

MEETING DOCUMENT

Task Group Management (TG-M 21-5)

17 December 2021
Online meeting



Agenda Item: 4. International Scientific Wadden Sea Symposium (ISWSS)
Subject: ISWSS Recommendations
Document No.: TG-M 21-5/4
Date: 10 December 2021
Submitted by: CWSS

The 15th International Scientific Wadden Sea Symposium (ISWSS) was held in virtual form from 30 November to 2 December 2021.

This document contains a presentation with results from breakout sessions (recommendations for science and management) by Stefan Garthe (birds), Anita Gilles (marine mammals), Christian Buschbaum (alien species), Christian Winter (sublittoral habitat), Jouke van Dijk (sustainable development- eco), Anja Szczesinski (sustainable development- socio), and Ingrid Tulp (fish)

Proposal: The group is invited to note the information and consider for TG-M activities

Recommendations for science and management



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Presentation of the results from the Breakout Session

Breakout Group
Birds



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Breakout Group BIRDS

Recommendations

SCIENCE

(1) More studies on birds' habitat choice are needed to identify important sites with different functions (feeding, moulting, resting, moving) within the Wadden Sea and on the entire flyway, specifically also by the use of tracking and remote sensing to unravel critical stages in the annual cycle of migratory birds. Especially the interplay between hydrodynamics, sediment properties, benthos and bird habitats on intertidal flats needs to be studied with respect to climate change and sea level rise.

(2) Monitoring of food resources (fish, benthos ...) for the WS birds is needed – from salt marshes to tidal flats, subtidal creeks and the offshore zone, focusing particularly on hot-spots of bird distribution (as revealed by telemetry).

(3) Life time/long-term studies of individual species/populations are necessary to infer changes/adaptions enabling optimal management of the birds in the WS. This includes demographic and multiple-year movement studies, as well as the focus on the full annual cycle of birds. Special emphasis should be put on birds that have been identified as long-term declining by TMAP. Also, more studies on the cumulative effects of human pressures on feeding and staging birds in the WS and along the flyway are needed.

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Breakout Group BIRDS

Recommendations

MANAGEMENT

(1) Flyway conservation management on the East Atlantic Flyway (incl. Russia) relies also on a healthy Wadden Sea. Development of sensitivity maps for birds and other biota as well as habitats on both a WS scale and a flyway scale are needed to conserve and manage bird populations in a proper way. This includes the identification of important habitats and their different functions for birds. Connectivity between the Wadden Sea and other wetland systems should be revealed to enable an international management of populations.

(2) Impacts from human activities are well-known as one of the limiting factors to the distribution and the health of many bird populations in the WS, but knowledge about a number of new activities are needed. The monitoring of impacts should include both well-known (contaminants and environmental toxins, fishery, hunting and disturbance) and new human (e.g. wind farms) activities, but also cover all habitats for birds – salt marshes, sandbanks, tidal flats and creeks, and subtidal and offshore areas.

(3) TMAP parameters and outcomes should be reviewed to optimize their use for research and management. Monitoring data show where problems arise for species/populations, and a far more coordinated and cross-bordering management is needed to improve the conditions especially for breeding birds in trouble. New parameters may be needed to include missing information (e.g. outer sands as roosts).

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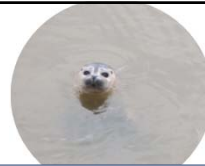
Presentation of the results from the Breakout Session

Breakout Group
Marine mammals



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MAMMALS Recommendations for science



1. Since 2012, numbers of **harbour seal pups** have shown an annual increase of 5% while number of adult seals stagnated at 1% increase per year. Monitoring efforts need to be adjusted and new research projects developed to understand the factors causing the mismatch between documented harbour seal pup numbers and adult numbers. These data are needed to predict the **long-term status of the Wadden Sea harbour seal population**.
2. Evidence from telemetry data suggests that individual **harbour porpoises are resident in the Wadden Sea**. Further information on the genetic population structure, distribution and habitat use of harbour porpoises is needed to understand the connectivity between the Wadden Sea and the North Sea habitat as well as their specific resource needs and the role as top predator in the Wadden Sea ecosystem. It is recommended that harbour porpoises in the Wadden Sea should continue to be treated as a separate conservation unit.
3. Climate change is likely to affect the habitat, health, reproduction, and resource use of marine mammals, potentially amplifying the impact that other environmental or anthropogenic effects have on their populations' dynamics. For adequate management actions, monitoring of physiological, behavioural and ecological **adaptations of marine mammals to climate change** and other anthropogenic disturbance is urgently needed to predict the adaptive capacities and resilience of the species resulting from the cumulative effect of multiple factors.

