

## Recommendations of the International Workshop

### “Seriously Declining Trends in Migratory Waterbirds in the Wadden Sea”

Wilhelmshaven, Germany

August 31, 2006

#### THE WORKSHOP

The Wadden Sea constitutes one of the world's most important wetlands for migratory waterbirds and the single most important staging, moulting and wintering area for waterbirds on the East Atlantic flyway from the Arctic to South Africa.

According to the results of the twenty-year period 1980-2000 of the Joint Monitoring of Migratory Birds (JMMB) program in the Wadden Sea, which is carried out in the framework of the Trilateral Monitoring and Assessment Program (TMAP), decreasing trends of several migratory waterbird species were detected in the Wadden Sea. Particularly, the trends detected for the main migration periods gave reason for concern: of the 34 species, for which the Wadden Sea represents a major stepping stone during migration, 15 species (44%) show significant decreases, 7 species (21%) show non-significant decreases. In contrast, only three species (Cormorant *Phalacrocorax carbo sinensis*, Spoonbill *Platalea leucorodia* and Barnacle Goose *Branta leucopsis*) show significant increases.

Also on a global scale concern has been expressed regarding migratory birds. On a workshop held by the International Wader Study Group in Cadiz/Spain in 2003, it was noted that the populations of waders (shorebirds) are in decline worldwide. With respect to the Wadden Sea, it was stated that “*Declines of the biogeographic populations of long-distance migrant waders heavily dependant on the Wadden Sea have occurred and are continuing.*”

Activities, which should be taken in connection with these declines, should also be seen in light of the World Summit on Sustainable Development (Johannesburg/South Africa 2002), at which world leaders expressed their desire to achieve “*a significant reduction in the current rate of loss of biological diversity*” by 2010, as well as of the Heads of European Union Member States, who met in Gothenburg/Sweden 2001, and expressed their intention “*that biodiversity decline should be halted ... by 2010.*”

To mark the 20<sup>th</sup> anniversary of the Wadden Sea National Park in Lower Saxony the National Park Administration of the Lower Saxony Wadden Sea, the Common Wadden Sea Secretariat and the Institute of Avian Research “Vogelwarte Helgoland”, Wilhelmshaven organized an international workshop in Wilhelmshaven, Germany on 31st August 2006 to discuss causes and consequences of seriously declining trends in migratory waterbirds in the Wadden Sea as well as to formulate further aspects regarding future ecological research and necessary management measures. About 80 leading Wadden Sea experts from Denmark, Germany and the Netherlands participated in the workshop including representatives from English Nature and AEWa.

The workshop started with a review of recent monitoring data. The review confirmed that the populations of at least 11 out of 34 species have declined significantly over the past years. Especially shellfish-eating species have shown significant decreases.

Further presentations related to recent changes in the Arctic breeding areas and along the migration route, responses of birds to climatic change, feeding ecology of waterbirds in the Wadden Sea, as well as case studies on disturbance of waterbirds.

## MAIN FINDINGS OF THE WORKSHOP

### Climate change

Climate change will affect waterbird populations in the Wadden Sea in different ways, either directly by habitat loss and habitat change due to sea level rise and by changes in weather characteristics, or indirectly by habitat changes in the arctic breeding grounds and changes of the food resources respectively. In addition, changes in temperatures and other environmental factors may cause changes in the food availability on the tidal flats in the Wadden Sea. Signals of the probably already ongoing processes are confounded by various other factors influencing the populations of migratory waterbirds.

### Disturbance

Disturbance can influence individual birds up to whole populations. At present, disturbance within the Wadden Sea, however, is unlikely to be the main cause for the observed large-scale population declines in migratory species due to the increased protection level. However, the recent review "High Tide Roosts in the Wadden Sea" has shown that the distribution of waterbirds is susceptible to high levels of disturbance. In addition, disturbance still may have an effect on the populations of some species breeding in the Wadden Sea (e.g. Kentish Plover *Charadrius alexandrinus*).

### Food resources

As a case study the effects of cockle fishery were highlighted. The decline in biomass and in quality (as diet for migrating waterbirds) of shellfish stocks due to bottom fishing in the Dutch Wadden Sea have caused declines in the survival and consequently the numbers of migrating Red Knots (*Calidris canutus*) on population level and probably other shellfish feeders. The process of recovery of dredged mudflats is very slow.

### Breeding/Wintering areas

Conditions for migratory waterbirds in their Arctic breeding grounds are changing in many respects (e.g. hunting, disturbance, habitat change). Very probably this will also be valid for the wintering grounds. Causal links between these changes and the observed declines of migratory and wintering populations in the Wadden Sea are yet poorly understood.

