



# EuroGOOS

European Global Ocean  
Observing System

## **Scientists for Ocean Literacy – EuroGOOS Ocean Decade project**

**Dina Eparkhina and Andrew King**

**FerryBox Workshop, 29 September 2022**

**Are citizens aware of the state of the ocean and of its importance - environmental, economic, political, medical, cultural?**

**Is there enough data and information about the ocean?**

**Does scientific information have a power to change public policies for a sustainable development?**

**Are ocean research and observations sufficiently sustained financially?**

# Ocean Decade is a decade of change

**Empower scientists**

**Connect & engage with society**

**Promote stakeholder engagement in sustainable development**

**Co-create solutions through partnerships**



*Above: Walking (The) Trajectories: Venice as a model for the future?, CNR-ISMAR & Ocean Space, Venezia, 2020. Credit: Alice Ongaro Sartori.*



**Scientists for Ocean Literacy**

**#Scientists4OceanLiteracy**

# Why Ocean Literacy?

- Helps understand the **interconnectedness** of science with society - our culture, economy, and everyday life.
- Promotes the **importance of ocean science** and the value of **oceanographic services**.
- Is a **prerequisite** for a sustainable blue economy and robust, effective, and trusted policies.
- Is becoming **integrated** in science institutions as a new strategic activity area.



# EuroGOOS ocean literacy network & working group

- AZTI Tecnalia
- Balearic Islands Coastal Observing and Forecasting System
- Centro Euro-Mediterraneo sui Cambiamenti Climatici
- Euro Argo
- EuroGOOS Office
- Hellenic Centre for Marine Research
- Institute for Environmental Protection and Research
- Instituto Español de Oceanografía
- Irish Marine Institute
- Irish Ocean Literacy Network
- Istituto Nazionale di Geofisica e Vulcanologia
- Istituto Nazionale di Oceanografia e di Geofisica Sperimentale
- Joint Technical Commission for Oceanography and Marine Meteorology
- Mercator Ocean International
- National Oceanography Centre
- National Research Council of Italy
- Norwegian Institute for Water Research
- Royal Belgian Institute of Natural Science, Directorate Natural Environment
- The Institute of Oceanology of the Polish Academy of Sciences
- UK Met Office

+Ifremer, SIME, Sailing Hirrondelle



<https://eurogoos.eu/ocean-literacy/>

# Ocean Literacy

in European Oceanographic Agencies

EuroGOOS recommendations for the UN Decade of Ocean Science for Sustainable Development 2021-2030

EuroGOOS Policy Brief



www.eurogoos.eu

**KEY MESSAGES and RECOMMENDATIONS**

**Addressing the 'COVID-19 GAP' in activities**

**International OCEAN LITERACY Framework**

**Key results of the EuroGOOS Ocean Literacy survey**

**OTLIGHT**

**Addressing the 'COVID-19 GAP' in activities**

Responding to the challenges of the pandemic, the EuroGOOS Ocean Literacy network strengthened its online activities. We ran a 'home-schooling' social media campaign to bring attention to the digital Ocean Literacy resources from the Network. These included videos, games, book colouring pages, or infographics that children over 80 items of digital content for the First Virtual Ocean Literacy Summit led by IOC-UNESCO and co-organized with EuroGOOS, OceanWise, and Experimental Meteorology on World Ocean Day 2020 on 8 June. The Network also organized a workshop on accessibility in Ocean Literacy at the international ocean science communication conference CommuCEAN, which took place as a virtual event in December 2020. In February 2021, the Network contributed to the IOC OceanTeacher Global Academy's on-line training on Ocean Literacy.

**International OCEAN LITERACY Framework**

The International Ocean Literacy Framework includes seven principles representing key concepts about the ocean and its importance:

1. The Earth has one big ocean with many features.
2. The ocean and life in the ocean shape the features of Earth.
3. The ocean is a major influence on weather and climate.
4. The ocean is a major source of food for all.
5. The ocean is a major source of energy for all.
6. The ocean is a major source of medicines for all.
7. The ocean is a major source of inspiration for all.

