



# EUMETSAT support to the Blue Economy

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## Marine Satellite data and the Blue Economy

## EUMETSAT marine user engagement

## Current activities with African colleagues.



# PLUS WEATHER!

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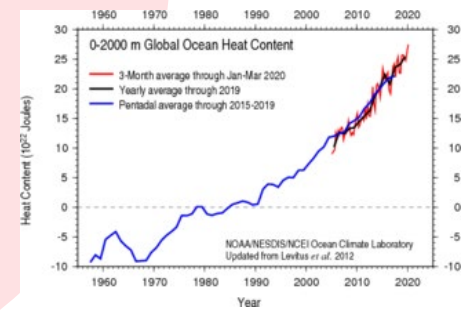


## ALTIMETRY (& SAR)



- Ocean currents
- Weather forecasting
- Storm dynamics
- Maritime safety
- Eddies
- Thermocline

## SEA SURFACE TEMPERATURE



Essential Climate Variables  
Climate Model Assimilation  
Marine Spatial Planning  
Env. Impact Assessment

Pollutant transport  
Ice detection  
Oil pollution  
Internal waves  
Biological transport (blooms, genetics)

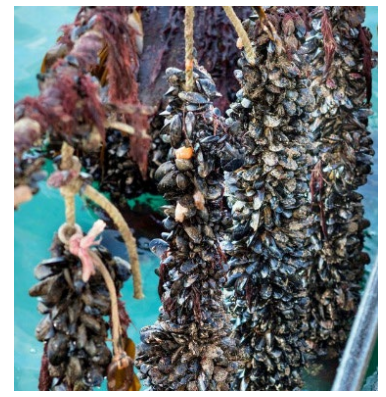
Disaster response  
Insurance Risk  
Ocean Fronts  
ENSO

Fishing Zones  
River plumes  
Eutrophication  
Aquaculture productivity  
Bio-toxins

Human health  
HAB formation

Coral bleaching

## OCEAN COLOUR



# PLUS CLIMATE!

# PLUS LAND!







## Data gives us...

Improved current/wave measurements and model forecasts...

## Society/Blue Economy gets...

- Safety at sea – lives and infrastructure
- Coastal resilience – storm protection
- Efficient route planning – reduced fuel costs and emissions





# Socio-economic benefits of marine satellite data

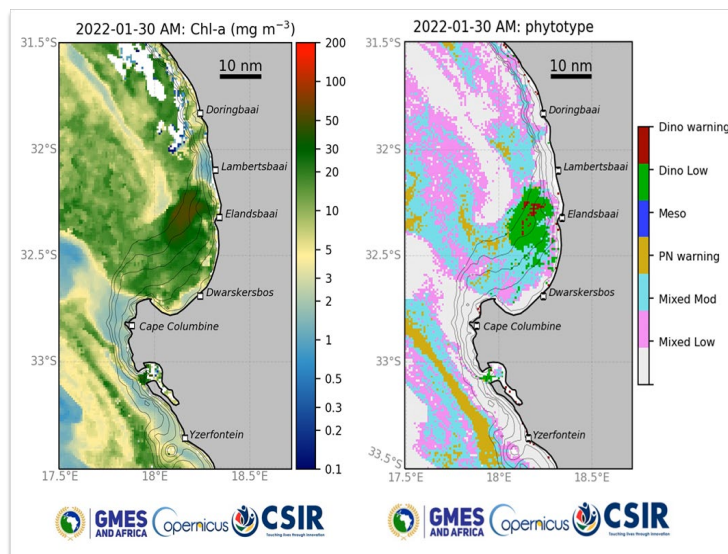
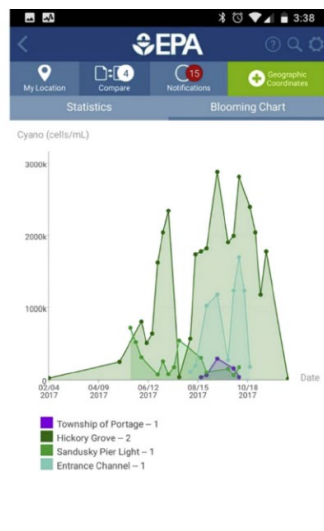
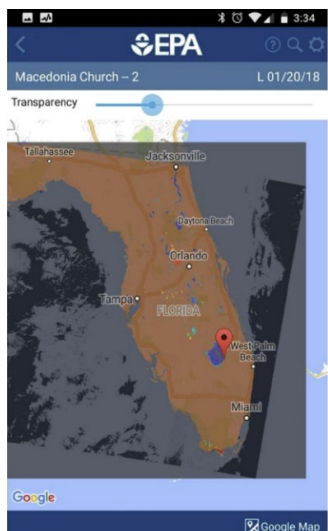
## Data gives us...

