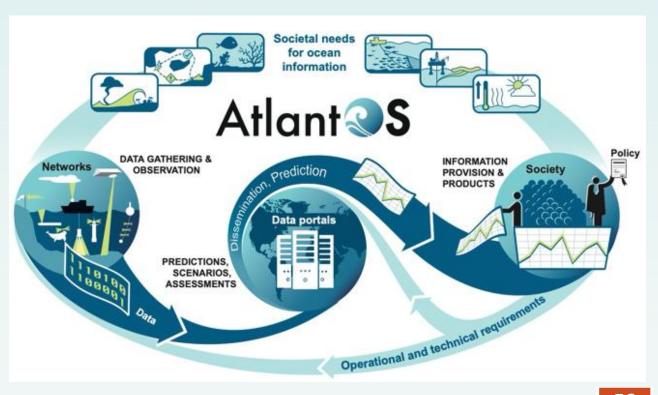
### Challenge is to articulate a convincing value proposition

- Identifying well articulated goals and objectives of a research alliance.
- Avoid duplication and overlap
- Some specifics: cooperation between regional conventions (e.g. HELCOM, OSPAR)

Regional Operational Oceanographic Systems (ROOS) – CMEMS

Data sharing (EMODNET, Blue-CLOUD)

Ocean observations communities (e.g. AtlantOS - EuroSEA, ARCGOOS -INTAROS) to align observations and campaigns



#### **EU International Ocean Governance Forum**

# Ocean5D

Digital - Twin - Ocean



Vision: OCEAN5D delivers a 'digital twin' ocean to explore the ocean; to understand its interactions, dynamics and evolution; and to provide knowledge to empower fact-based decision making. Its information is based on interoperable and trusted data from a wide range of sources.

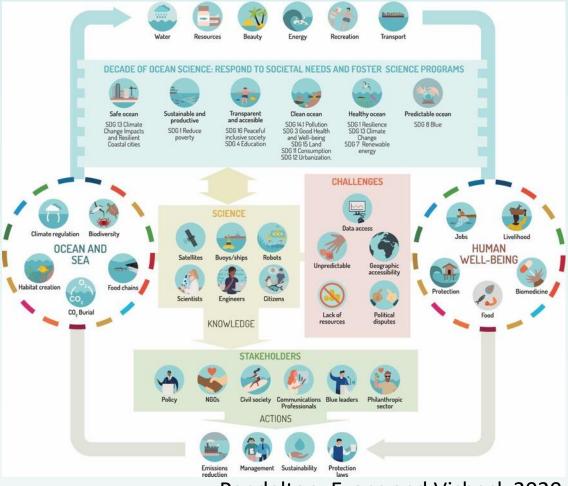


# **Improving Research Alliances**

Opportunities: Digital - UN OceanDecade

2021 United Nations Decade of Ocean Science for Sustainable Development

- Mobilizing existing alliances to increase understanding of the ocean in all its dimensions (OCEAN5D).
- Explore the potential of new alliances e.g. that include the Indian, Pacific, and Southern Oceans.
- Ensuring the Global South can fully participate in research alliances.
- Ensuring research alliances work transdisciplinary and inclusive to all dimension of science (natural, social, humanities) and knowledge (practical).