**Key messages and recommendations towards improving Ocean Literacy activities in European oceanographic and meteorological agencies and demonstrated how Europe is advancing in making Ocean Literacy part of its mandate of oceanographic agencies and meteorological offices. What began as an assumption of the importance and scale of Ocean Literacy activities in the EuroGOOS community, turned out to be a growing priority among its members and partners.**

The extent of the activities dedicated to increasing public engagement and awareness carried out by these organizations, whose core mandate is mainly linked to scientific and technological aspects of ocean data and services, calls for a stronger voice for Ocean Literacy as a recognized and active force in today's science. Ocean Literacy holds many opportunities and this field helps to strengthen and connecting the variety of competences for work of the ocean science institutions in the UN Decade of Ocean Science for Sustainable Development 2021-2030.

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**Key results of the EuroGOOS Ocean Literacy survey**

Key results are presented through graphs and key messages and recommendations.

The 11 organizations with participated represent national oceanographic institutes or meteorological offices, as well as their non-European organizations, and are global partners of the EuroGOOS Ocean Literacy network. The survey highlighted 100 activities in public engagement and Ocean Literacy during the year of assessment.

The scope of the survey included the activities related to the public outreach of signs, posters, brochures, etc. The survey did not consider activities related to the development of curricula or the design of workshops for schools or sign-ups for the year of assessment.

**ACTIVITY TYPES**

**EVENTS PER YEAR**

**HR EFFORT**

**OCEAN LITERACY RESOURCE TYPE**

**OTLIGHT**

Environmental projects combining efforts from different disciplines, networks and organizations, cultural institutions, and the provision of books, films, artworks, and games. Topics ranged from biodiversity, to pollution, environmental management, to economy, climate, technology and preservation of gender balance and diversity.

[www.eurogoos.eu/oceanliteracy](http://www.eurogoos.eu/oceanliteracy)



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



**EuroGOOS**  
European Global Ocean  
Observing System



# Scientists for Ocean Literacy project

**On-line resource library**

**Innovative data visualization**

**Events - from local to global**

**Impact on global ocean observing**

**Trainings on how to engage**

**Translate successful materials**

**Inclusiveness, diversity, equity**

**Blue careers and STEAM**

# Touchscreen consoles for ocean literacy

- Touchscreen consoles were developed as part of the H2020 ResponSEABle project with co-funding from H2020 INTAROS and H2020 JERICO-NEXT/S3 projects
- Ocean literacy key stories on eutrophication, invasive species, sustainable fisheries, pollution, etc.
- Data layers on maps for sea surface temperature, currents, chlorophyll a, etc.
- Quasi-real-time data from different FerryBox ships of opportunity observations of salinity, temperature, chlorophyll a, oxygen, etc.
- ~3000-6000 views/month, six languages

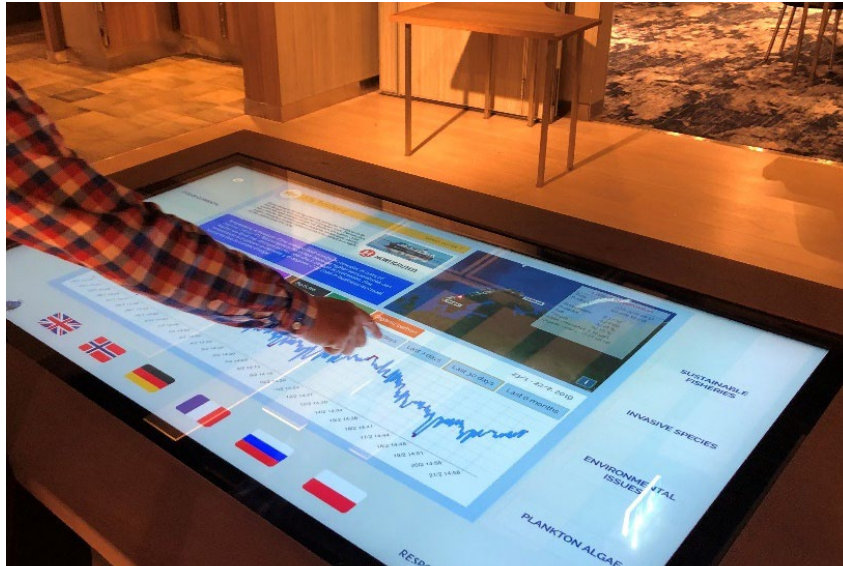


Andrew King, Kai Sørensen, Louise Valestrand, Therese Harvey, Trond Kristiansen, Elizaveta Protsenko, Kjetil Larsen





# Design features of the consoles



## EUTROPHICATION AND AGRICULTURE

Eutrophication that results from the enrichment of water by nitrogen and phosphorus nutrients, causes a general degradation of the marine ecosystems, including changes in water quality, harmful algal blooms and reduced oxygen concentrations in bottom waters. It directly affects people living on coastal areas who depend on marine ecosystem services for their livelihood, health and recreational opportunities.