Estimates of coastal (and inland) water quality...

Prediction of pathogen risk (HABs, cholera, e-coli etc)...

## Society/Blue Economy

- Reduced monitoring costs
- Operational planning for aquaculture, tourism
- Improved health outcomes (bathing water, food standards)







# Societal benefits of marine satellite data

## Data gives us...

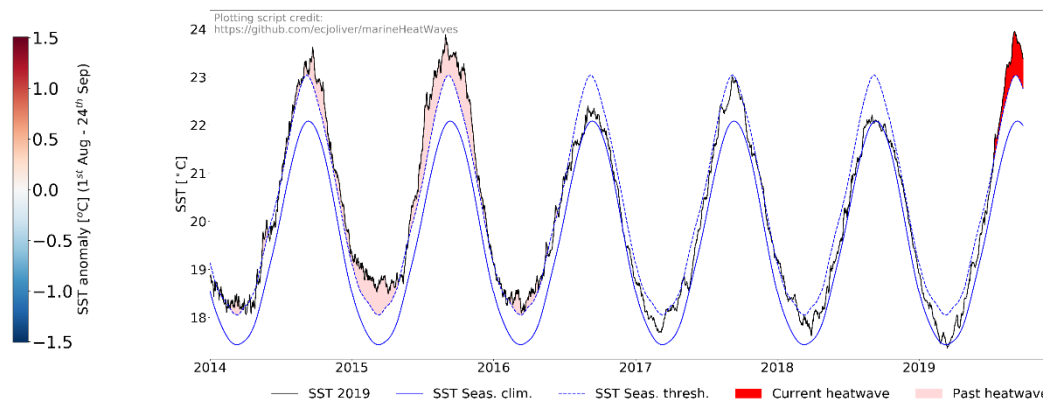
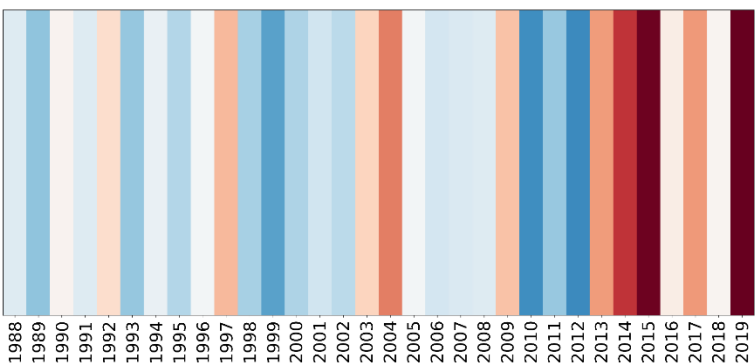
Long-term baselines of environmental status (Chlorophyll, fronts, heat risk, sediments etc)...

## Society/Blue Economy

Optimal Marine Protected Area siting and biodiversity protection

Fisheries management (PFZs)

Efficient and appropriate Marine Spatial Planning and Environmental Impact Assessments





# Socio-economic benefits of marine satellite data

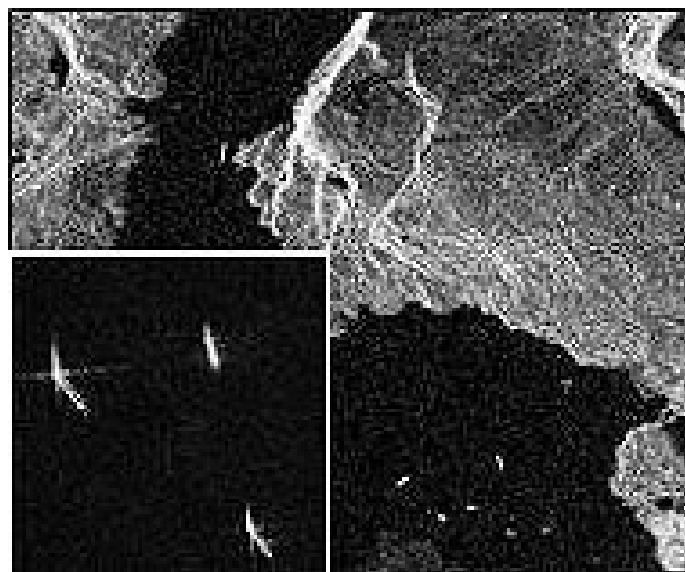
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## Data gives us...

