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# European Research Infrastructures in the framework of EOOS

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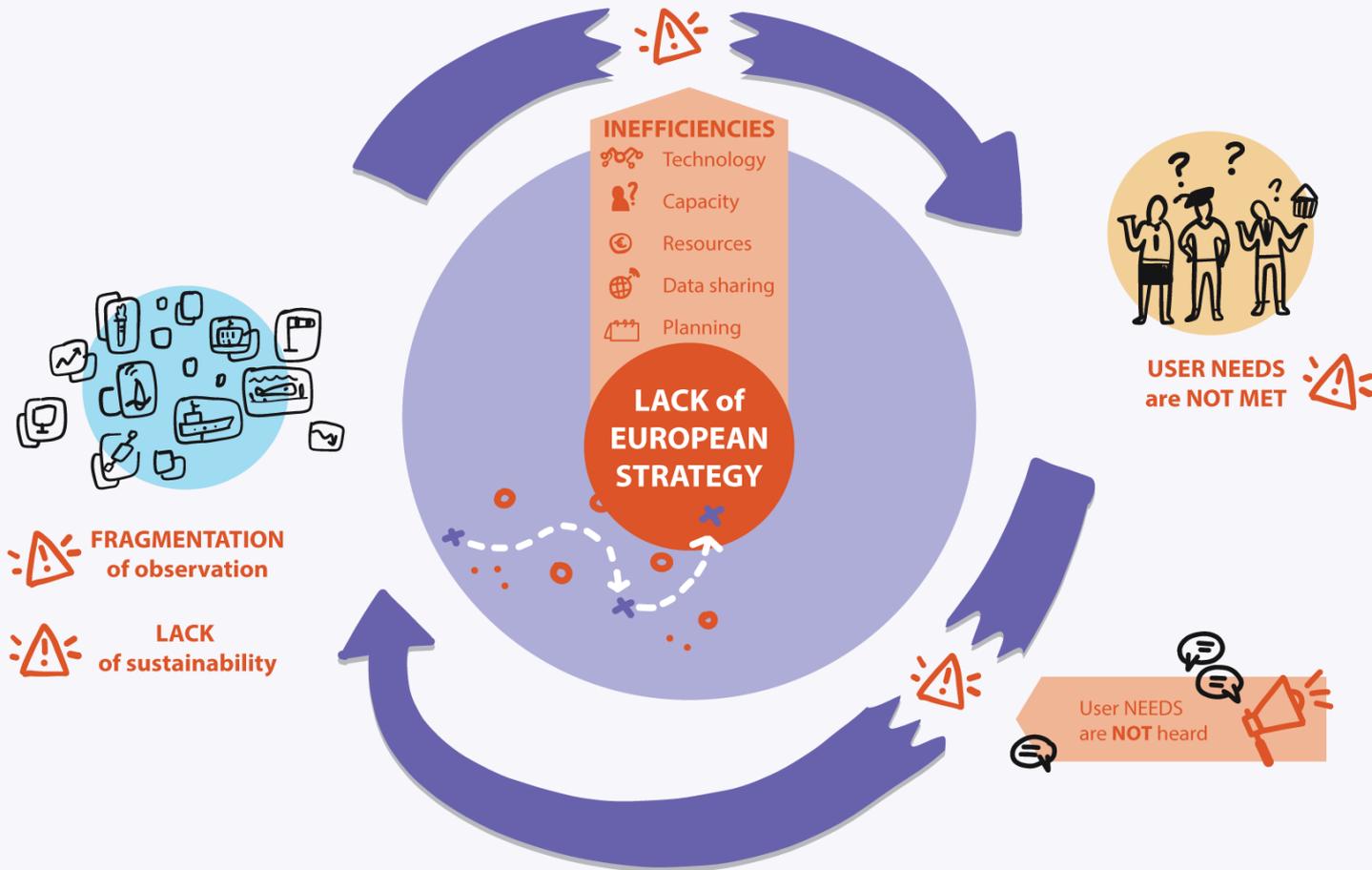
# What is EOOS?

**EOOS is a coordinating framework designed to align and integrate Europe's ocean observing capacity, promote a systematic and collaborative approach to collecting information on the state and variability of our seas, and underpin sustainable management of the marine environment and its resources.**



# Why EOOS?

## THE UNTAPPED EUROPEAN POTENTIAL IN OCEAN OBSERVING



Funding sustainability of Observing Networks	Ocean	Meteo.	Atm. Composition
Solved today, no problems foreseen in the future	<b>28%</b>	<b>68%</b>	<b>30%</b>
Solved today, but problems foreseen in 2-3 years	52%	27%	40%
No funding today, but plans for funding in the near future is under	7%	3%	
No funding today and no plans for funding in the near future way	9%	2%	30%
Other	4%		

