Wadden Sea Quality Status Report

Bostelmann, A., Busch, J.A., Klöpper, S
Common Wadden Sea Secretariat (CWSS), Virchowstr. 1, 26382 Wilhelmshaven, D

BACKGROUND

The Wadden Sea Quality Status Report (QSR) is a compilation of thematic reports on the Wadden Sea World Heritage, the Wadden Sea islands and offshore areas. It describes and evaluates the current ecological status of the Wadden Sea. The report identifies changes in this status and their possible causes, classifies issues of concern and indicates possible measures of redress, including evaluation of the likely effectiveness of these measures, and it detects knowledge gaps.

The QSR is an output of the Trilateral Monitoring and Assessment Programme (TMAP). TMAP is the common monitoring programme for the Wadden Sea carried out since 1997 by Denmark, Germany and the Netherlands in the framework of the Trilateral Wadden Sea Cooperation. The programme aims to facilitate adequate, cost-effective monitoring and integrated science-based assessments of the Wadden Sea ecosystem, while considering the Member States' monitoring and reporting requirements under relevant EU legislation and international conventions such as the World Heritage Convention. TMAP provides an important and scientifically sound evidence base for decision making and policy development at all levels and delivers essential contextual information for the management of the Wadden Sea as a single ecological entity. It also enables integrated assessment – an essential prerequisite for the application of the ecosystem approach. The programme further provides information on the progress on the implementation of the Targets in the Wadden Sea Plan 2010.

PROCESS

Trilateral Monitoring and Assessment Programme (TMAP) & other sources
Delivers harmonised data for the development and evaluation of trilateral Wadden Sea conservation policies and management

TMAP is carried out by national and regional authorities in charge of monitoring.

The main partners are
- Danish Ministry for the Environment, Nature Agency
- Dutch Ministries of Economic Affairs, and of Infrastructure and the Environment
- German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
- State Ministries for the Environment in Schleswig-Holstein, Hamburg and Lower Saxony, and the National Park Administrations

receive harmonised data for assessment

Common Wadden Sea Secretariat
Overall coordination of QSR

Editorial Board
Martin J. Baptist (Waddenacademie, Wageningen University & Research), Christian Buschbaum (Alfred-Wegener-Institut), Lars Gutow (Alfred-Wegener-Institut), Gerard Janssen (Rijkswaterstaat), Kai Jensen (Hamburg University), Henrik Pind Jørgensen (Danish Nature Protection Agency), Klaus Schwarzer (Christian-Albrechts-University Kiel), David Thieltges (NIOZ), as well as Folkert de Jong, Sascha Klöpper and Gerold Lüerßen (Common Wadden Sea Secretariat)

coordination of production ↕ feedback

quality control editing

100 independent researchers
Responsible for the contents of the Thematic Reports. These include an assessment and recommendations for research & monitoring.

write reports

Quality Status Report

30 thematic reports sorted in five sections

- Gemorphology
- Habitats and communities
- Species
- Human activities
- Pollution

Available online and as PDF-download.
qsr.waddensea-worldheritage.org

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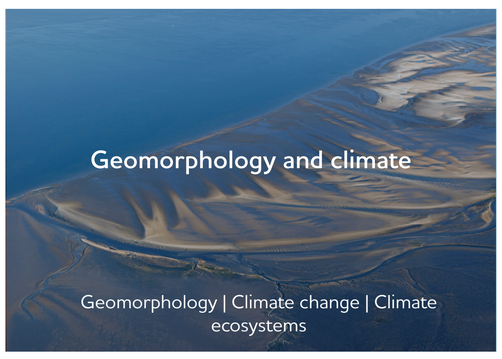
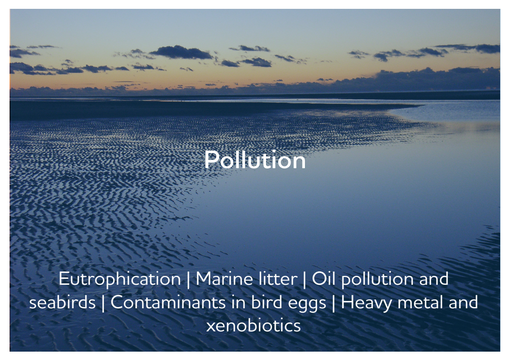
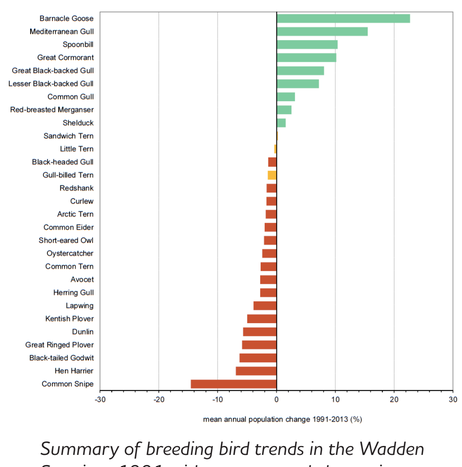




