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BLUE PLANET
Oceans and Society
a GEO Initiative

GEO Blue Planet's role in Sustainable Development

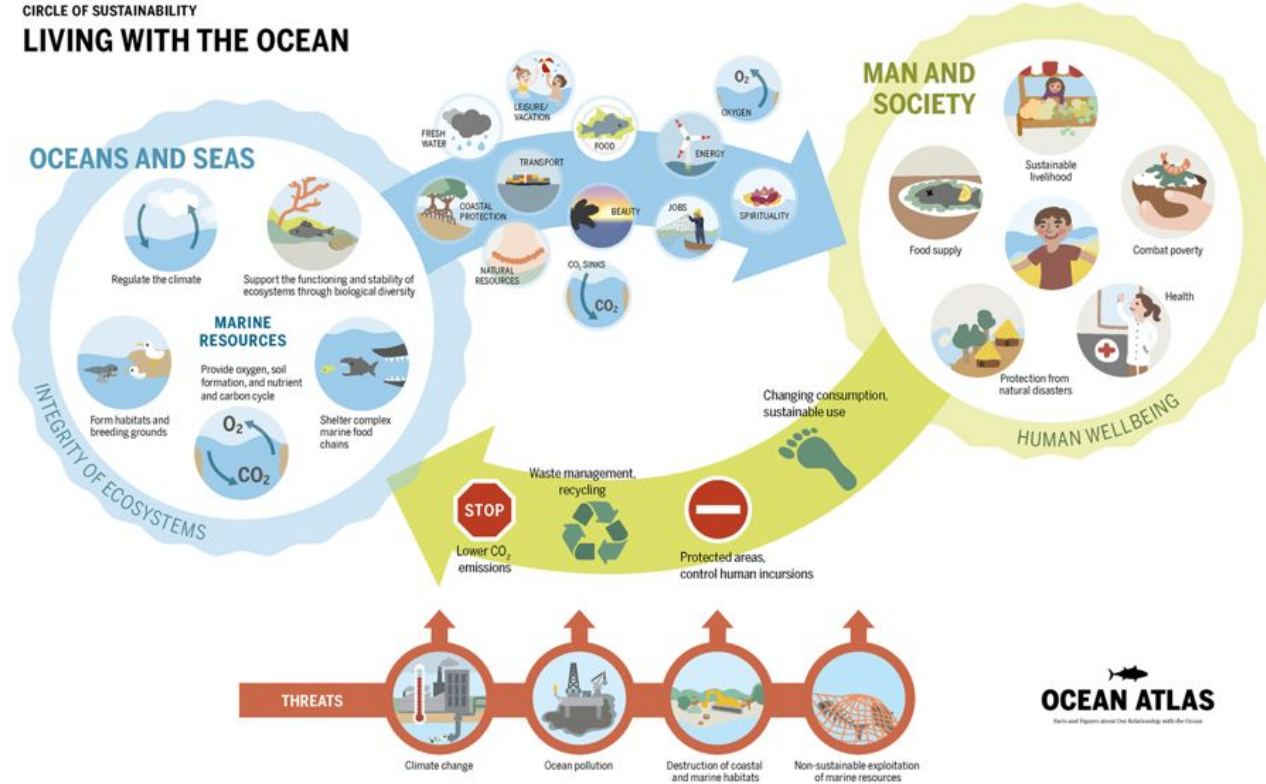


#GEOBluePlanet4

Oceans & Human Activity

CIRCLE OF SUSTAINABILITY

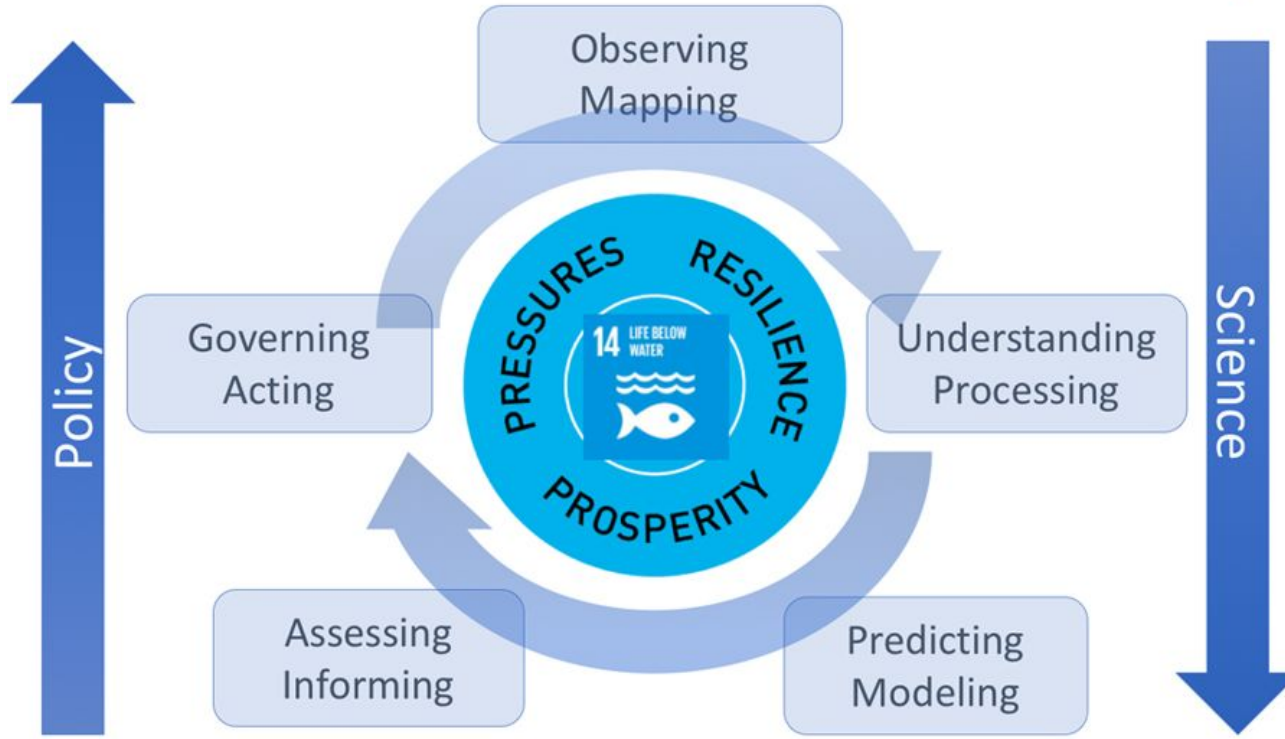
LIVING WITH THE OCEAN



Ocean and coastal information to meet societal needs

Societal benefit

Scientific discovery



Source: Visbeck,
2018, Nature
Communications.

GEO Priorities



PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21·CMP11

GEO & the SDGs



Earth observations play a major role in achieving the SDGs.



	Population distribution	Cities and infrastructure mapping	Elevation and topography	Land cover and use mapping	Oceanographic observations	Hydrological and water quality observations	Atmospheric and air quality monitoring	Biodiversity and ecosystem observations	Agricultural monitoring	Hazards, disasters and environmental impact monitoring
1 No poverty										
2 Zero hunger										
3 Good health and well-being										
4 Quality education										
5 Gender equality										
6 Clean water and sanitation										
7 Affordable and clean energy										
8 Decent work and economic growth										
9 Industry, innovation and infrastructure										
10 Reduced inequalities										
11 Sustainable cities and communities										
12 Responsible consumption and production										
13 Climate action										
14 Life below water										
15 Life on land										
16 Peace, justice and strong institutions										
17 Partnerships for the goals										

GEO & the SDGs

Earth observations play a major role in achieving the SDGs.



- **Projects:** Develop, validate and deploy uses of Earth observations to support SDG tracking and reporting
- **Capacity Building:** Build skills for accessing and applying Earth observations data
- **Outreach and Engagement:** Promote the consideration and adoption of Earth observations for the SDGs
- **Data and Information:** Products Advance discoverability and accessibility of products