Long term commitments: more than 70% based on research funding

# EOOS progress



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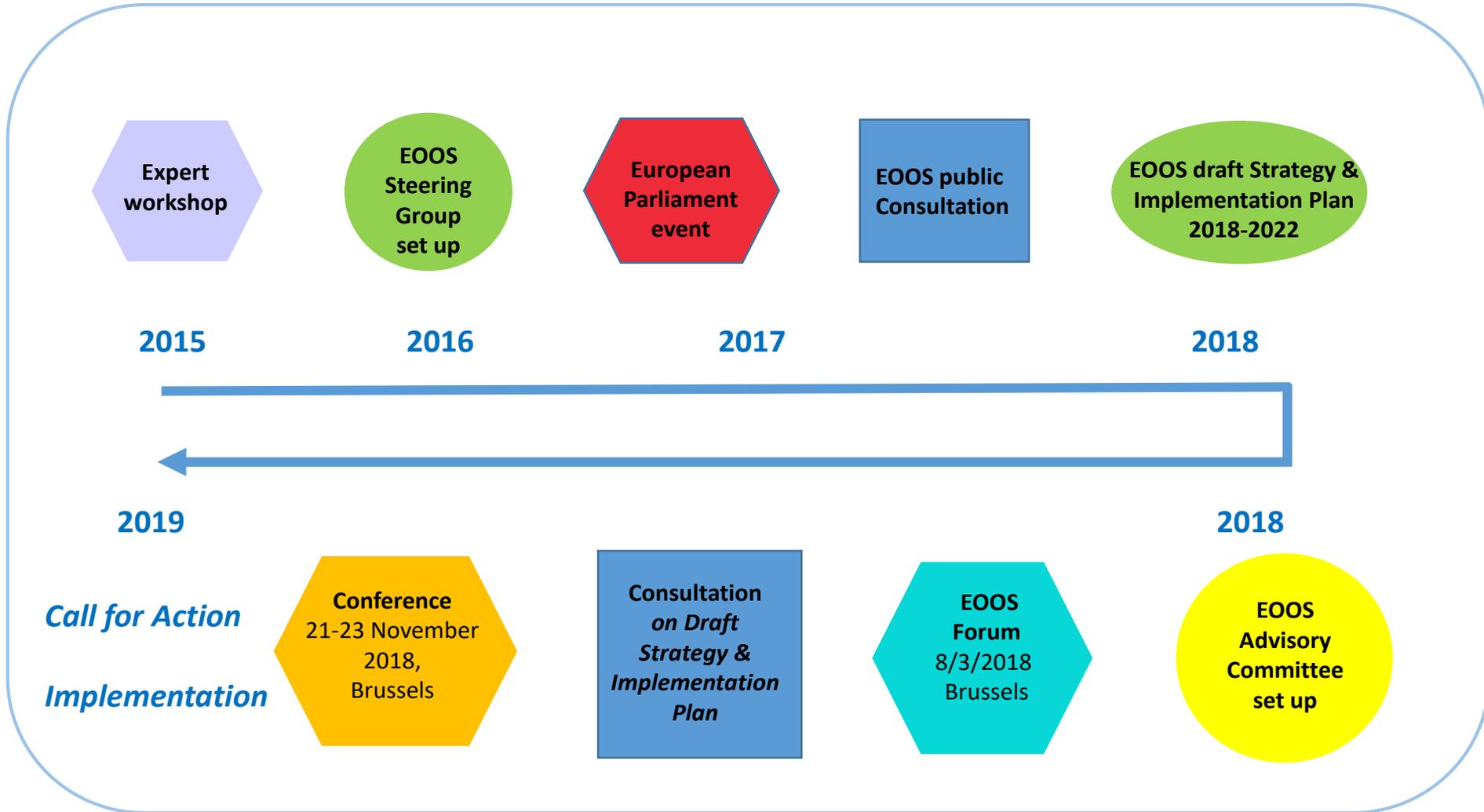
- **2007:** EuroGOOS and EMB work together on EOOS concept supported by the community push an end-to-end sustained European ocean observing system as part of the **Integrated Maritime Policy**;
- **2008:** EuroGOOS and EMB released a joint **vision document** on EMODnet, outlining a vision for EOOS;
- **2009:** **Framework for Ocean Observing** was internationally adopted at the OceanObs conference;
- **2010:** Ostend Declaration adopted by the EuroOCEAN 2010 conference put **EOOS as one of three top priorities 2020**;
- **2010:** **EC expert group on marine research infrastructures** convened as action under the EU Strategy for Marine and Maritime Research;
- **2012:** **Industry-led vision** for an Open Integrated Sea Information System released;
- **2013:** **Towards European Integrated Ocean Observation report** released by EC expert group on marine research infrastructures;
- **2013:** **Navigating the Future IV**, EMB position paper, dedicated chapter 11 to EOOS;
- **2014:** EuroGOOS and EMB make a **call at EuroOCEAN 2014** and start actions to make EOOS reality;
- **2015:** Joint EuroGOOS-EMB **brainstorming expert workshop on EOOS**;
- **2016:** EOOS draft **concept** document released based on the workshop outcomes, **branding** launched, EOOS **steering group** started working to develop a roadmap for a wide consultation



# EOOS time-line



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# EOOS Strategy & Implementation Plan



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## EOOS Strategy 2018-2022

OCTOBER 2018



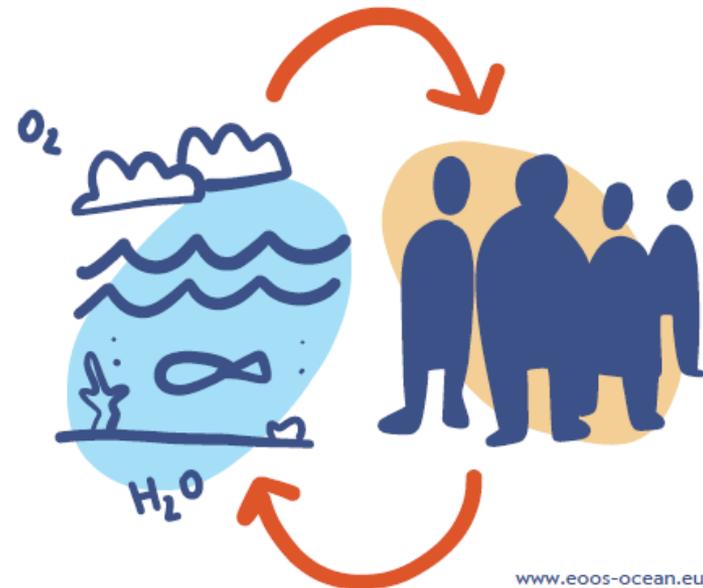
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## Implementation Plan 2018-2022