SELECTED FINDINGS

Breeding birds (Koffijberg et al.)

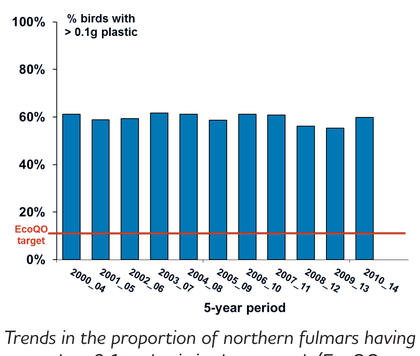
For most species (59%) significant population declines have been recorded since 1991. Declines were found among all species groups, including species of which the Wadden Sea hosts internationally important numbers, such as redshank, the oystercatcher, the common tern and the avocet. Nine bird species have increased since 1991, mainly comprising some colonial breeding birds such as the spoonbill, the great cormorant, the lesser black-backed gull and the common gull.



Summary of breeding bird trends in the Wadden Sea since 1991 with mean annual change in numbers (in %), ranked from increasing species (top) to declining species (bottom).

Marine litter (Fleet et al.)

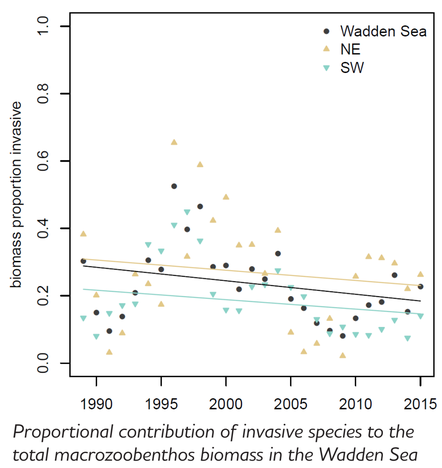
Marine litter of different sizes and from diverse sources occurs on dunes and beaches in and on inter- to subtidal sediments and in marine organisms, including protected seabirds and mammals. The amount of litter entering the marine environment is continuously increasing. This increase is, however, not apparent in the results of the monitoring programmes due to the fragmentation of plastic objects into microplastics, which are not sufficiently assessed by current monitoring programmes. Densities of microplastics are expected to increase substantially in the future in all marine habitats.



Trends in the proportion of northern fulmars having more than 0.1 g plastic in the stomach (EcoQO performance) in the Wadden Sea area since the year 2000.

Macrozoobenthos (Drent et al.)

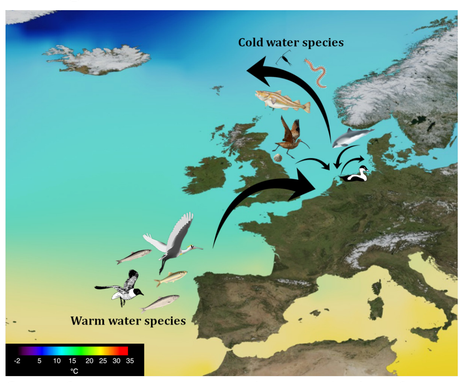
Over the last decades the total biomass of macrozoobenthos has been relatively stable with some exceptions in specific monitoring areas where populations of invasive species strongly decreased or increased, in particular the ancient invader sandgaper (*Mya arenaria*) and recent invaders Atlantic razor clam (*Ensis directus*) and the polychaete worm *Marenzelleria viridis*. However, over the entire Wadden Sea the proportion of invasive species to the total biomass has been stable at about 10% over the last ten years. At the same time, the community composition has been stable with no directional trend.