GEO & the SDGs

Overall Coordination

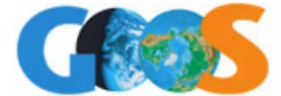


EARTH OBSERVATIONS FOR THE
SUSTAINABLE DEVELOPMENT GOALS

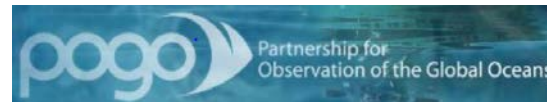
Observations, Data & Products



Committee on
Earth Observation Satellites



GODAE OceanView



Partnership for
Observation of the Global Oceans



Ocean & Coastal Coordination Activities; Information Providers



a GEO Initiative

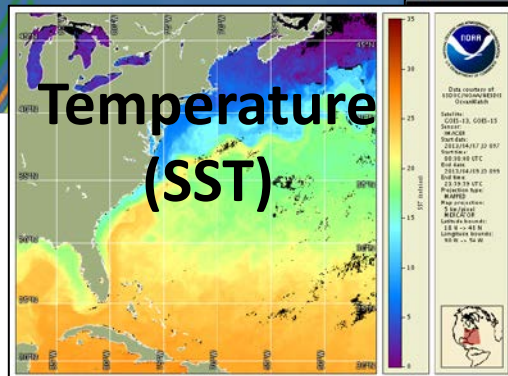




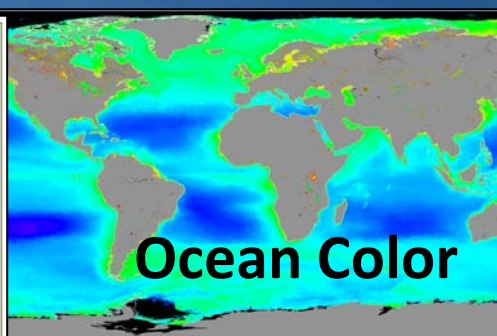
Ocean Parameters from Space



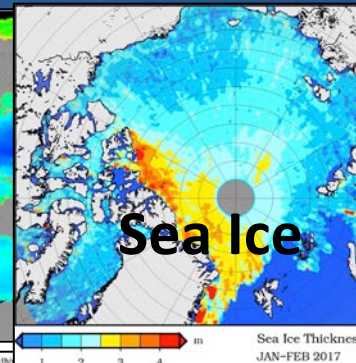
**Temperature
(SST)**



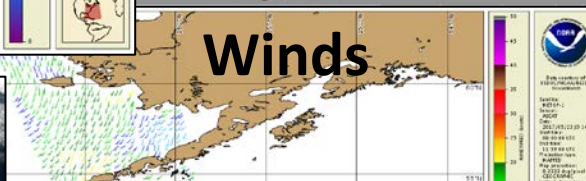
Ocean Color



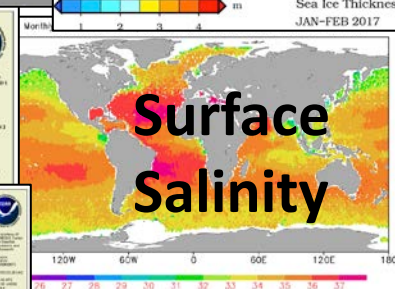
Sea Ice



Winds



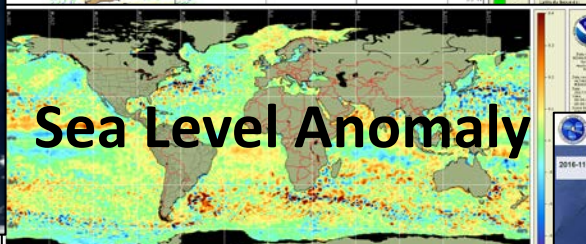
**Surface
Salinity**



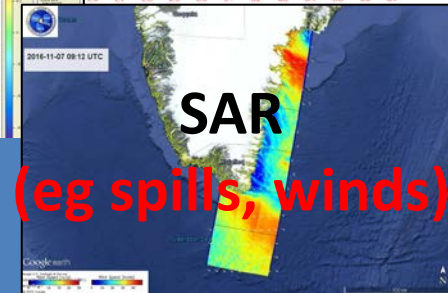
True Color



Sea Level Anomaly



SAR



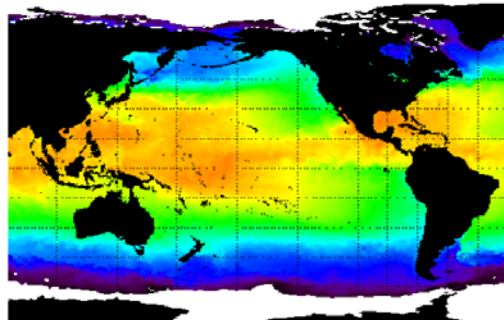
Utility of satellite data: broad spatial coverage for detecting patterns, frequency of observations for monitoring change over time