MAMMALS

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MAMMALS

Recommendations for management



1. Ensure the **implementation of existing management protocols and action plans as well as national and international agreements** to reduce the impact of identified anthropogenic and environmental pressures and threats. Due to their functional role as top marine predators in the Wadden Sea ecosystem, **marine mammals are sentinels for the productivity of the ecosystem** as well as for climate change and, thus, mirror the effectiveness of management measures, as their viability depends on a healthy ecosystem and the availability of adequate habitat and food resources.
2. Create and **enforce protected areas for marine mammals in the North Sea EEZs as well as in the Wadden Sea**, free of any anthropogenic disturbance, based on the scientific evidence for the location of key habitats. Consideration of management activities beyond the borders of the Wadden Sea World Heritage site are needed to ensure the integrity of the site.
3. Ensure funding for a **Wadden Sea wide, effective, well-coordinated, long-term monitoring**, consisting of aerial surveys (abundance, distribution), biotelemetry, passive acoustic monitoring (dispersal, behaviour, habitat utilisation) as well as stranding network (health, diet) to assess the population viability of all marine mammal species. Effective and adaptive management decisions need to be based on **scientific evidence provided by a monitoring with high-quality standards that could deliver early warning signs**.

MAMMALS

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Thank you for your
attention!



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Presentation of the results from the Breakout Session

Breakout Group
Alien Species

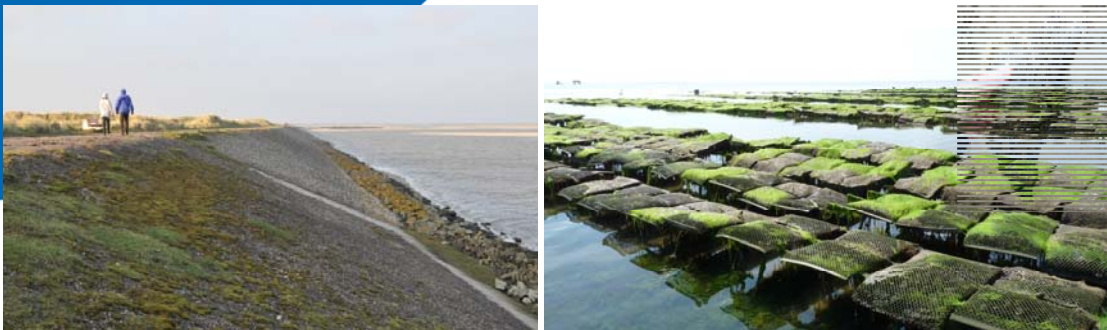


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Breakout Group Alien Species

Management Recommendation 1:

Tighten preventions of introduced species on regional scales by e.g. reducing artificial substrates and aquaculture activities



Goal:

Reducing artificial substrate suitable for successful establishment of non-native species and avoidance of unintentional introductions with aquaculture organisms.

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Breakout Group Alien Species

Management Recommendation 2:

Accept the established introduced species in the tidal ecosystem as new residents, while on wadden islands controlling of some invaders (e.g. rats, foxes, and the Rugosa rose) may be indispensable



Goal:

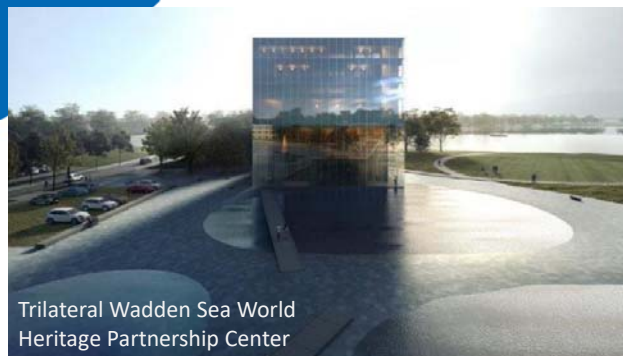
Different consideration of aquatic and terrestrial areas in the Wadden Sea with regard to introduced species. Avoiding collateral damages in the aquatic environment with attempts of removing introduced species. On wadden islands, safeguarding ground-breeding coastal birds as well as natural dune habitats to maintain characteristic biodiversity.