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# EOOS Strategy

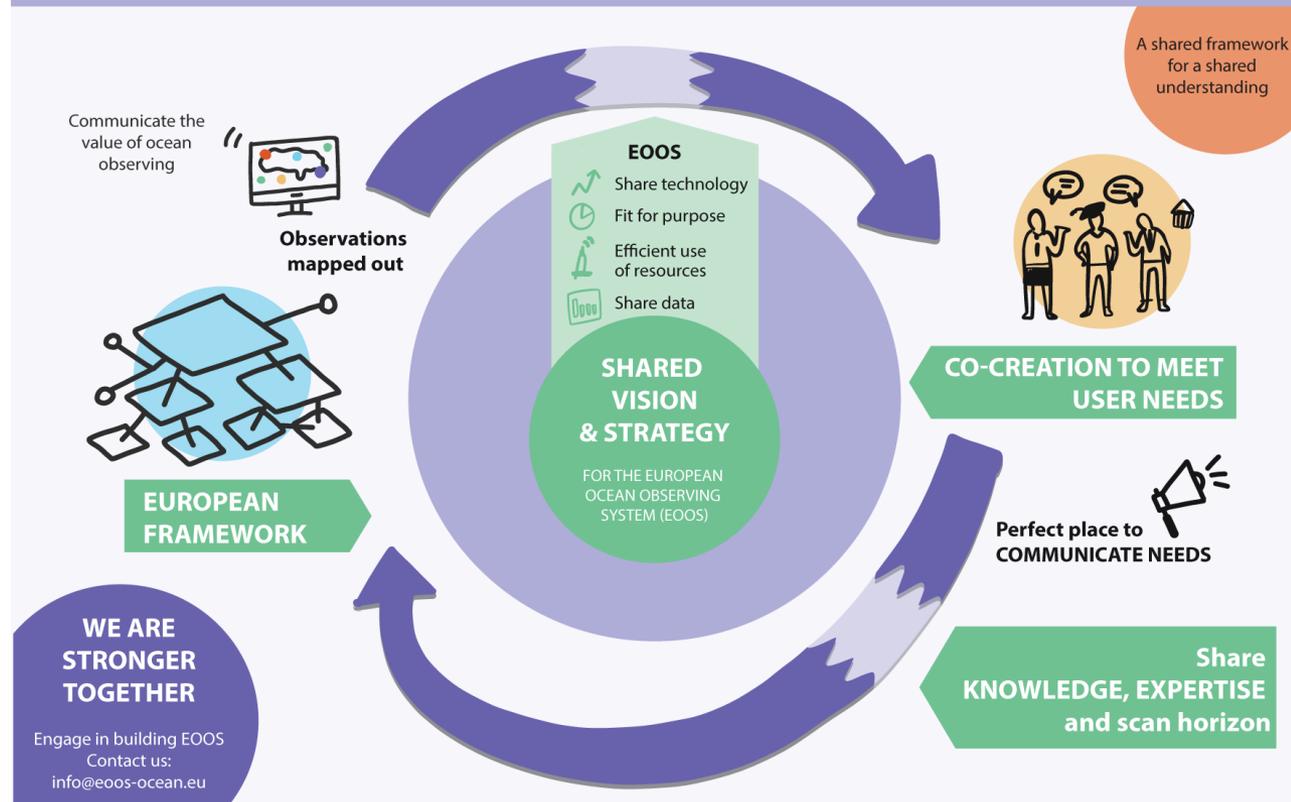


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A community-driven initiative - Steering Group: co-Chaired by EuroGOOS and EMB

**Vision:** Connect Europe's diverse ocean observing stakeholders and make ocean observation a public utility in Europe, by strengthening coordination, strategy and sustainability in ocean observation.

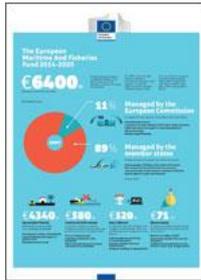
## HOW CAN WE ACHIEVE SUSTAINABLE OCEAN OBSERVING IN EUROPE?



# Drivers



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## Env. Status Assessments



## Blue Growth



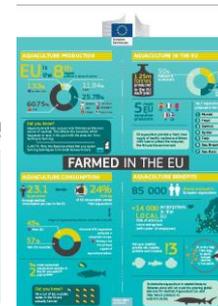
## EU & Global Policies



## Ocean Observations



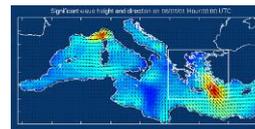
## Fisheries & Aquaculture



## Pollution



## Services



## Climate Change



# EOOS Guiding Principles & Focal Areas



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## EOOS Guiding Principles

- Efficient and fit-for-purpose;
- Connecting communities;
- Innovative and adaptable; Stakeholder-driven;
- Sustainable

## Main focal areas

- Better Coordinated and Sustained In Situ Ocean Observing.
- Close association with the ocean modelling and satellite observation communities to ensure full integration and responding to user needs.
- EOVs.
- Define priorities for Non-EOVs (other relevant variables).
- Integrated Ecosystem Approach: from platform-specific observing to multi-platform, integrated and thematic observing.

# EOOS Strategy & Implementation Plan



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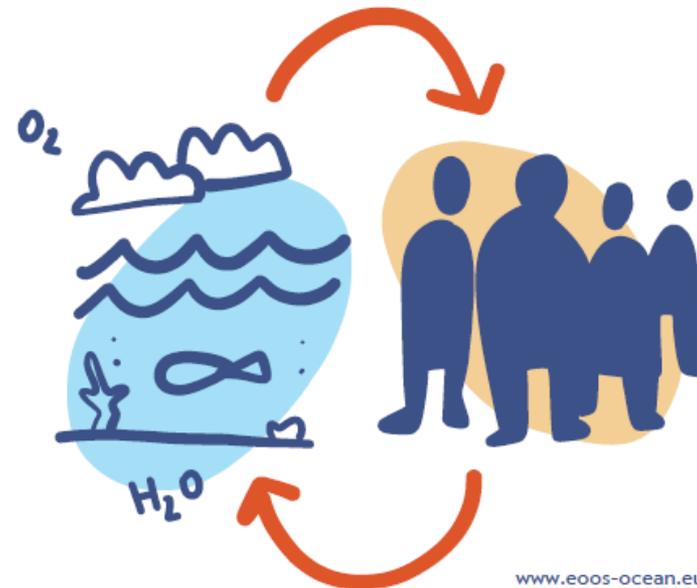
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# EOOS

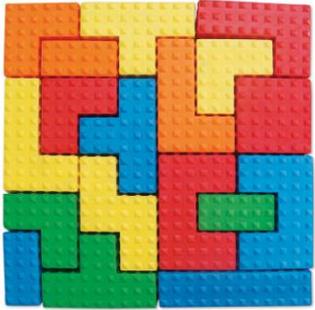
## Implementation Plan



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### Building Blocks of EOOS:

What do we have today in Europe ?

#### **National systems (partially coordinated by EuroGOOS)**

- Variety of technologies and funding schemes; main synergies at regional level
- Problematic situation in many countries
- Big variability in terms of effort

#### **Research infrastructure investments (FP, ESFRI, ERIC)**

- Significant investment
- Alignment
- Harmonization
- Common vision
- Governance
- Etc.

