

DESCRIPTION

A water quality service based on maps of chlorophyll-*a* concentration at medium resolution. Other products may be available for specific case studies selected in consultation with stakeholders or to support the Blue Economy services.

USE

- › Monitoring of possible eutrophication when used with thresholds and information on natural variability
- › Monitoring of potentially harmful algal blooms
- › Identification of ocean fronts and potential fishing zones
- › Monitoring of water clarity and suspended sediment concentration
- › Supporting information for analysis of coastline changes due to sediment transport and deposition

INPUT PRODUCTS

- › Optical data from the OLCI instrument on Sentinel-3
- › Optical data from the MSI instrument on Sentinel-2 (high-resolution studies of selected areas only).

SPATIAL RESOLUTION AND COVERAGE

- › 300m and 1km for routine monitoring of larger areas.
- › 10m resolution for specific small scale coastal studies.

BENEFITS

Improved strategy and decision making:

- › Operational monitoring agencies gain information on natural variability and long term changes in eutrophication
- › Aquaculture farms and health authorities may use operational real-time information on potentially harmful blooms
- › Input into coastal change process studies to inform development of options for shoreline protection

DELIVERY FORMAT

- › NetCDF, PNG.

FREQUENCY

- › Daily for 300m and 1 km. Monthly composites at 1 km.
- › As available for 10m resolution from Sentinel-2 data.

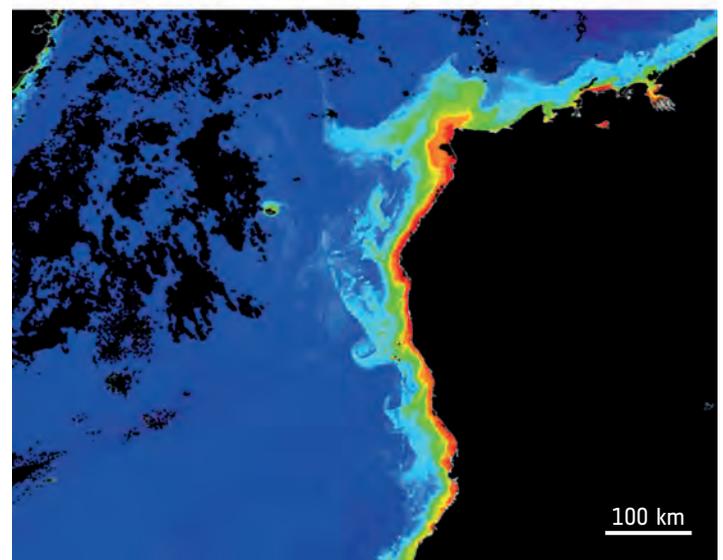
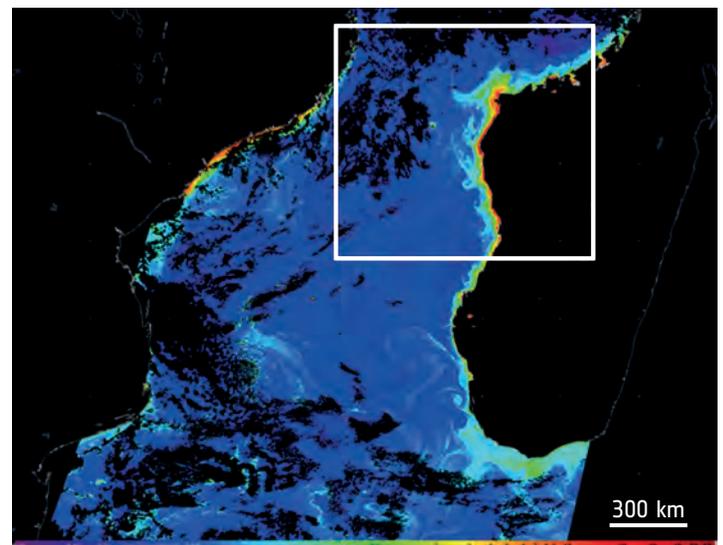


Algal blooms may be harmful due to toxins from the plankton or because the high concentrations smother gills and lead to deoxygenation of water.

Good water quality is essential for the aquaculture industry and fisheries, and is also important for leisure use: beaches, swimming, surfing etc. Poor water quality can reduce biodiversity and put sensitive coastal habitats at risk. The ability to monitor water quality is thus important for coastal planners and managers in a range of different contexts – from the protection of important coastal habitats to the development of Blue Economy sectors such as aquaculture and tourism.

The EO4SD coastal water quality service will deliver daily maps of chlorophyll-*a* concentration at 1km or 300m resolution based on measurements from the OLCI instrument on the Sentinel-3 satellites. Chlorophyll is a measure of phytoplankton productivity, with high concentrations acting as an indicator of high nutrient content and possible eutrophication of coastal water.

Where higher resolution is required for specific coastal areas, the service may deliver water quality information from Sentinel-2 MSI, which has capabilities for the retrieval of suspended particulate matter and possibly chlorophyll-*a*.



Sentinel 3 OLCI image based on Eumetsat L2 data from 15 November 2018 mapped for Mozambique channel at resolutions of 1km (top) and 300m (bottom).