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Breakout Group Alien Species

Management Recommendation 3:

There is urgent need to implement a trilateral platform to exchange knowledge on introduced species (e.g. detection, distribution, effects) in the Wadden Sea area



Trilateral Wadden Sea World Heritage Partnership Center

Goal:

Improving trilateral knowledge exchange on the occurrence, distribution and dynamics of introduced species. Providing an infrastructure to coordinate monitoring activities and to agree on scientific priorities for research on the effects of introduced species.

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Breakout Group Alien Species

Science

Recommendation 1:

Harmonize trilateral detection and population monitoring of introduced species (including new DNA-based methods), and extend it to more taxa and habitats (e.g. natural habitats on Wadden Sea islands)



Goal:

Improving coordination of trilateral detection and population monitoring measures and the joined development of harmonized “modern” methods. Consideration of hitherto neglected taxonomic groups such as parasites and threatened dune habitats.

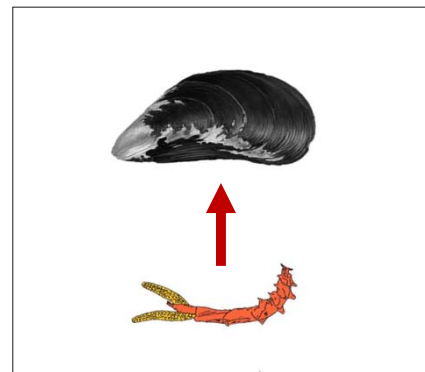
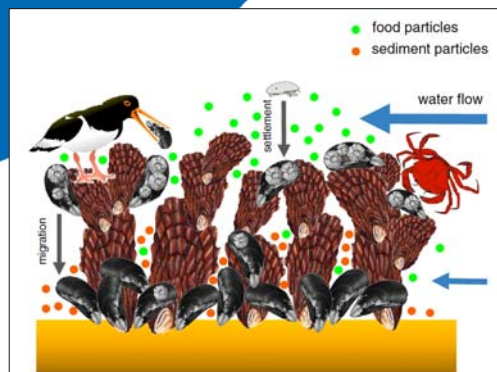
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Breakout Group Alien Species

Science

Recommendation 2:

Intensify research on direct and indirect effects of introduced species including non-native parasites and pathogens in the ecological web



Goal:

Better understanding on the effects (risks and benefits) of introduced species with respect to climate warming and sea level rise.

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Breakout Group Alien Species

Science

Recommendation 3:

Initiate a transdisciplinary working group to discuss whether the ecological role and management of introduced species should be reevaluated in the face of climate change



controversy

management

humanities

social sciences

natural sciences

stakeholders



Goal:

Overcoming the dichotomies of native versus alien and of pristine versus novel nature. Interdisciplinary coordination on dealing with introduced species in relation to climate change, preservation of ecosystem functions and potential management strategies.

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Thank you for your attention!



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Breakout Group Sublittoral habitats

Recommendations in the
Thematic Session
Sublittoral habitats



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Feasible Recommendations for science in a trilateral framework

We seek for:

Fundamental system understanding in **applied research** (meeting management goals). **Interdisciplinary** projects on the **mutual Geo-Bio interactions** explore timescales and adaptations of sediments, habitats, species in **connected systems**.

Quantification of the **state and changes** by comprehensive, interdisciplinary, state-of-the-art and new monitoring / mapping methodology. We recommend the **combination of synoptic full-coverage** observation and **continuous monitoring of representative areas**. We need to harmonize, **generalise standards** and state-of-art invasive and non-invasive methods for sediment and ecosystem dynamics.

New **modelling and assessment tools** for **comprehensive analyses and model experiments** across scales and forcings (storms to sea level rise projections). Coupling of morphodynamics and ecological models is needed to understand **cumulative effects and mutual developments**.