First International Operational Satellite Oceanography Symposium

<https://coastwatch.noaa.gov/OSOSymposium>



18 to 19 June 2019 Washington, DC Area FIRST INTERNATIONAL OPERATIONAL SATELLITE OCEANOGRAPHY SYMPOSIUM

Satellite remote sensing of ocean properties is a technology of continuously increasing maturity and scope. Sea surface temperature, sea surface height, ocean color, sea ice, ocean winds, roughness-derived parameters (e.g., oil spills) and other measurements are now available on a routine and sustainable basis. Some of these products are integral to operational applications for routine and event-driven environmental assessments, predictions, forecasts and management. Yet ocean satellite data are still underutilized and have a huge potential for contributing further to societal needs and the “blue economy”.

The First Operational Satellite Oceanography Symposium aims to enable the understanding the barriers (perceived or actual) and facilitate the widespread incorporation of satellite ocean observations into the value chain from data to useful information across the range of operational applications. In this symposium, an international community of satellite operators, information producers and users will exchange facts and ideas to 1) understand user needs and expectations, and 2) develop interoperability standards and establish best practices that will lead to more universal use of ocean satellite data.

**NOAA Center for
Weather and
Climate
Prediction**

**18 & 19 June 2019
College Park, MD
USA**

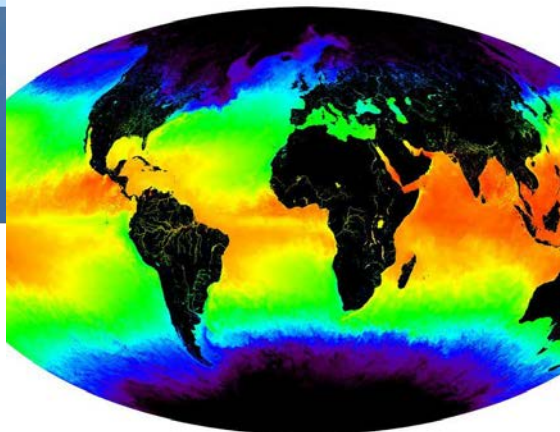
**Convenient
access from
Washington DC**

**[HTTPS://
CoastWatch.NOAA.gov
/OSOSymposium](https://CoastWatch.NOAA.gov/OSOSymposium)**

STEERING COMMITTEE

Bojan Bojkov (EUMETSAT)
Christopher Brown (NOAA)
Paul DiGiacomo (NOAA)
Veronica Lance (NOAA)
Francois Montagner
(EUMETSAT)

GODAE OceanView



6-8 MAY 2019 OceanPredict19

Advancing the Science and Applications of Ocean Prediction

GODAE OceanView and MEOPAR invite you to experience three exciting days in the world of operational oceanography. You will learn about recent advances in the field, and how ocean prediction systems have evolved. This symposium will be an opportunity for interactions between scientists, ocean prediction experts, application developers, and users, and to learn about the potential that ocean forecasting has for use by private industry, government, and the general public.

(special science forum and user engagement sessions planned for 9&10 May 2019)

GODAE OceanView



GODAE OceanView



Informing the scientific community, the industry, governments, and the public about ocean forecasting capabilities and benefits

Promoting global and regional forecasting systems

Motivating operational oceanography research

Implementing a global network of ocean prediction systems



Halifax Convention Centre

Halifax, Nova Scotia
Canada
6-8 May 2019

GEO Blue Planet: Thematic Projects

6 CLEAN WATER
AND SANITATION



13 CLIMATE
ACTION



14 LIFE
BELOW WATER



15 LIFE
ON LAND



- Earth observations for ecology and epidemiology of water-associated diseases
- Understanding Flooding on Reef-lined Island Coasts
- Project on developing an early warning system for marine flooding in Pacific Islands

