

CoBiOS

Coastal Biomass Observatory Services

BRINGING LIGHT TO DEATH ZONES IN SEAS

During the past 50 years, the concentration of nitrogen and phosphorus in aquatic environments has exceeded sustainable levels, creating the phenomenon of eutrophication that may lead to dead zones in the seas. Agriculture, industry and population growth represent the leading causes of such water quality destruction. Recognising the importance of monitoring these challenges, CoBiOS aims at creating a new monitoring system where ecological models use high quality satellite images for predicting developments within the eutrophicated ecosystems.

When nutrients caused by human activities penetrate coastal systems a number of reactions follow within the ecosystem. Initially, the impact of nutrient presence leads to excessive growth of microalgae and phytoplankton, causing eutrophication.

At global level, the areas that experience such developments are known, yet at regional level the degree of localised information varies significantly, causing state-of-the-art information gaps in many regions. The majority of these regions face similar environmental challenges in the wake of the nutrients, such as hypoxia (oxygen-depleted waters) and dead zones which in turn can lead to ecosystem collapse.

The services foreseen by the CoBiOS project will enhance our understanding of future developments within such zones, providing more reliable and homogeneous data across regions. This would allow for better assessments of the negative impacts that nutrients have on our seas.

In order to establish such predictive models, CoBiOS will use a combination of satellite images and ecological models, which describe and predict ecological processes and distributions of organisms' phytoplankton, nutrients and dissolved oxygen. The CoBiOS project harmonizes and validates a water transparency service based on satellite images adapted to a large variety of coastal types, and which combines information from GMES maritime services.

CoBiOS is set to develop services that foster enhanced competitiveness of European aquaculture companies and shows the potential of downstream services in the GMES marine domain



STEEF W.M. PETERS
IS PROJECT COORDINATOR

QUESTIONS & ANSWERS

What do you want to achieve with this project?

The CoBiOS team wants to achieve a system to identify high biomass algal blooms before they cause disruption of aquacultural and recreational use and dead zone formation in coastal seas. Using Earth observation and ecological models we want to predict the fate of these blooms.

Why is this project important for Europe?

With increasing pressures on Europe's coastal seas and global warming it is important to know the short-term and long term trends in biomass development. The CoBiOS system will provide important information to help implementing European guidelines such as the Marine Strategy.

How does your work benefit European citizens?

CoBiOS will set up low threshold information services accessible to all European citizens. Tourists, divers, fishermen, policy makers and industries etc. may use the information on high biomass blooms to anticipate and prepare for bloom events and to prevent damage and losses.



Green algae over beach © Adem Demir - Fotolia.com

CoBiOS intends to monitor and predict high biomass blooms in coastal waters along Europe's Northern and Baltic shores.

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PROJECT INFORMATION

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