European environmental research infrastructures providing data and services to address global challenges

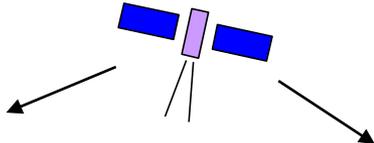
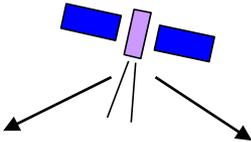


Studying the environment today to tackle the challenges of tomorrow  
The Earth is our lab



Figure: Credit ENVRI

# The Marine Related RI's



## EOOS

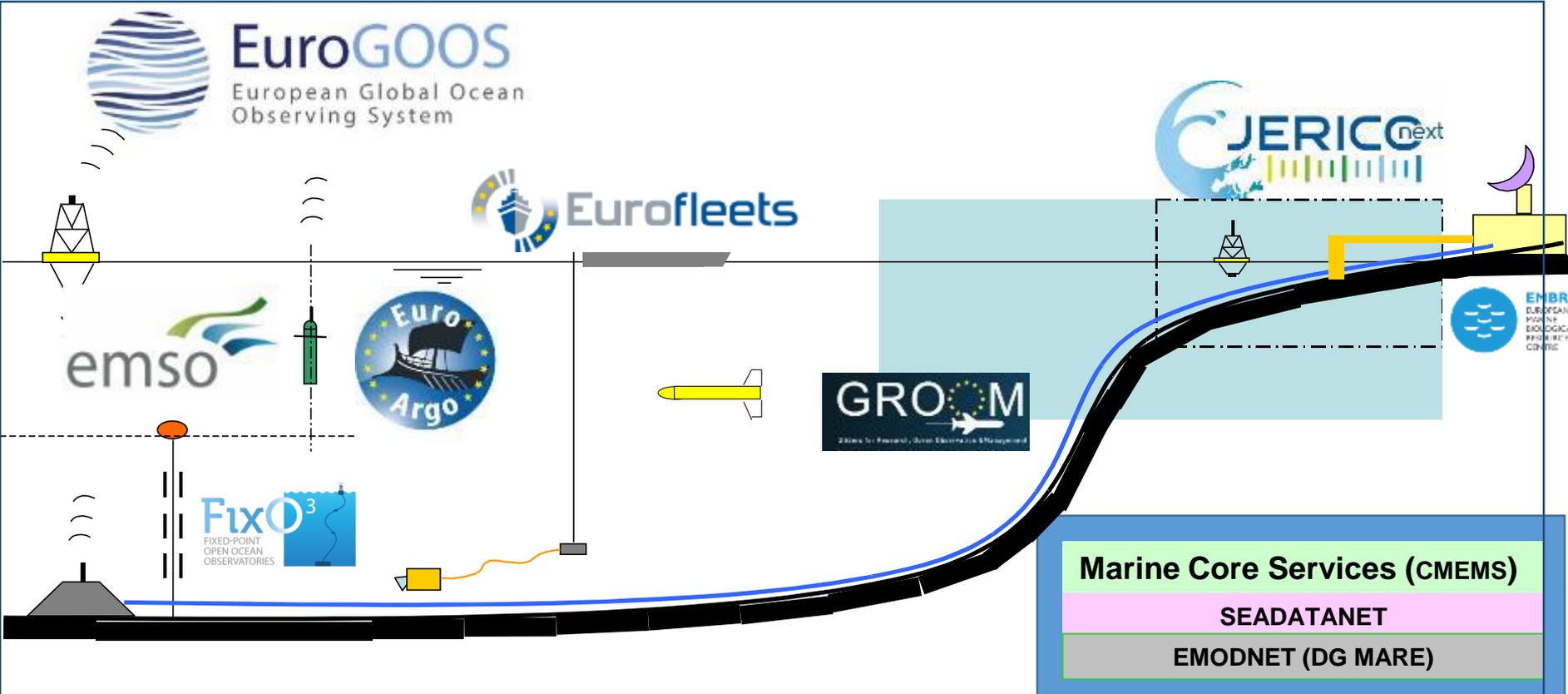


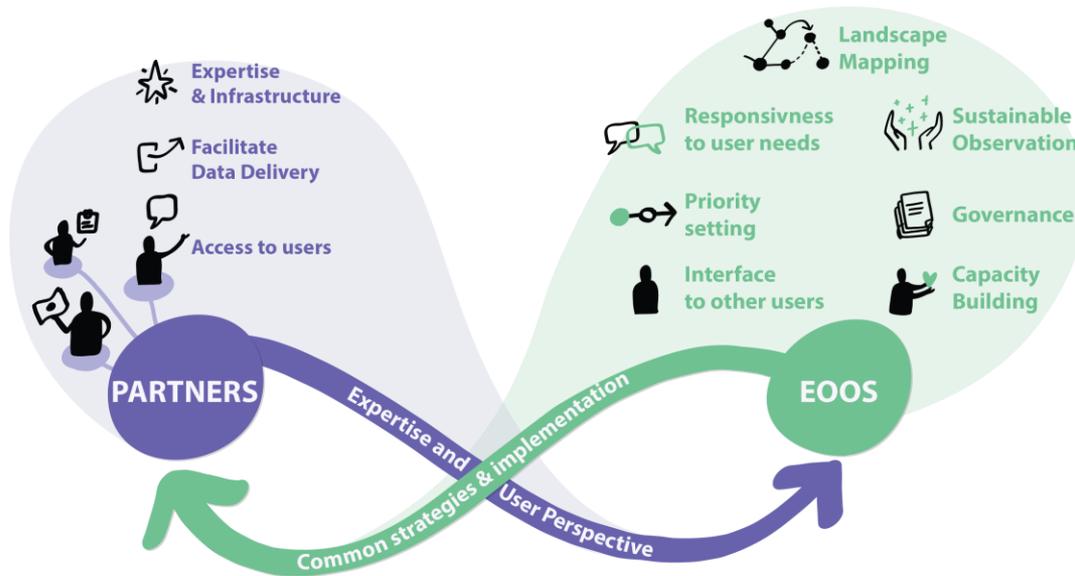
Figure: Credit JERICO

# EOOS Implementation Plan



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## How can be involved?



## Annex 2: EOOS Pilot Project proposal template

Table 1: EOOS pilot projects as proposed in the implementation plan version 09\_10\_2018

Through the two EOOS consultations to date (2017 and 2018) and the EOOS Forum 2018, the steering group has been receiving suggestions or indications of potential EOOS projects to be implemented by stakeholders. It is proposed to open an ongoing call for project submissions to the steering group, which will be approved in a timely manner and moved into the EOOS implementation plan, using the below template.