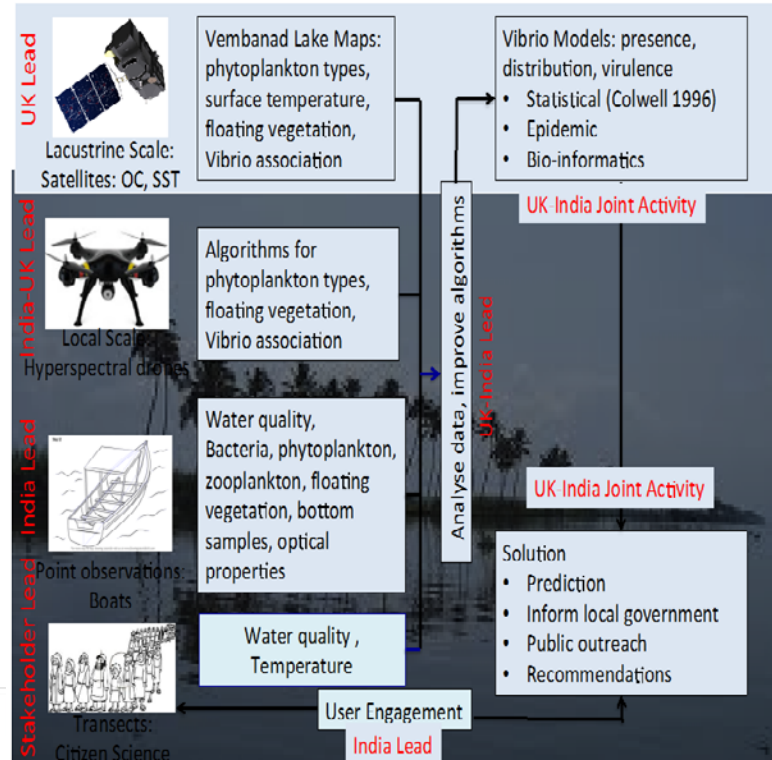


Water-associated Diseases Working Group

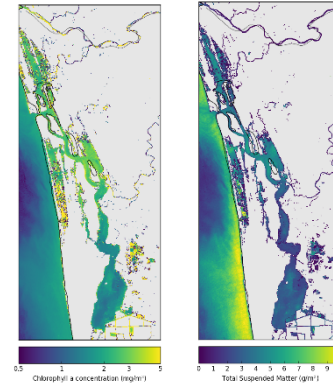
- **Overarching Goal** is to identify benefits, best practices and feasibility of incorporating Earth observation measurements into early-warning systems for water-associated diseases.
- **WG experts** cover **multi-disciplinary fields** of remote-sensing, modelling, genomics, bioinformatics, ecology, epidemiology, climate, limnology and oceanography with an interest in **water-borne and vector-borne diseases**, e.g., cholera, dengue, malaria, zika.
- **Aim to link with end-users**, including local communities, governments, health services, intergovernmental agencies, policy makers, **and provide tools and risk map products** to support evidence-based policy decisions.

Rehabilitation of Vibrio Infested waters of Vembanad Lake: pollution and solution (REVIVAL)

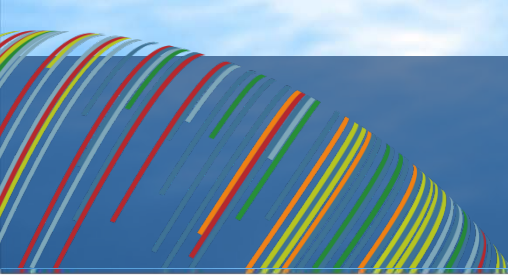
Schematic representation of the experimental approach



Secchi disk with temperature sensor to be distributed to the public



Remote-sensing images showing the distribution of chlorophyll and suspended matter in Vembanad Lake



An Early Warning System (EWS) for Marine Flooding of Pacific Islands

- NOAA/USGS/Deltares/CSIRO collaboration
- Most EWS rely on wave rider buoys
- Most wide coverage EWS are aimed at storm surge and/or tsunamis
- This EWS will include storm surge but will mostly focus on floods related to swell-waves
- Funding-permitting, this EWS will begin to be rolled out within 3 years

*Altimeter Satellites
bias correction for
Wave and Sea Surface
Height Forecast Model*