Monitoring of illegal activities, environmental damage etc.

## Society/Blue Economy

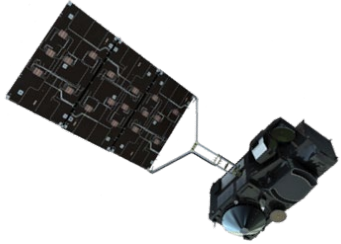
Efficient enforcement, preserved resources, clean up





# Marine User Engagement at EUMETSAT

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## User engagement

User info services



User support



Training



Community engagement



Feedback management  
Monitoring & evaluation







# Marine User Support and Training Resources

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## EUMETSAT Helpdesk

[OPS@eumetsat.int](mailto:OPS@eumetsat.int)

Contact the EUMETSAT helpdesk with any questions about EUMETSAT data products or services

## Courses

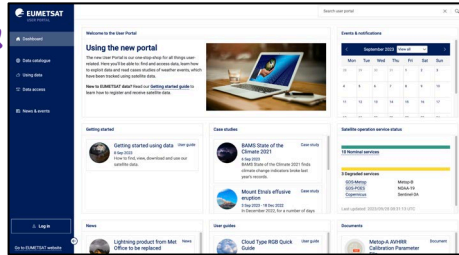


### moodle

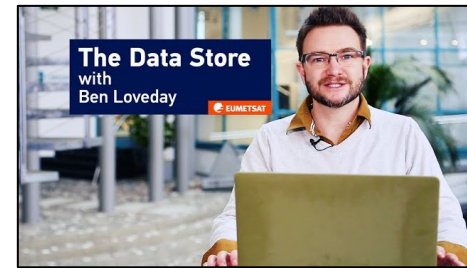


## User portal

Copernicus & mandatory missions  
Data access



## Video tutorials



### YouTube



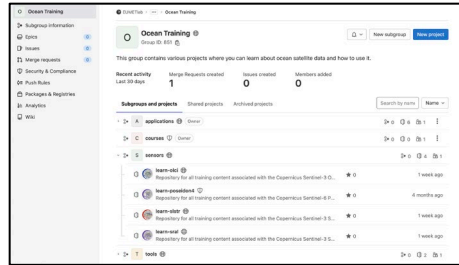
# EUMETSAT User Support Resources

## Code distribution

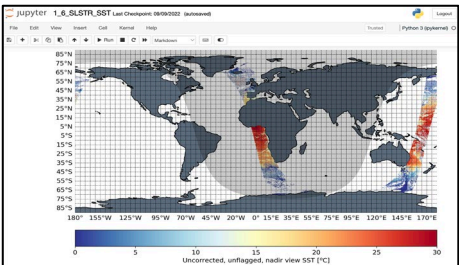
### CONDA



### GitLab



## Jupyter Notebooks

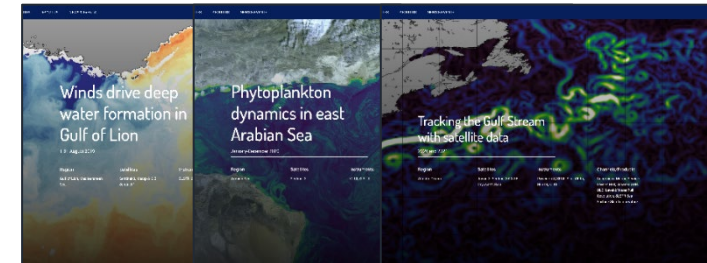


Cloud services

### binder

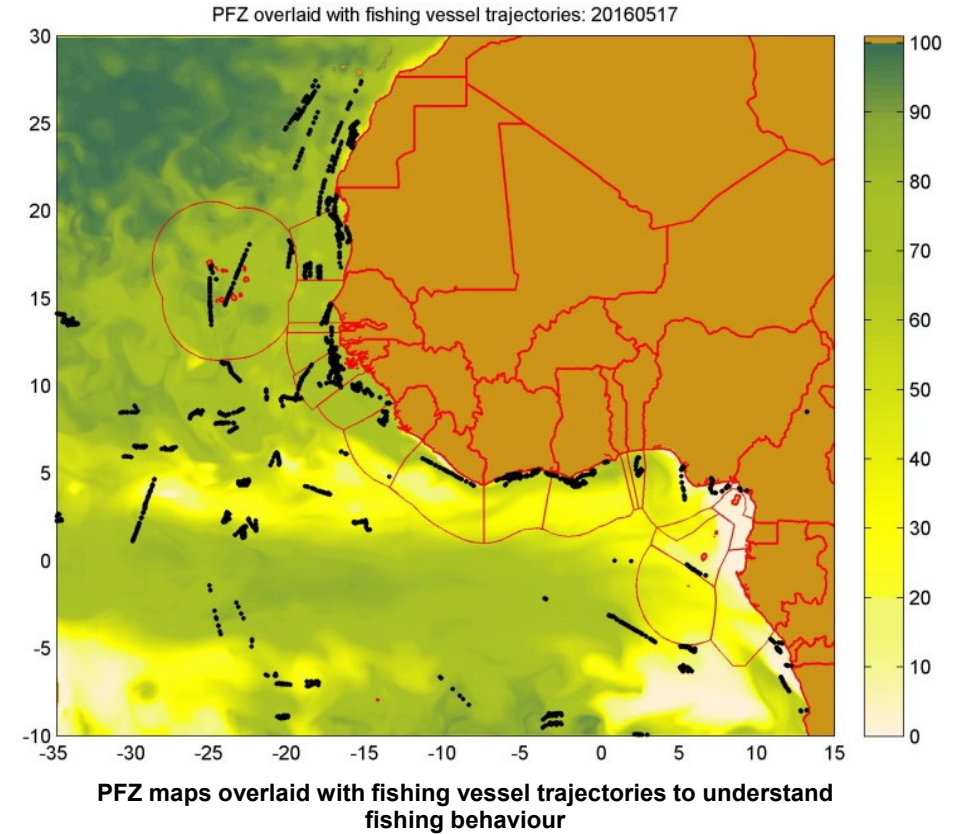
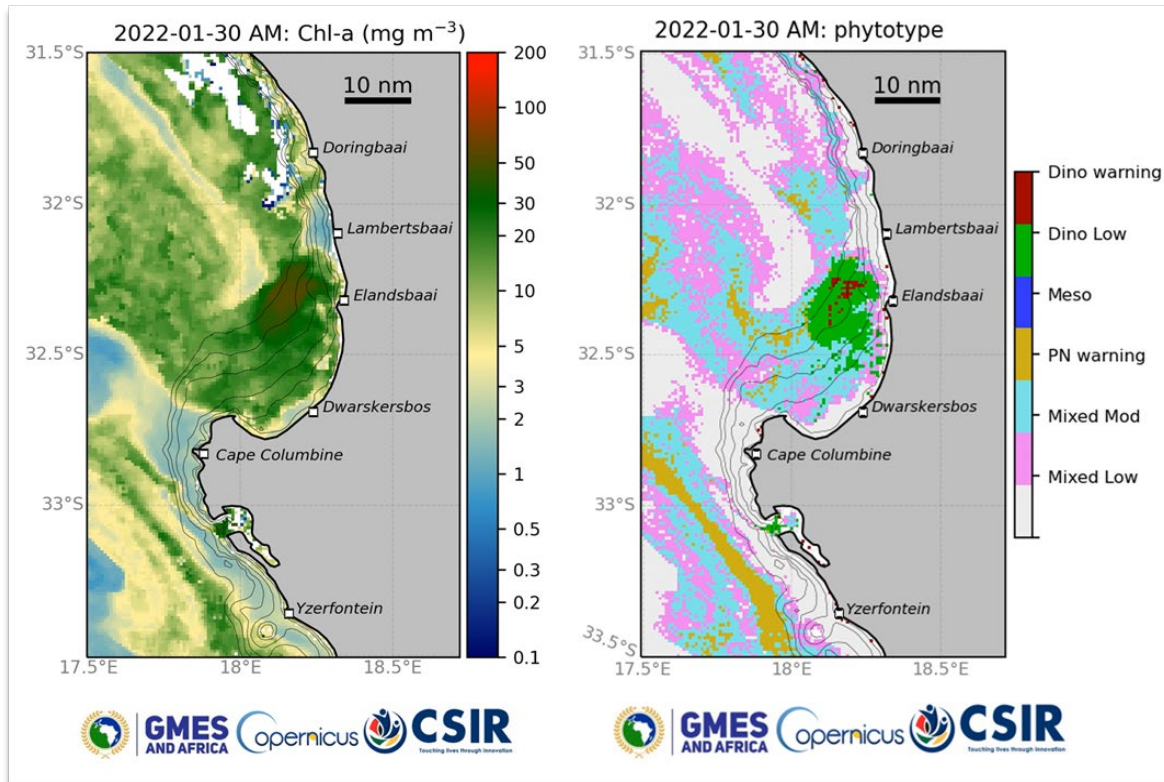


