Wadden Sea Board

WSB 28

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Berlin, Germany

Common Wadden Sea Secretariat

Agenda Item:	**5.7 Science Cooperation**
Subject:	Trilateral Research Agenda – Joint Paper TG-MM and TG-WH
Document No.:	WSB 28/5.7/1
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Submitted by:	**TG-WH Chair, TG-MM Chair**

Attached is the joint document on the proposed Trilateral Research Agenda for the Wadden Sea prepared by TG-MM and TG-WH

Proposal: The meeting is invited to approve the report

Joint considerations of TG World Heritage and TG Management and Monitoring on the proposed "**Trilateral Research Agenda** for the Wadden Sea and its World Heritage Site"

Introduction and general comments

Wadden Sea Board (WSB) 22 has instructed the Task Group World Heritage (TG WH) and the Task Group Management and Monitoring (TG MM) to conduct priority considerations with regard to the paper "Trilateral Research Agenda for the Wadden Sea and its World Heritage Site[1]", prepared by an independent group of scientists[2] on the invitation of the trilateral Wadden Sea Cooperation.

The WSB further specified that the requested one/two pager should be based on the executive summary of the Trilateral Research Agenda (TRA), listing three priorities within each of the four themes. Missing aspects could also be included.

This note thus reflects the joint considerations of the two TGs. The considerations are envisaged to be included in the work of the expected "TRA-Programming Committee". They should also be taken into account in the 2nd step of the approach decided by the WSB, to follow up discussions with the scientific community.

The two TGs acknowledge the draft TRA as an important tool to integrate research trilaterally and to support the aims of the Trilateral Wadden Sea Cooperation (TWSC) in general as expressed in "The Wadden Sea Plan 2010" (WSP) etc. and of the World Heritage specifically.

The discussion focussed in its discussion on research priorities relevant for the management of the Wadden Sea as a World Heritage property in which safeguarding the Outstanding Universal Value and its attributes, including its integrity plays the central role. For each of the four themes it was discussed whether and how World Heritage issues are related and may lead to research questions that should be considered. The TGs were aware that a prioritisation and specification will be brought up in the envisaged programming committee for the TRA at a later stage.

Taking the above into account, the umbrella research question regarding the management of the World Heritage property might be formulated as follows:
What kind of scientifically based information, evidence, projections, experiences, methods/techniques and system understanding is needed to secure and enhance the Outstanding Universal Value (OUV) of the transboundary UNESCO World Heritage Site „The Wadden Sea" and its integrity to meet global responsibility and for future generations?

In this context reflections are to be done about to what extend the natural dynamics of the Wadden Sea are to be taken into account when it comes to the protection efforts of the World

[1] Link to the TRA
[2] Optional: Names/Institutes of the lead and corresponding authors

Heritage Site and therefore also influencing the definitions of the prior research, re. WSP 2010: "to achieve as far as possible a natural and sustainable ecosystem in which natural processes proceed in an undisturbed way".

From a monitoring and management perspective the TRA goes beyond defining future research questions but also stresses the importance of long-term data series. It provides advice for the acquiring, handling and accessibility of monitoring data as well as for the further development of monitoring methods. The following statements regarding the Trilateral Monitoring and Assessment Programme (TMAP) and data management in general (described in Chapter 5 of the TRA) should be taken into account with priority in all future considerations, as should the findings and conclusions of the periodic Quality Status Reports prepared by the scientific community connected with - and supporting the TWSC:

1. An easily accessible database/-portal for the entire trilateral Wadden Sea Region would be supportive of the needs of the scientific community as well as for the trilateral cooperation.
2. To meet future mapping and monitoring requirements for the trilateral Wadden Sea region, novel techniques in implementing monitoring programs will be needed to reduce costs of mapping and monitoring while enhancing data quality and usability.

3. It is of great importance to continue and further harmonize long-term field observations within the Wadden Sea Region and to advocate the importance of observations and models covering the entire Wadden Sea Region.
   In the above context, and in all other relevant contexts, available common and specific EU-services shall be utilized to the greatest extent possible.
4. Scientific input is necessary for monitoring and planning (e.g. SIMP development).