ACTIVITY	PILOT TITLE	INDICATIVE TIMELINE AND TASK LEADER(S)
	Pilot project 1.1.1 EOOS mapping and capabilities	May 2018-January 2019, EuroGOOS and EuroOcean
<b>Table 2: EOOS project proposal template</b>		
Project proposer's name and job title	Pilot project 1.2.1 Requirements gathering for EOOS	May 2018-July 2019, EuroGOOS
EOOS mapping and stakeholder engagement	Pilot project 1.5.1 EOOS conference 2018	Sept.2017-Nov.2018, EMODnet, EMB and EuroGOOS
Proposing organization and country	Pilot project 1.5.2	
Short project description	Stakeholder co-design of strategy and implementation plan 2018-2022	Nov.2017-Nov.2018, EMB and EuroGOOS
Alignment with EOOS guiding principles	Pilot project 2.1.1 Brief on biological observations	2017-Sept.2018, EMB
Policy context and foresight	Pilot project 2.2.1 EOOS policy landscape	March-Sept. 2018, EMB
Projected sustainability impact	Activity 3. Indication of the agency of the project to be implemented	2018-July 2019, EuroGOOS
Activity 3. Indication of the agency of the project to be implemented	Activity 4. EOOS required or secured funding	Pilot project 4.1.1 EOOS cost-benefit analysis
Activity 4. EOOS required or secured funding	Partners identified	Pilot project 5.1.1 EOOS communication strategy
Partners identified	Activity 5. Project milestones and outputs	Pilot project 5.2.1 Maintain and evolve EOOS web presence
Activity 5. Project milestones and outputs	Dates of the approval by the EOOS steering group	Pilot project 6.2.1 Evolution of EOOS governance
Dates of the approval by the EOOS steering group	Comments	March-Sept. 2018, EuroGOOS and EMB EOOS steering group co-chairs

# Connecting communities



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EOOS Forum, March 2018



EOOS Conference, November 2018

Next EOOS  
Forum – Oct.  
2020

EOOS events Advisory Committee of ocean  
observation and monitoring stakeholders

Stakeholder consultation, Strategy and Implementation  
Plan and Call to Action co-design

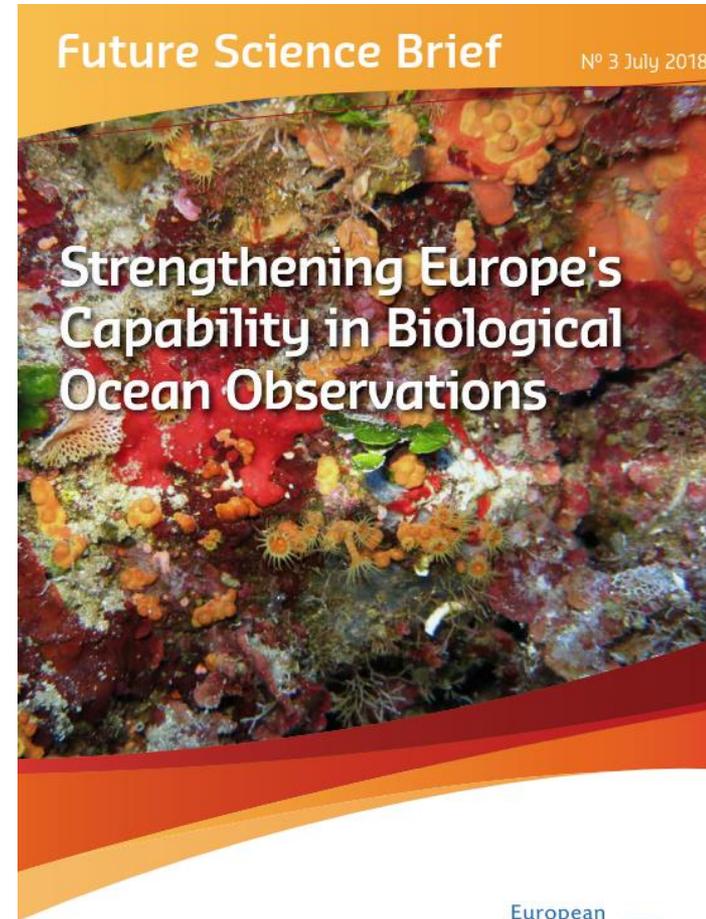
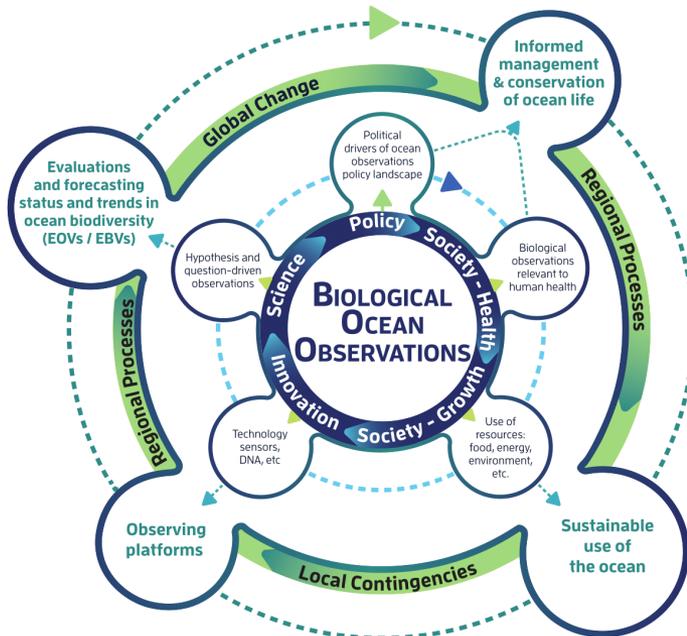


# E00S pilot projects



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**EMB Biological Observations Future Science Brief:**  
Europe needs a multi-purpose integrated biological ocean observing system to underpin sustainable management of human activity (CFP, WFD); Implement policy: CBD and MSFD; develop an integrated system that meet user needs (MSP); and assess progress against conservation targets (CBD Aichi Targets), the Sustainable Development Goals (SDGs), and the Blue Growth agenda



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# EOOS pilot projects



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## AtlantOS deliverable 10.1: European policy context and timeline for ocean observations