## Case studies





- Expert exchanges held in both phases
- Data from Copernicus is used extensively in marine services

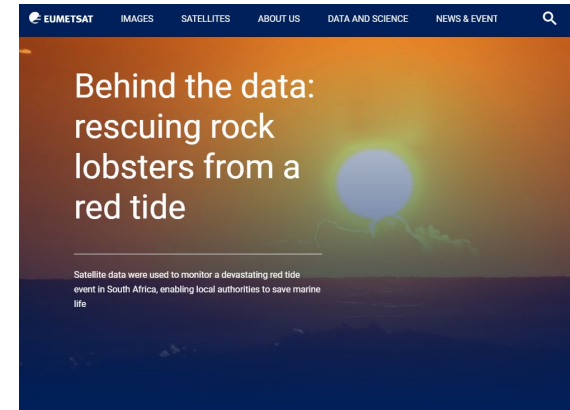






# Collaboration with GMES&Africa and beyond

- Extensive collaboration on training courses
  - Initial courses lead by EUMETSAT, consortia attended Train the Trainer events
  - EUMETSAT now participates as invited experts and co-designing courses
  - In person, increasingly online
- GMES activities featured in case studies and promotional reporting
- Further participation in hackathons, mostly in collaboration with Copernicus Marine Service
- Open to more – get in touch!



The United Nations has designated the 2020s as the Decade of Ocean Science for Sustainable Development and issued ten challenges with the goal of achieving a clean, safe, and accessible ocean by 2030. To support this goal, EUMETSAT is developing case studies that address each of the United Nations' challenges. This article is the fourth in a series in which one case study author gives us the story behind the data, illuminating how satellite data from EUMETSAT and the European Union's Copernicus programme contribute to a better ocean.

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## Monitoring Ocean Variables

Discovery, Access and Exploitation of EU Marine Product Portfolios

#MonitoringOceanVariables

**SESSION 1**  
FEBRUARY 14, 2023 - 2:00 pm to 3:55 pm (UTC)  
Introduction to products portfolios and the WEKEO DIAS platform

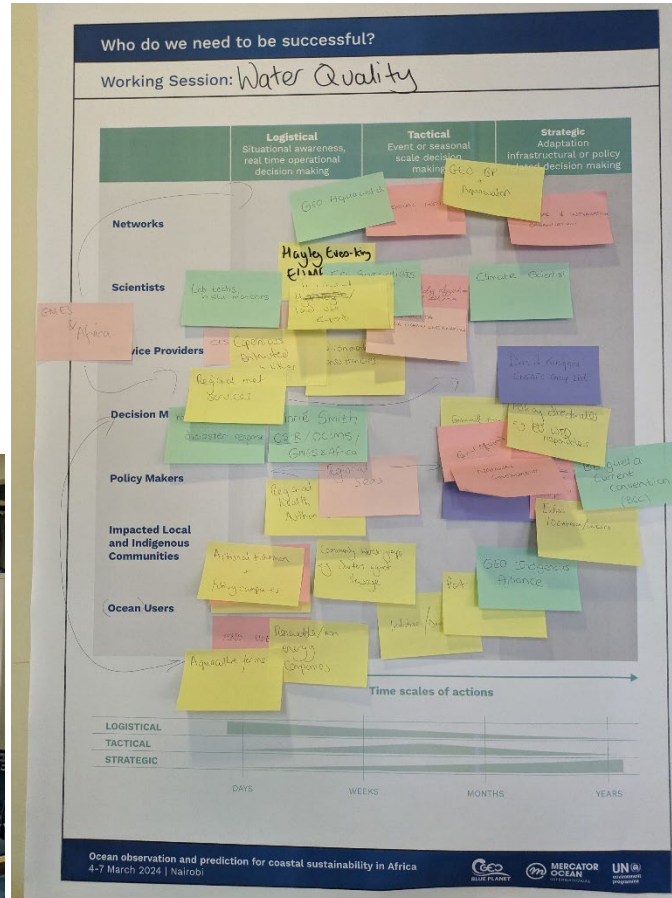
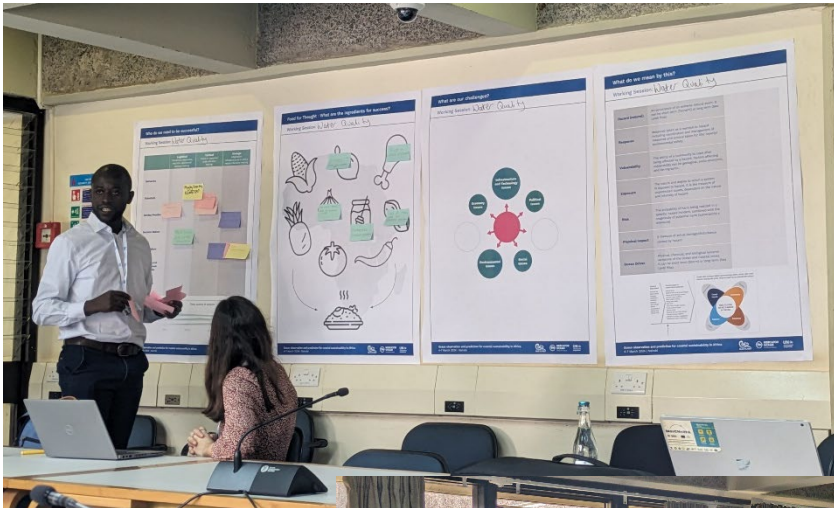
**SESSION 2**  
FEBRUARY 15, 2023 - 2:00 pm to 3:50 pm (UTC)  
EO data discovery and exploitation