Proportional contribution of invasive species to the total macrozoobenthos biomass in the Wadden Sea and Northeast (NE) and Southwest (SW) sub-regions.

Climate ecosystems (Philippart et al.)

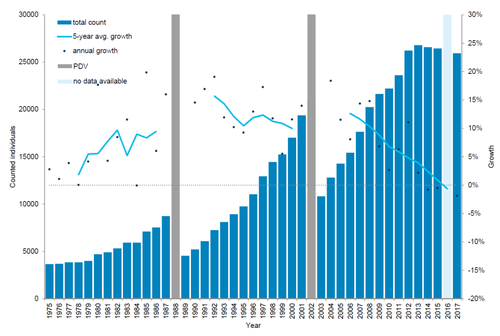
During recent decades, the Wadden Sea ecosystem has already shown clear signs of recent climate change, including temperature increase, import of southern warm-water species and changes in the timing of life cycle events. Impacts were found to have increased with additional species' shifts in geographical distributions (e.g., eel pout, sea bass, Eurasian curlew, common eider) and in the timing of migration (e.g., greylag goose, lapwing) and reproduction (e.g., common seals).



Sea surface temperature map shows a selection of warm-water species shifting northwards, whereas cold-water species retreat the Wadden Sea to keep up with the colder waters. Drawing by L. Mekkes.

Marine mammals (Jensen et al.)

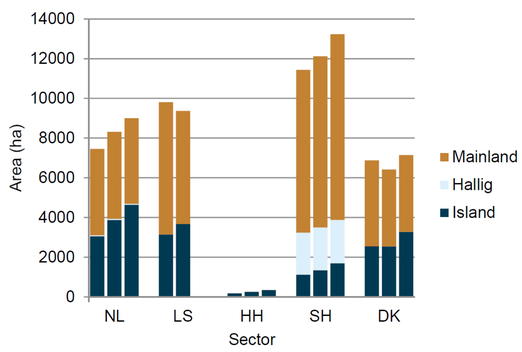
The harbour seal is the most abundant seal species in the Wadden Sea, with an estimated population size in 2017 of 38,100 animals. This is similar to the numbers estimated around 1900, before hunting drastically decimated the population. The population showed strong recovery from two virus events and has kept growing, although with significantly reduced growth rates in recent years. Grey seals returned to the Wadden Sea in the mid-1900s and the population had grown to 5,445 by 2017. The distribution of grey seals in the Wadden Sea has expanded to Danish waters. The harbour porpoise is the only cetacean that occurs regularly in the Wadden Sea. Its total population in the North Sea is estimated at about 230,000 animals.



Harbour seal count in the Wadden Sea 1975-2017. In 2016 a trilaterally coordinated aerial survey was not possible in Lower Saxony due to weather. Thus, no total number is available for 2016.

Salt marshes (Esselink et al.)

Salt marshes in the Wadden Sea extend over almost 40,000 ha, representing about 20% of the total of coastal salt marshes in Europe. After a reported 1,600 ha increase of salt marsh in the previous QSR, based on most recent surveys, salt marshes showed an almost Wadden Sea-wide continued expansion. Despite the recent extension of salt marshes, the extent of pioneer and low-marsh vegetation types remained relatively constant, whereas vegetation of late-succession stages increased. Sea couch grass (Elytrigia atherica has become the most dominant vegetation type in the high-grass zone.



Development of the areal extent of salt marshes in different parts of the Wadden Sea based on three successive surveys; from left to right: 1995/2001, 2002/2007 and 2008/2014.

The close partnership of science & research, nature protection and policy across Denmark, Germany and the Netherlands is the basis for 40 successful years of Trilateral Wadden Sea Cooperation. TMAP and the QSRs are cornerstones of this collaboration and prerequisites for the World Heritage status of the Wadden Sea. The QSR findings form an invaluable foundation for the further implementation of the Wadden Sea Plan Targets, helping to conserve the site for future generations.

Read the full report at
qsr.waddensea-worldheritage.org

United Nations Educational, Scientific and Cultural Organization

The Wadden Sea World Heritage Site since 2009

WADDEN SEA WORLD HERITAGE