The entire Baltic Sea is affected by eutrophication with agriculture being identified as a key source of nutrient input. Farming in the Baltic Sea region has gone through structural changes to meet the needs of globalization, economic and population growth, conventional farm holdings being replaced by large-scale farm enterprises specialized in intensive: crop production with high needs for mineral fertilizers; livestock production with challenges in applying large quantities of manure on fields.

From the field to the plate, many business and mediating actors are involved in the agriculture value chain, many of them located well outside of the Baltic Sea region! Each building block of this chain contributes, directly or indirectly, to agriculture pressures on the environment.

Ocean literacy can help raising awareness on everybody's responsibility, be it farmers, retailers, decision-makers or consumers—as basis for a profound change of practices and behavior throughout the agriculture value chain.



Eutrophication and agriculture



Ballast water and invasive alien species



Sustainable Fisheries & aquaculture



Microplastics and cosmetics



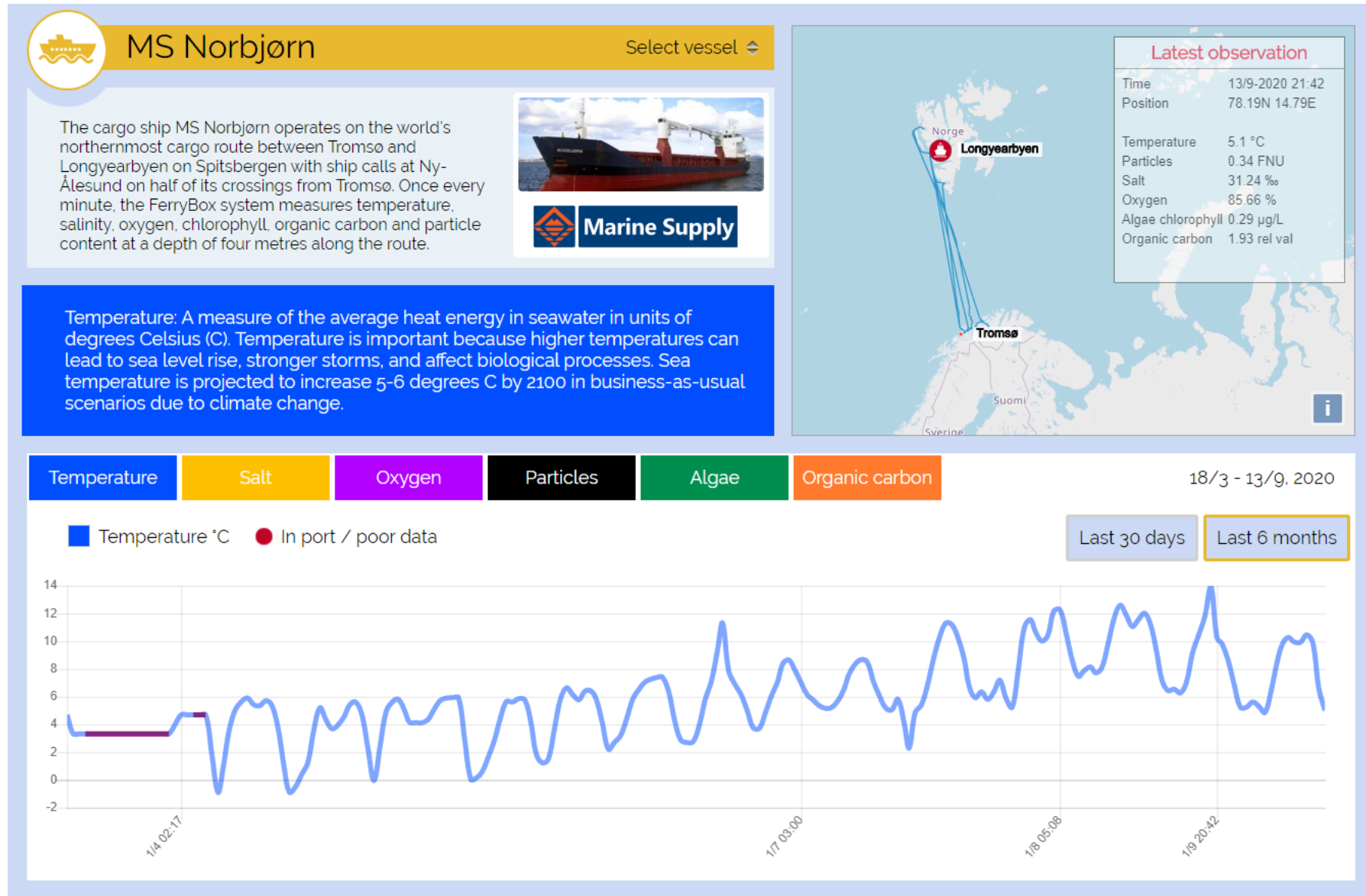
Coastal Tourism



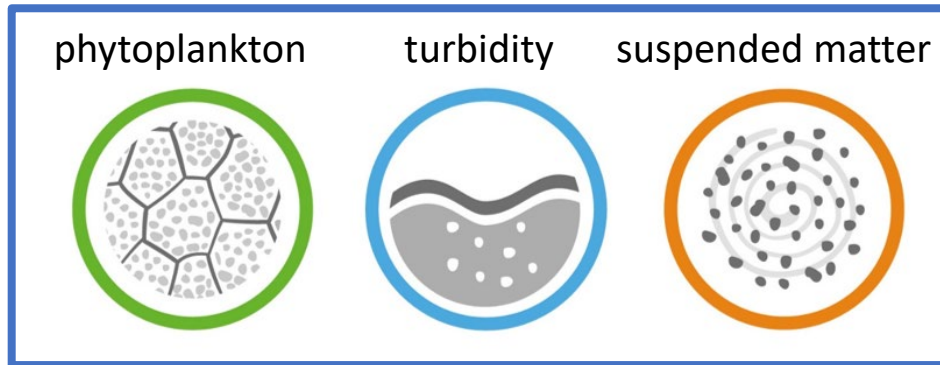