10.12.2021

Recommendations of the Thematic Session on Sublittoral Habitats

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Recommendations for policy, management in a trilateral framework

We recommend:

Common methodology and terminology in trilateral integrative policies and reporting. It is necessary to establish **common definitions, indicators, and** descriptors (e.g. MSFD also in Dutch Wadden Sea, synergies between OSPAR and MSFD, definitions of habitats).

Trilateral transdisciplinary communication should be fostered by regular workshops for **joint analyses and assessment** of data, scientific **platforms for joint** field campaigns and monitoring, and interdisciplinary research projects.

To assess and protect ecosystems by observation of reference sites in undisturbed (no take) and disturbed (human impact) areas by using an ecosystem approach. This includes the monitoring of the effect of measures and adaptive approaches.

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Recommendations of the Thematic Session on Sublittoral Habitats

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Breakout Group Sustainable development - eco

Recommendations in the
Thematic Session
Sustainable development - eco



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Recommendations Sustainability and Ecology

1. Science and Management have a joint responsibility.
2. Develop biodiversity assessment tools (for monitoring and assessment) and improve use of time series.
3. Define biodiversity/sustainability targets on local and regional level.
4. Need to understand the system and recognize complexity of the Wadden Sea. Simple indicators do not work, but the message should be simple. Requiring an adequate communication („complexity is not an excuse“).
5. Shape living labs/project jointly with managers and scientists. The Partnership Hub can be instrumental for all stakeholders involved.
6. Multi-disciplinary approach needed to address biodiversity/sustainability.

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Breakout Group Sustainable Development - Eco

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Breakout Group Sustainable development - socio

Recommendations in the
Thematic Session
Sustainable development -
socio



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Breakout Group Sustainable development – socio

Recommendations for Science

- Strengthen interdisciplinary dialogue and research between natural and social sciences and humanities on values in nature conservation, protected area management and sustainable development
- Strengthen funding opportunities for interdisciplinary and social sciences / humanities led research projects
- Strengthen the development of indicators and trilateral monitoring and recording systems in the areas of archaeology, history, and socio-economic fields, such as tourism, recognizing climate change impacts
- Dare to experiment and bring forth latent opportunities for sustainable development with others, e.g. through leisure and tourism for climate action and sustainable development in the Wadden Sea

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Sustainable development – socio

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Breakout Group Sustainable development – socio

Recommendations for Management

- Broaden collaboration of the Trilateral Wadden Sea Corporation with civic society and entrepreneurs for Sustainable Development of the Wadden Sea Region
- Acknowledge natural and cultural heritage as mutually reinforcing and recognize that nature conservation has to be informed by multiple societal and natural values.
- Strengthen reference to historical and cultural heritage in management by promoting a more holistic view of the socio-environmental history and possible futures of the Wadden Sea landscape.

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Sustainable development – socio

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Presentation of the results from the Breakout Session

Recommendations for FISH



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FISH recommendations to SCIENCE

In addition to recommendations

- QSR 2021/2016
- Swimway symposium 2019



○ Historical reference

- observations do not go back further than the 1970's
- To understand developments on a longer time scale => disclose historic information.



○ The central role of fish in the food web

- predator-prey relationships: fish are eaten by birds, sea mammals and fish, predator zooplankton and benthos
- Need for integrative trilateral studies involving fish - and other scientists.



○ Spatio-temporal variation ~ climate change (phenology, match-mismatch)

- **large species:**
 - extend receiver network of (acoustic) telemetry Western Wadden Sea
 - compatible to other initiatives.
 - migration routes, habitat use, to answer life cycle questions
 - also to mirror level of knowledge on flyway.
- **small species:**
 - Incorporate year-round sampling in the standard monitoring
 - to evaluate climate effects on phenology of Wadden Sea fish

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Recommendations for FISH

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FISH recommendations to MANAGEMENT

In addition to our
earlier recommendations:

- QSR 2021/2016
- Swimway symposium 2019
- Improve trilateral (instead of only national) approach
 - create homogenous measures throughout the Wadden Sea by aiming at coherence in (fisheries, closed areas) management and alignment of legislative instruments
 - create a level playing field for effective management.
- Look for synergies with existing legislative frameworks (Natura2000, WFD etc) and include Trilateral targets in current legislative objectives. Focus on functional groups and develop (trilaterally aligned) fish management plans.

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Recommendations for FISH

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Thank you for your
attention!



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