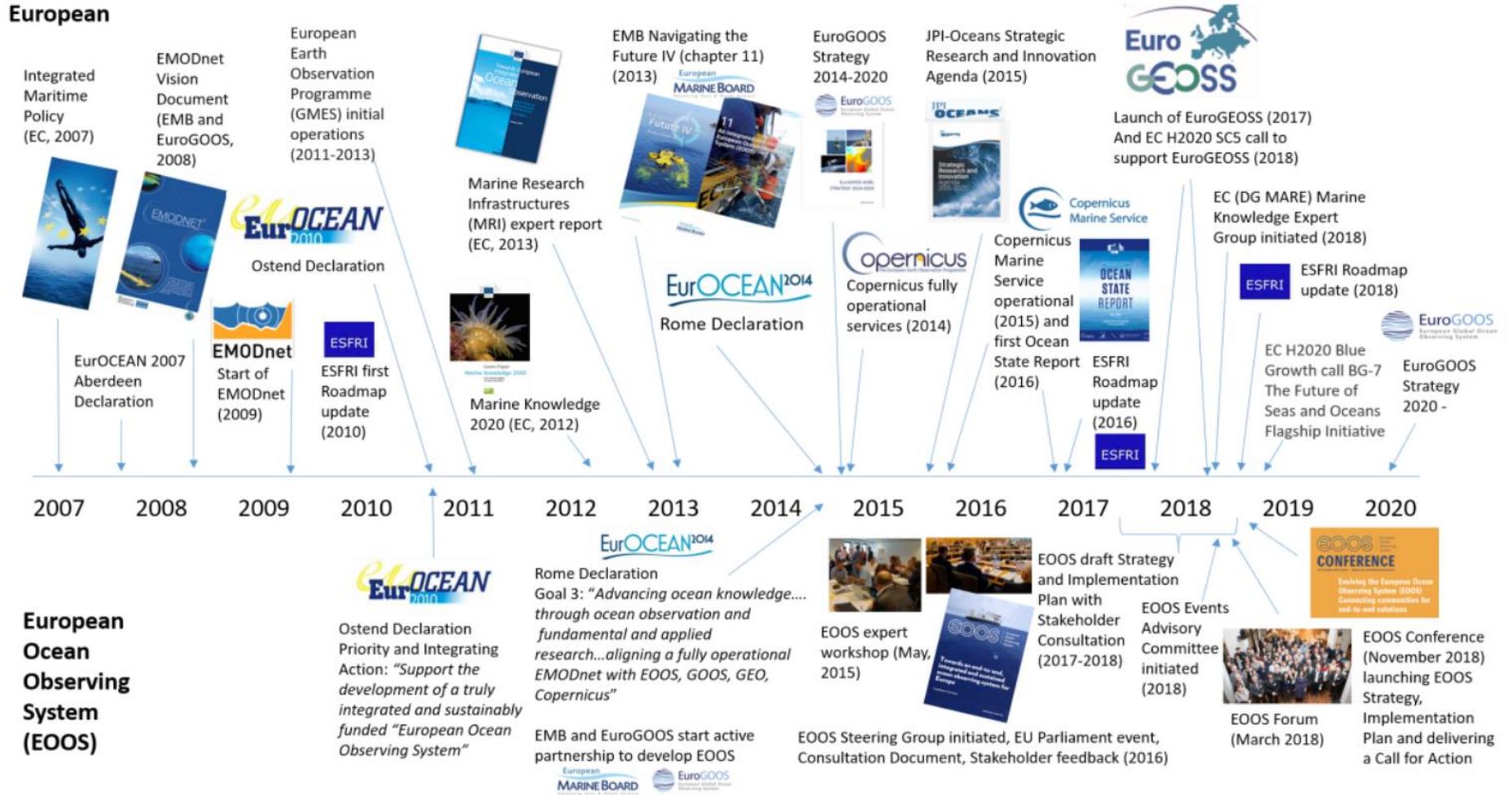
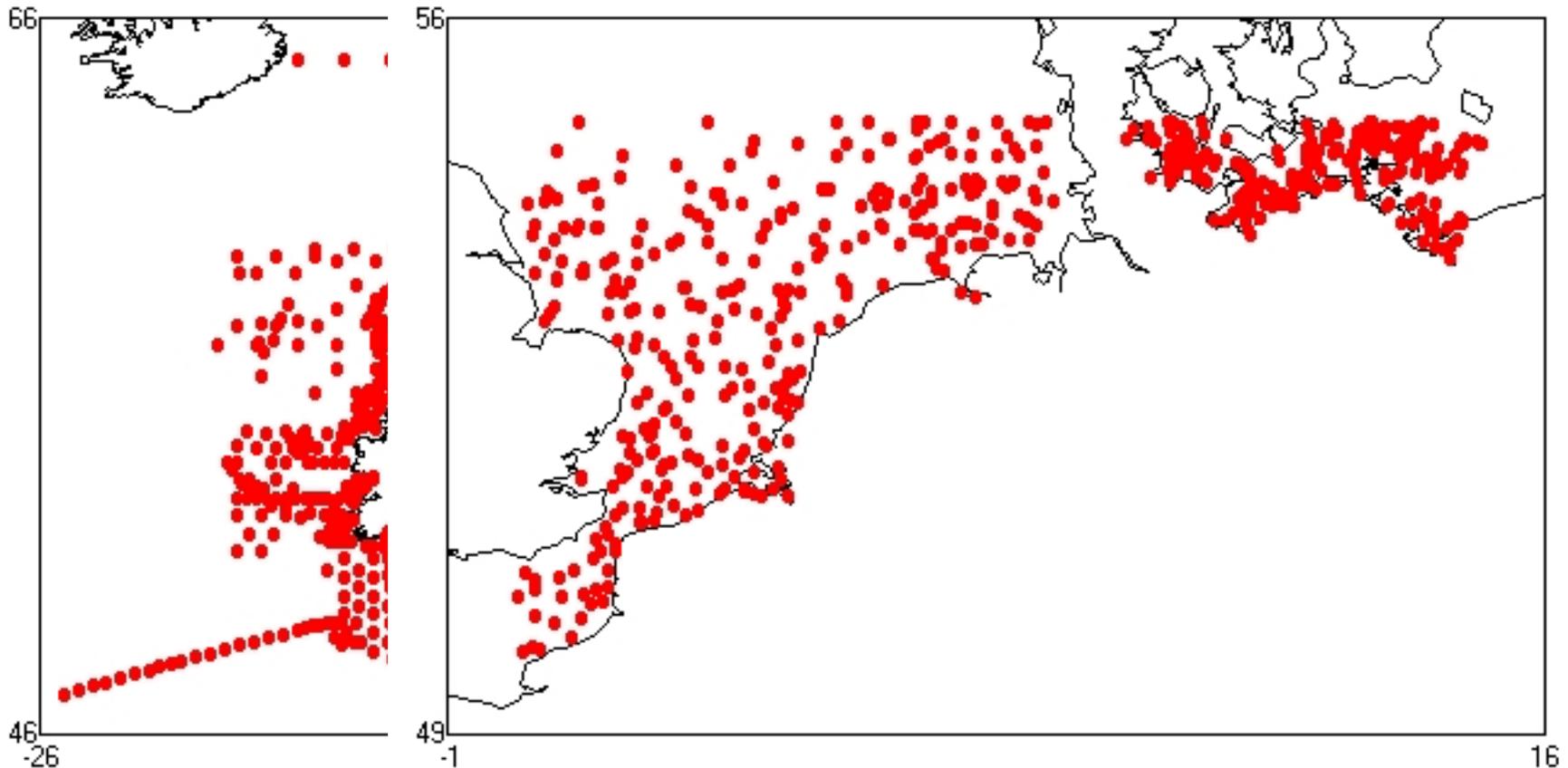