Marine Renewable Energy



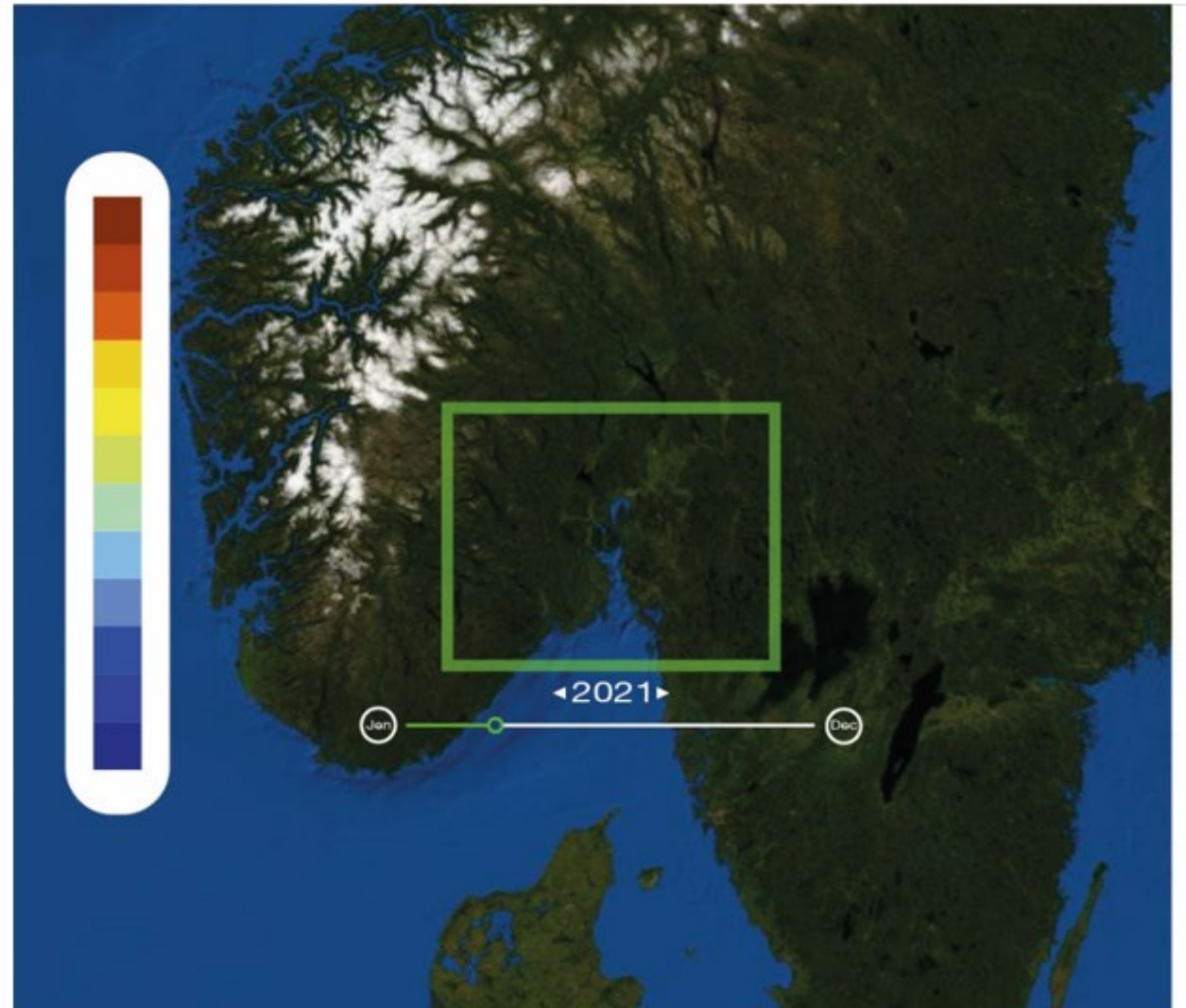
# Quasi-real-time FerryBox ocean observing data

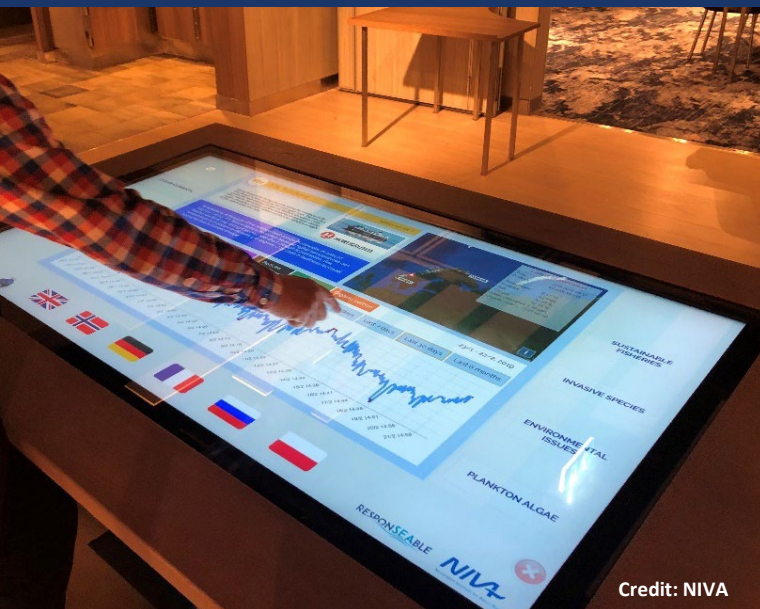


# New satellite remote sensing data browser being developed



- Information about how satellites are used for ocean observations and focus on three variables
- Navigation to different regions of interest – mostly Norwegian/Arctic regions in v1
- Timeseries of remote sensing data will be played as a timelapse video and by manual control





Credit: NIVA



Credit: 'LA MAR DE CIENCIA' (SOCIB/CSIC)



Credit: CNR-ISMAR



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