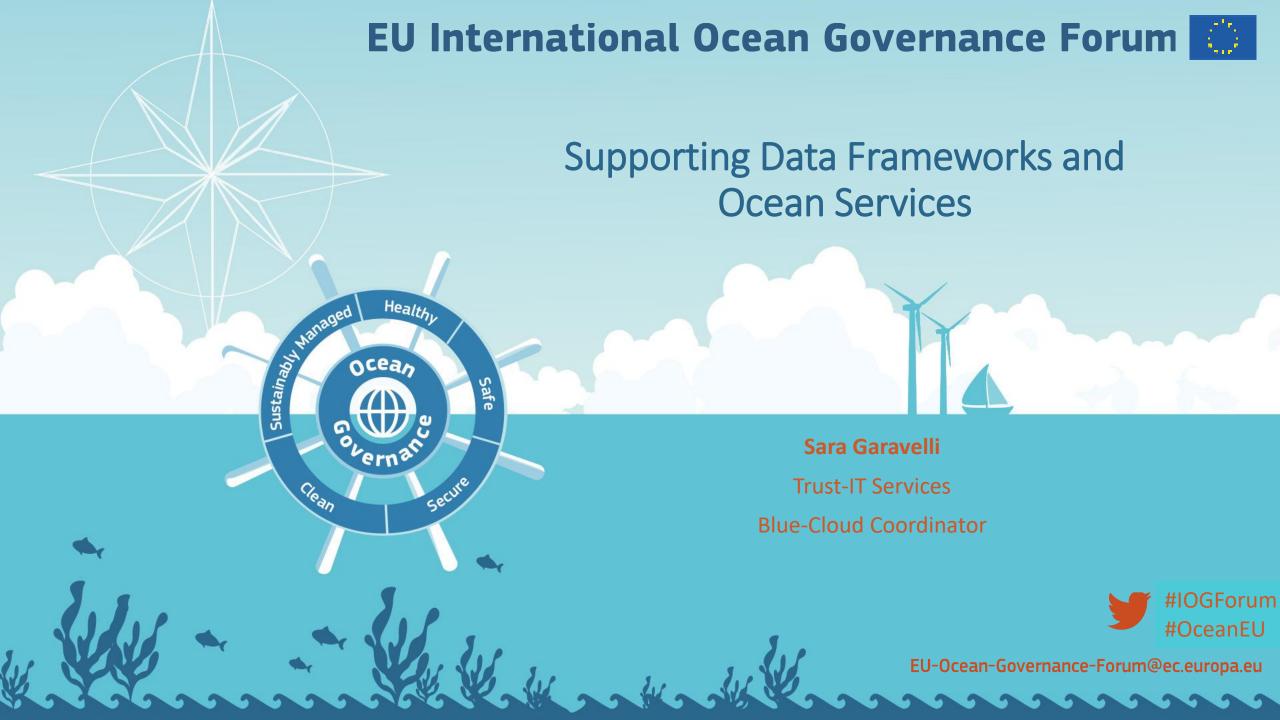


# **Improving Research Alliances**

#### Consultation Questions

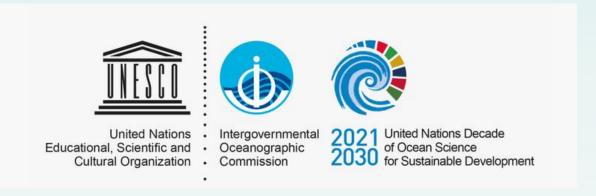
- How can existing research alliances be mobilized to adopt transdisciplinary sustainability science to increase understanding of the four-dimensional ocean?
- How can we create better cooperation between the regional conventions (e.g. HELCOM, OSPAR) and the Regional Operational Oceanographic Systems (ROOS)
- What new research alliances should be created?
- How do we enable the Global South to fully participate in research alliances when there is such a discrepancy in resources?





### A Transparent and Accessible Ocean

whereby all nations, stakeholders and citizens have access to ocean data and information, and have the capacity to make informed decisions



Green Deal

### The current state



\* \* \* \*

 Great progress has been made with establishing dedicated infrastructures for ocean data management

 "a trusted space for researchers to store their data and to access data from researchers from other disciplines... to create a pool of information leading to a web of research insight." Ursula von der Leyen, President of the European Commission





# **Supporting Data Frameworks and Ocean Services**

#### Challenges



Increasing the **awareness** about the existing marine data management infrastructures, their **data** and their **services** 



Making Findable, Accessible, Interoperable, Reusable (FAIR) data principles and other data sharing best practices the "normal" practice



Improving the **quality**, the **documentation** and the **provenance** of information



Implementing an **ensemble model approach** which requires increased data availability to improve predictive capacity



**Open Science Cloud (EOSC)** ecosystem to access "horizontal" e-infrastructures (cloud computing, storage, etc) and multi-disciplinary data/services



**Strengthening global data availability** to assess progress towards SDG indicators e.g. Eurostat

## **Supporting Data Frameworks and Ocean Services**

#### **Opportunities**

- Creating a culture for sharing data on regional and international levels
- Increasing the use of marine data management infrastructures
- Expanding capabilities of existing marine data management infrastructures to handle big data leveraging on the EOSC resources coupled with the new artificial intelligence systems
- Establishing a "Global Blue-Cloud": an interoperable framework to fully federate global ocean data from heterogeneous sources building on existing data infrastructures
- Enabling a 'Digital Ocean Twin' where all historical and current data can be uploaded and accessed in real-time and used in decision making

### **Supporting Data Frameworks and Ocean Services**

#### Consultation Questions

- How can we establish interoperability between standards and services from Europe and other regions for global discovery, access and usability of all available multi-disciplinary data?
- How can we motivate and leverage data originators and their funding agencies to make use of existing marine data management infrastructures for sharing and long-term stewardship of their data sets and making these part of the 'digital ocean' offerings?
- How can we motivate international marine data management infrastructures and their regional funding agencies to join the 'digital ocean' initiative?
- How can we address the human-dimension of data sharing, determine the enabling factors needed to transform data sharing and the adoption of best practices, and removal policies and market failures that prevent these.
- How can we interact with user communities and best co-design data products that will meet end-user needs to improve ocean governance?
- How can we collaborate with e-infrastructures and engage with EOSC to get access to the computing and storage infrastructures necessary to host big data and perform increasingly complex analyses using artificial intelligence?
- How can we address artificial intelligence related issues for data privacy, policy and management?
- How can we collaborate with the private sector to develop and exploit data infrastructures based on FAIR principles?
- How can we promote well-designed data management plans?
- How can we increase efforts to make marine survey data sets from government, research and industry available to the maximum extent?



Sharing your evaluation of the webinar

Online – as you leave the webinar room<sup>©</sup>

Dissemination of the webinar video recording

 Help us disseminate widely within your own communities (including via social media)

# **Next steps**

# A series of topic-dedicated online workshops

- Building on the outcome of today's webinar and your evaluations
- Mobilizing experts in proposed topics
- Discuss solutions to strengthen International Ocean Governance, and preconditions for successful implementation
- May July 2020

### An online stakeholder consultation launched by the EU

- Combining the discussion paper and output from the topicdedicated webinars
- Presenting the range of solutions that can strengthen International Ocean Governance, and their preconditions for successful implementation
- Organized over the summer 2020

IOG Forum conference as intermediary milestone

- Sharing and consolidating results of first consultation steps (webinars, workshops, online consultation)
- Physical meeting
- Brussels, 9-11 December, 2020

#### The final IOG Forum conference

- Present the EU road map to support International Ocean Governance
- Physical meeting, Brussels
- Spring 2021

# Conclusions and words of thanks

Sigi Gruber (EC, DG Research and Innovation)



Stefanie Schmidt (EC, DG Maritime Affairs and Fisheries)





EU-Ocean-Governance-Forum@ec.europa.eu