**SESSION 3**  
FEBRUARY 16, 2023 - 2:00 pm to 3:50 pm (UTC)  
Data access and resources exploitation





## Recent Ocean and Coastal sustainability workshop, including solution co-design session on water quality...



What would be our vision for a solution we need?

Working Session: Water Quality  
Eutrophication Monitoring and Response Tool (towards compliance)

**Pilot Solution Description**  
A tool to support eutrophication warnings (short term) and assessment of remedial action, and policy compliance  
Marie Smith (CSIR), K. Ayekun (UG), E. Mwanuzi (JICA/UNEP), Linda Etti (Africa), D. Kiripara (Kenya), V. Gnanendran (MRC)

**End Users**

Target Audience	Long-term	Decision Points	Benefits
Communities public health Disaster risk agency	Compliance & Regulatory Gov. planners Scientists Policy makers	Is there an event? - warnings Thresholds exceeded - cleanups Who polluted? Is mitigation working? - change System improved/declined	Water is safe for use (human health) ecosystem maintained/conserved (environmental) livelihoods maintained (social) cost reductions/savings (economic)

**Technical Resources**

Locally Available	Internationally Sourced
people: scientists, citizen scientists tech: laboratories, sensors, drones	Satellite data Regional initiatives International research projects policy/regulations successful elsewhere

**Scalability**

Time	Theme	Location
Near-real-time → alerts Ecosystem understanding → weeks/months Satellite monitoring → assist long term Prove concept over at least 1 year (seasonal cycle)	- water quality hot topic apply to inland waters, coasts - other potential hazards - Human health Biodiversity	- Applicable to other small water bodies - Scalable in country, further up the coast

**Financial Scheme**  
National eutrophication monitoring program (gov)  
public private partnerships  
public awareness → community interest groups  
Corporate sponsorships + capacity building

**Product Impact Assessment**  
Human health (hospital)  
Ecosystem health indicators  
Money saved (eco analysis) short + long term  
whether this solution is informing policy (should policy change?)

**Long-Term Commitment**

- involve all actors to facilitate community ownership
- communicate results, risks, alerts effectively
- Capacity building, youth awareness campaigns
- co-design approach (early in process)

**Self-Evaluation**

Strong Points	Weak Points	Improvements
- Related to legislative targets & regulations - many stakeholders: co-design possible - Water sanitation & hygiene (WASH) - Innovation-based solution	- in situ monitoring = expensive - need to get buy-in from all stakeholders	- integrating over entire value-chain (polluters connected to distribution problems) - science communication (citizens, polluters)

**Unique Selling Points** Will it (be)?

Feasibility	Engagement	Impact Potential	Added Value	Attractive
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Thank you!  
Questions are welcome.