Figure Credit: EMB

## Real time CTD

ICES CTD surveys (2017) n=4807; ICES Oxygen stations (2017 n=1965)



# Irish Lights MetOcean Sites



- **Over 390 general aids to navigation**
- **4,700 local aids to navigation**
- **Tens of thousands of AtoNs globally**

# EUROPEAN GLOBAL OCEAN OBSERVING SYSTEM

EUROGOOS

GOOS

EuroGOOS supports EOOS with:

Secretariat

Interface with the Observing System

# EOOS

Partners

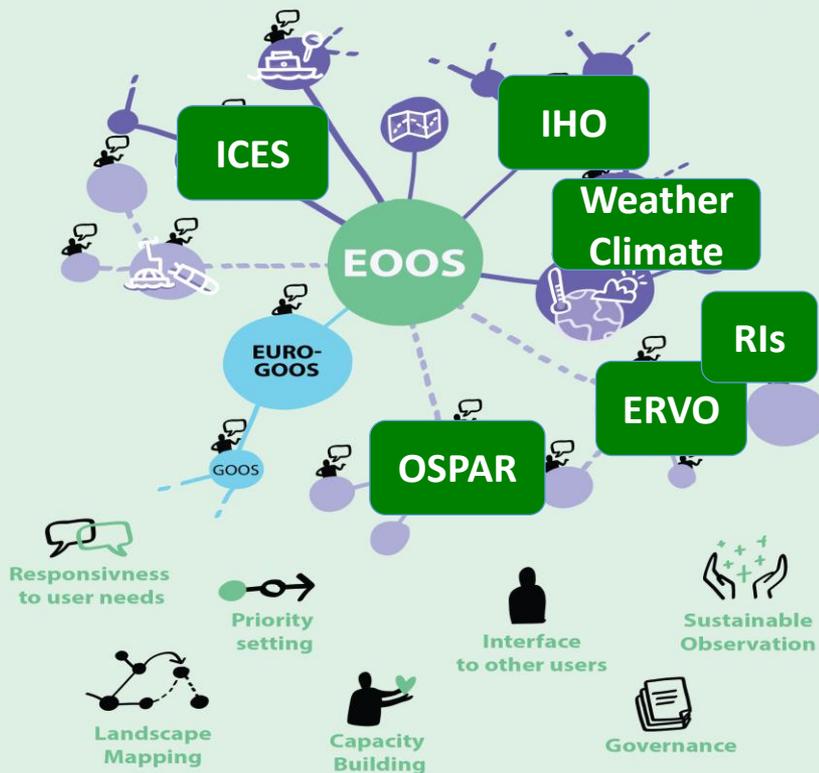
Ocean health

Operational services

Climate

Partners

## EUROPEAN OCEAN OBSERVING SYSTEM



# GOOS Focal Points Europe



Reinvigorated GOOS Focal Points



National Systems

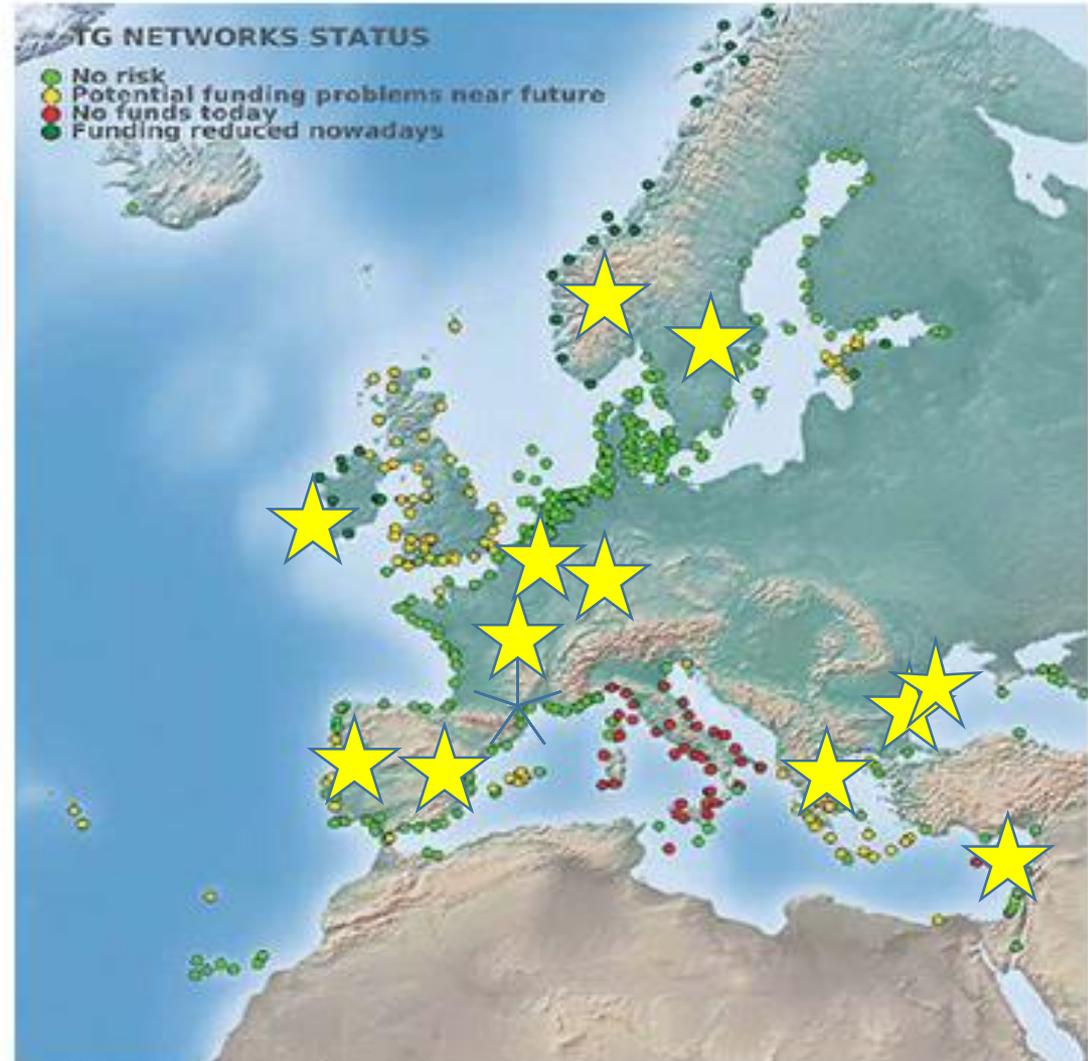
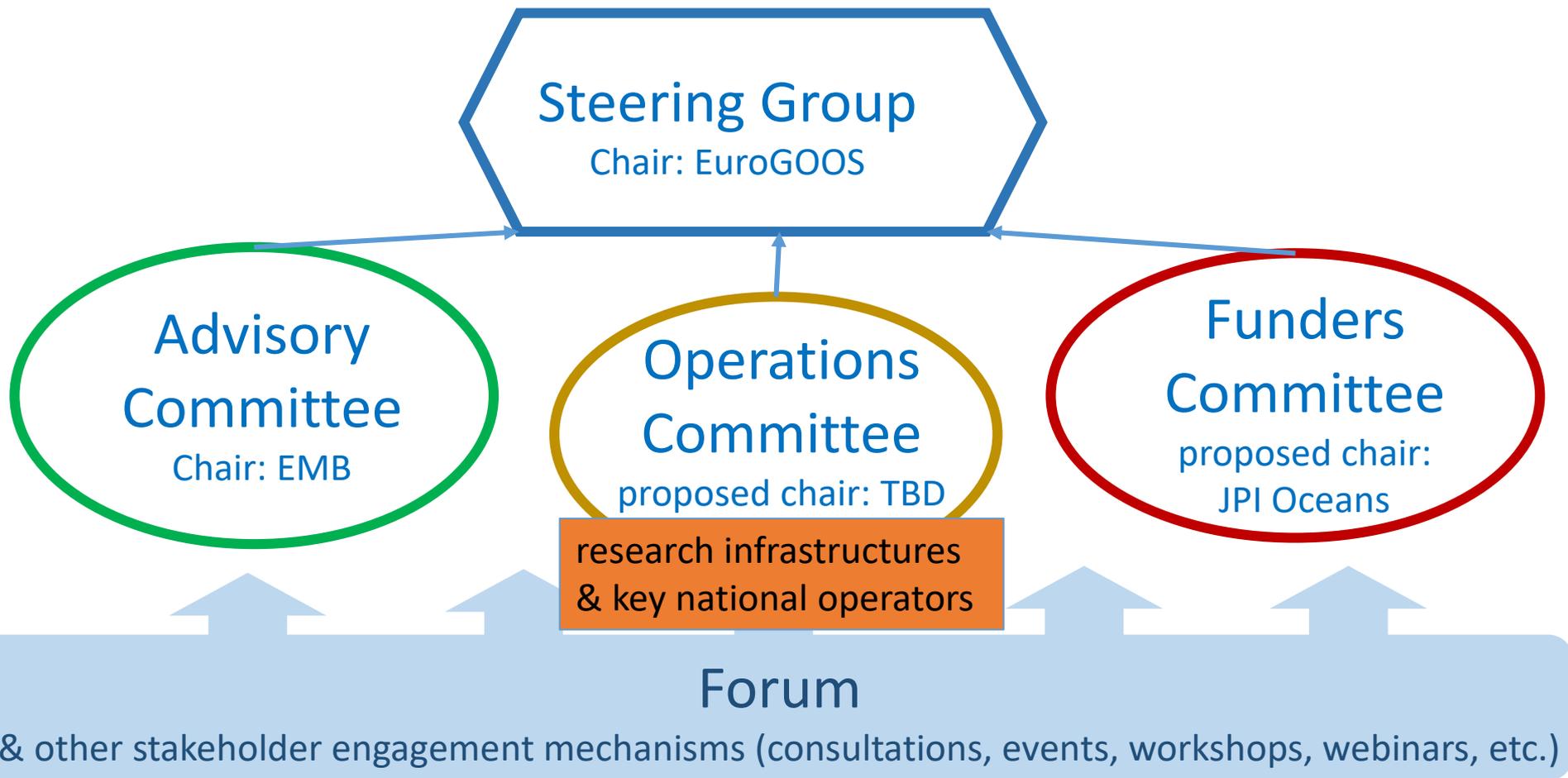


Figure 1: Funding status of tide gauge stations in the regions of European interest according to the responses from national centers collected by the EuroGOOS Tide Gauge Task Team in 2016

## New Governance Structure in place as of 1 May 2019



# EOOS Implementation cycle



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## 3. EOOS Operations Committee

