

# Eliminate eutrophication

## North Sea EcoQO

A marine environment where eutrophication does not occur

## What is the problem?

Eutrophication due to excess nutrients from human sources

*Photo: ©Yves Gladu*

## What is the Ecological Quality Objective (EcoQO)?

Eutrophication occurs when the enrichment of water by nutrients, specifically phosphate and nitrogen, leads to an accelerated growth of algae and plants causing an undesirable disturbance to the balance of organisms present in the water and to the quality of the water concerned. The EcoQO system includes a general (over-arching) EcoQO for eutrophication, which represents the overall objective of the OSPAR Eutrophication Strategy to achieve and maintain a healthy marine environment where eutrophication does not occur by 2010. This EcoQO is based on an integrated subset of five EcoQOs for eutrophication. The five specific EcoQOs for winter nutrients, phytoplankton chlorophyll *a*, phytoplankton indicator species, oxygen and benthos correspond to a selection of cause-effect related assessment parameters and assessment levels as applied across the OSPAR area under the Common Procedure for assessing the eutrophication status of an area.

## Has the EcoQO been met?

The overarching objective is not met in several parts of the OSPAR area. Eutrophication problems are more apparent in coastal areas than in offshore waters, that is, closer to the main nutrient sources and where environmental conditions make them susceptible to eutrophication. For the North Sea, a number of coastal waters have been classified as problem areas with regard to eutrophication, in particular off Belgium, Denmark, France, Germany, the Netherlands, Norway, Sweden and the UK (estuaries).

## How does this affect the quality status?

The EcoQO seeks to combat the negative effects of eutrophication on marine ecosystems which include: algal blooms, increased growth of macroalgae, increased sedimentation and oxygen consumption, oxygen depletion in the bottom water and sometimes the death of benthic animals and fish. Additionally, there is some evidence that changes in nitrogen to phosphorus ratios can affect species composition and food web structure.

## What happens next?

The integrated set of EcoQOs is in a testing phase and further work is required to modify the EcoQOs for their application to specific regions. In some areas, current monitoring is not sufficient or coherent and is lacking in spatial and temporal coverage. Thus there is a need to improve monitoring. In this respect, it will be important to coordinate with fisheries agencies that are monitoring nutrients and other variables in order to describe environmental conditions and productivity. Likewise there is a need to make use of other monitoring systems for observing surface algal blooms, such as the routine airborne surveys for spotting oil pollution carried out under the Bonn Agreement. This would have advantages over satellite-based observation where cloud coverage is very often a hindrance.