The draft TRA operates with four overarching thematic lines. Based on the above considerations, the TGs provide **priorities and comments for those four lines** based on the TRA research questions. Sound inter-disciplinary and trans-disciplinary approaches are required for the work on the following research options, while also taking into account the upcoming special IPPC Report on the Oceans and the Cryosphere in a Changing Climate. In this regard three categories for research priorities should be addressed within all thematic lines of the TRA:

1. System-understanding: Understanding the system including the dynamic nature of the Wadden Sea, close knowledge gaps, better knowledge of State of Conservation of OUV attributes including an assessment of the integrity of the World Heritage property;
2. Pressures: Understanding of pressures, potential threats and impacts on the system, including assessment of integrity;
3. Management: Enable scientifically based, informed management decisions: How to balance nature / OUV attributes and pressure/impacts?

The following priorities and comments to the four thematic liens are provided:

Thematic line 1: Climate, water, sediments, and subsurface

- Achieving a better understanding of the sediment/geomorphological response of the Wadden Sea to how the Wadden Sea sediment reacts in terms of spatial distribution and path ways of sand and mud, sediment budget and morphologic change, natural upward growth of tidal flats and salt marshes. The TRA can thus fill knowledge gaps referring to World Heritage criterion (viii) „on-going geological processes"…, especially impacts of climate change on geological processes (as on sediment system, impact of tidal and wind wave regimes).
- Pressures on OUV attributes with regard to criterion (viii) should be analysed. Recommendations for management options to protect the geological processes should be developed with priority, e.g. how to manage coastal protection/restoration under climate change conditions to enhance the ability of the Wadden Sea Area to adapt to climate change and to keep up the goal of natural dynamics, with special focus on sea level rise.
- Building up a modern database containing all relevant geo-parameters including frequent mapping of the combined Wadden Sea. Such an easily accessible database would serve all types of interdisciplinary investigations and management.

Thematic line 2: Ecology, biodiversity and spatial processes

- To include global dimensions of migration into system-understanding e.g. how are main habitats including migratory pathways and areas of primary production distributed over the trilateral Wadden Sea, which abiotic and biotic factors determine this distribution and its dynamics, and how sensitive are these to climate change and other human activities for ecosystem integrity?
- How strong is the influence of the exchange of dead (e.g. plastics) and living matter between the Wadden Sea and the surrounding to which it is connected on species and communities and how is this affected by climate change?
- What are the consequences of climate change and sea level rise for nature and rates of biogeochemical processes and how does this effect the species, communities and ecosystem of the Wadden Sea and how fast can marine species adapt to the actual and projected rates of environmental changes? The TRA covers criteria (ix) „ on-going ecological and biological processes"… and (x) …"natural habitats/… biological diversity"… sufficiently; however, the focus should not only address habitat change as consequence of climate change. The impacts of 'environmental change' on habitats, species and biodiversity should also be addressed.
- Better understanding of the cumulative impacts of global changes (such as temperature, pollution by nutrients and plastics) and other pressures on criterion (ix)/(x), with a special focus on the food web/trophic levels.
- Research on management options should be carried out, to analyse if we have the appropriate instruments to protect the OUV of the site, f.i. Research on drivers for the decline of breeding birds in the Wadden Sea is needed to explore suitable management options.

Thematic line 3: Cultural heritage, identity and historical embedding

- Research should focus on how society/regional cultural identity is or can be linked to the natural World Heritage values, and how this relationship has changed, or may change in future generations.
- Analysis on how changes of the above may have an impact on management of the Wadden Sea.
- Analysis of changes in perception of the Wadden Sea nature by people due to the World Heritage designation (ownership) and resulting economic changes.
- How to improve the linkage of cultural values (in- and outside the World Heritage Site) with the Wadden Sea World Heritage narrative to enhance ownership and support especially by future generations.

Thematic line 4: Economy, society and sustainable development

- Ecosystem services evaluations (using the available tools).
- Research should be carried out on how World Heritage can be used as catalyst for sustainable regional development (esp. beyond tourism), and how management could stimulate this.
- The benefits for people should be analysed (liveability) as well as possible societal changes and/or pressures.