The EOOS Operations Committee will help with the long-term sustainability of ocean observing efforts in Europe and will progressively implement EOOS. This committee should include national operators of ocean observing systems and infrastructure.

The members of this Operations Committee will include:

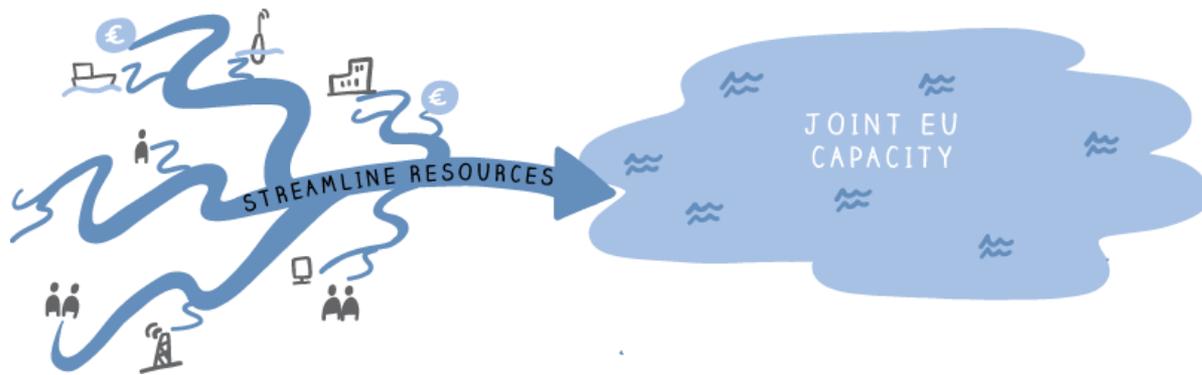
- EuroGOOS ROOS Chairs (5)
- RIs : EMBRC, EuroFLEETS/ERVO, EuroARGO, ICOS, EMSO, Danubius, Jerico
- EuroGOOS Task Teams
- Other “implementers” to be identified. – national operators, implementers?

## The Operations Committee Objectives will be to:

- Provide information about relevant strategic opportunities for EOOS;
- Specify system requirements to meet user needs sustainably;
- Enable the EOOS implementation plan where relevant and practicable;
- Advise the EOOS Steering Group about changes in the ocean observing landscape at European and international level;
- Contribute to mapping of infrastructure, technology and human capacity;
- Identify shared priorities and advise on EOOS added value.

# E000S

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