*Satellite and Ship
Bathymetry*

*Coastal Flood Forecasts
every 3 hours for a week*

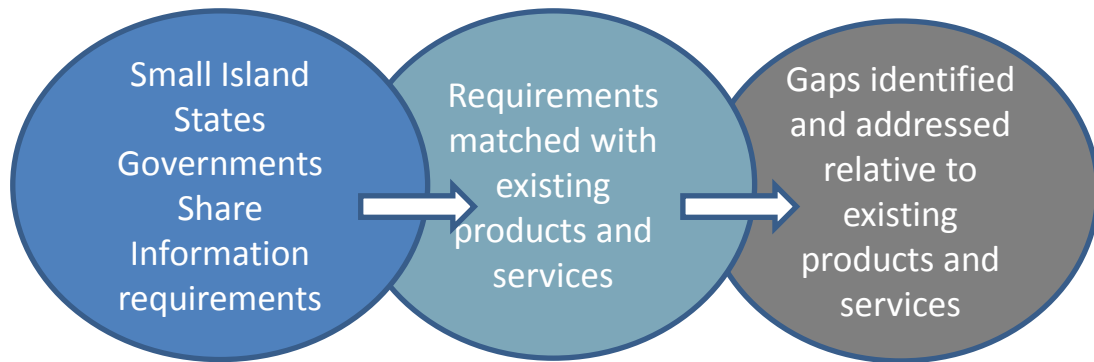
UFORIC Working Group

- Understanding Flooding on Reef-lined Island Coasts (UFORIC) working group
- Formed after NOAA/USGS workshop in Hawaii (February 5-7, 2018)
- Coordinating research and facilitating the development of action plans to tackle wave-driven coastal flooding on low lying islands



GEO Blue Planet: Outreach and Engagement

Implementing and Monitoring the Sustainable Development Goals in the Caribbean: The Role of the Ocean



GEO Blue Planet: Technology transfer and regional capacity building

- Developing capacity for ocean observing in the Caribbean in collaboration with IOCARIBE of IOC UNESCO, its GOOS Regional Alliance

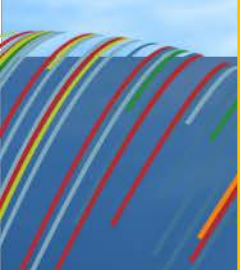


- Develop a monitoring and alerting system for sargassum and oil spills in the Caribbean and adjacent regions
- Goal for the project to garner local government support for ocean and coastal observing activities in the Caribbean

GEO Blue Planet: Outreach and Engagement

Future SDG Workshops





MBON

Marine Biodiversity
Observation Network

...the
biodiversity
arm of Blue
Planet

<https://mbon.ioos.us/>

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- Mark Costello
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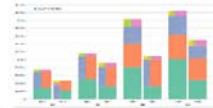
Mapping tools



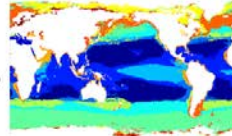
Taxa



Time series



Satellite
seascapes



Societal Benefit



MBON: Data & Information



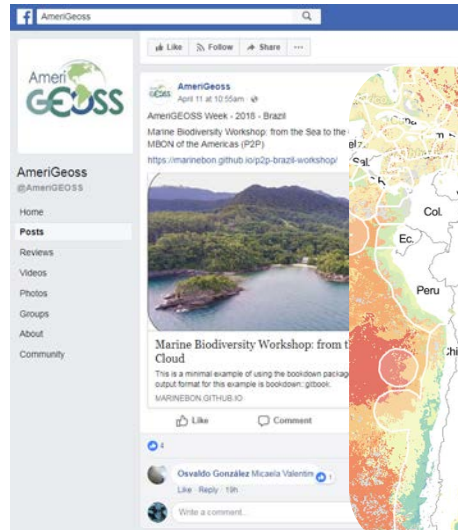
MBON

MBON: Data & Information

INTERNATIONAL LINKAGES



Marine Biodiversity Observation Network (MBON): Technology transfer and regional capacity building



CENTRO DE BIOLOGIA MARINHA
UNIVERSIDADE DE SÃO PAULO
CEBIMar USP

- 2nd Pole-to-Pole MBON Workshop
- Marine Biodiversity Workshop: from the Sea to the Cloud
- AmeriGEOSS Week, August 6-10, 2018, São Sebastião, Brazil
- Biodiversity observations in rocky shores and sandy beaches

GEO AquaWatch Initiative

6 CLEAN WATER
AND SANITATION



The *AquaWatch* Mission

- To improve the coordination, delivery and utilization of water quality information for the benefit of society.



The *AquaWatch* Goal

- To develop, build & disseminate global capacity and utility of Earth Observation-derived water quality data, products and information to support integrated water quality management and decision making.

www.geoaquawatch.org

Thank you!

Ocean and Coastal Information for Societal Benefit