### Monitoring

It is greatly acknowledged that due to the efforts of the Joint Monitoring Program for Migratory Birds (JMMP) in the framework of the Trilateral Monitoring and Assessment Program (TMAP) the amount and quality of migratory bird data has increased considerably over the last two decades and that the information on population trends of migratory waterbirds in the Wadden Sea has been made available at short notice and therefore meet the monitoring obligations of the trilateral policies and relevant international regulations such as the EC Birds and EC Habitat Directives and AEWA.

Ongoing monitoring is needed in order to keep track with the development of Wadden Sea bird populations and in order to evaluate the effectiveness of conservation measures.

## RECOMMENDATIONS

In order to halt the observed declines of migratory waterbirds in the Wadden Sea and aware of the fact that immediate actions should have first priority, combined with research studies, the participants of the workshop concluded and recommended:

1. The current protection level regarding migratory birds in the Wadden Sea (e.g. in relation to disturbance) has to be maintained or improved.
2.
  - a. The mechanical dredging for cockles (*Cerastoderma edule*) has been shown to significantly reduce the intertidal food resources for the Red Knot. The decline of the population can be explained by a reduced survival rate due to reduced food resources. Consequently, dredging for cockles should not be allowed in the Wadden Sea.
  - b. There is also evidence that mussel fisheries have affected Oystercatcher (*Haematopus ostralegus*) and Common Eider (*Somateria mollissima*) populations in the Dutch Wadden Sea. Consequently, shellfish-fisheries and other bottom-affecting activities should be assessed in combination with the population trend of the concerned species in the Wadden Sea. The results

should be taken into consideration for further revision of relevant management plans in the Wadden Sea.

3. The direct or indirect release/introduction of alien species in the Wadden Sea should be prevented as far as possible. The spread of the Pacific Oyster (*Crassostrea gigas*) already poses a big threat to natural benthic communities in a wide area and therefore also for birds feeding on benthic species.
4. Long-term monitoring of bird populations in the Wadden Sea is essential for detecting changes in population trends and for measuring the efficiency of protection measures. The current level of monitoring has to be maintained as a minimum. Furthermore,
  - improved monitoring (smaller counting intervals, turn-over studies etc.) with regard to particular research questions should be carried out in selected countries and regions;
  - monitoring of breeding success and survival of waterbirds breeding in and migrating through the Wadden Sea (integrative monitoring) is necessary for a sound understanding of the demographic features underlying the population changes;
  - the JMMB program should be integrated with other international monitoring initiatives; in particular the monitoring of waterbirds in the Arctic breeding grounds and African wintering areas should be reinforced and internationally coordinated.
5. For most species in the Wadden Sea – except for the knot – the causes of the declines are not well understood. Since there are many factors, which are possibly relevant for the bird populations (climate, eutrophication and pollution, socio-economic aspects etc.) as well as management systems/protection regimes in the different Wadden Sea regions, it is necessary to enlighten the actual role they play in more detail.
  - In a first step, complex analyses of the available data of the influencing factors in relation to the bird data should be carried out;
  - In a second step, based on the results of these analyses, targets for further research can be identified, which will reveal the causal relationships and processes involved in the observed population dynamics.
6. Indicator species and core sites in the Wadden Sea should be identified for long-term studies on the ecology of Wadden Sea birds. These studies should be focussed on food resources, habitat quality and disturbance sources in the Wadden Sea, to explain underlying processes of population developments. Such studies should primarily aim at the evaluation of turn-over-processes, the assessment of the carrying capacity of the Wadden Sea or the appraisal of the conservation status.
7. Measures for halting the observed declines can only be implemented if the causes of the declines are understood. Studies into possible causes of the observed declines, therefore, are urgently required. Such studies have to be species-specific.

The following topics are of top priority and appropriate studies should be started soon (results should be available before the next trilateral Wadden Sea Conference in 2010):

  - Studies of the diet and the numerical response to food densities/quality in a range of species, especially during the stopover periods and in midwinter period when stresses are highest.
  - Improved studies of the distribution, density and quality of benthic food organisms utilized by waterbirds and the factors influencing them. Emphasis on anthropogenic factors like dredging and other mechanical disturbances of the mudflat surfaces.
  - The quality of roosting sites as well as the role of disturbance (at the current level in the Wadden Sea) in context of decreasing waterbird populations is still unclear and therefore needs to be studied further.
  - Studies of relevant factors for the population dynamics of waterbirds outside the Wadden Sea within the flyway context of the population, e.g. predator-prey systems and weather in the Arctic as well as in African wintering areas or other critical stop-over sites.
  - Models for predicting the reactions of waterbird populations on the flyway level become increasingly available. Studies should focus on parameterizing these models.