MEETING DOCUMENT

**Task Group Monitoring and Assessment**

**TG-MA 21-2**

15 March 2021

Online meeting

**Agenda Item:** 4. TMAP and data handling

**Subject:** TMAP parameter workshops 2021

**Document No.:** TG-MA 21-2-4-1 v.2

**Date:** 12 March 21

**Submitted by:** K. Eskildsen, G Vossebelt, G. Scheiffarth

The document displays received TMAP parameter workshop proposals.

**Proposal:** The meeting is invited to discuss and elaborate the document.

Draft TMAP Parameter Workshop Proposals

**Proposal for a Workshop on sublittoral habitats in the Wadden Sea**

(by Kai Eskildsen, 11/03/21)

Monitoring of sublittoral habitats is not yet part of TMAP. The Wadden Sea Plan deals with these habitats under chapter 4 (Tidal Area) and chapter 7 (Offshore). The declared targets are not very specific. Sublittoral habitats are explicitly part of the Habitat directive and the marine Framework Directive. The Wadden Sea Plan notes that there are substantial differences in defining the HD habitats within the countries. To get an impression how things are managed under these prerequisites in the three countries a Workshop with the following focus is proposed:

*What has to be assessed from the national point of view?*

* *in the light of HD and MSFD*
* *in the light of national legislation*
* *in the light of TWSC/WH*

Therefore, a talk from all four regions (NL, DK, NI, SH) is needed to set the statutory scene.

What is monitored?

* Sediment and morphodynamic issues
* Identification of different habitats
* Size and area of different habitats
* Composition and constitution of species

Therefore, a talk from all four regions (NL, DK, NI, SH) is needed to present existing elements.

What should be recommended?

* Check of WSP and WH requirements with regard to sublittoral habitats.
* Identification of monitoring parameter necessary for the fulfilment of TWSC (TMAP) obligations.
* Possibilities to include (or create) relevant parameter.

Therefore, a guided discussion should take place that aims at recommendations to the trilateral bodies.

It is proposed to organize this workshop as a presence event. Experts from science and from administrations with experience in the Wadden Sea should be invited. As a first step, the authors of the former QSR chapter can be asked.

After consulting the colleagues, the Research and Technology Centre, West Coast in Büsum (DE) has offered to host the workshop.

**Concept workshop proposal monitoring optimization Salt marshes, Beaches and Dunes**

(by Gerrit Vossebelt & Gregor Scheiffarth, 12/03/21)

**Reading guide**

* Page 1-2 concept outline of workshop
* Page 3-9 background information

**INTRODUCTION**

The TG-MA envisaged a series of workshops to be conducted in 2021 with the aim to fill the discovered deficiencies, but also to explore the integration of new parameters from emerging issues (e.g. climate change, new pollutants, alien species). To further modernize and develop the programme for (in this case) Salt Marshes, Beaches and Dunes.

*<< to be filled >>*

**CONCEPT Outline of conceptual TMAP workshop** **optimization Salt marshes, Beaches and Dunes monitoring**

**Why? / Objective**

* Propose options for filling discovered deficiencies in salt marshes, beaches and dunes monitoring
* Explore the integration of new parameters from emerging issues (e.g. climate change, new pollutants, alien species).
* ….

**What?**

* Presentation of actual (IST) monitoring situation for Salt marshes, Beaches and Dunes monitoring based on the TMAP inventory table of the programme covering all regions and the full set of parameters.
* Consider WH Key Values
  + Beaches and Dunes: 1,2,3,4,5
  + Salt Marshes: 1,2,3,4,5,6,7,8,9,10
* Take into account:
  + International (WFD, MSFD, HD-N2000) and national legislation
  + Agreements (WH, OSPAR, TMAP),
  + Regional and national policy and management (?)
  + Recommendations from recent QSR’s (see attached summaries)
  + Identify limitations e.g. as from national monitoring networks
  + …
  + From TMAP Parameter Workshop:
    - NL: Beaches and dunes monitoring in the NL is under review and new programme under development.
    - NL: consider Ecotope map approach.
* Develop proposals or solutions for filling the gaps
* Present proposals for an optimised situation (SOL)
* …

**How?**

* Online session(s) – workshop / working sessions
* in which a final report / advise will be formulated
* Product / Outcome: Delivery of a report with the discussion and the proposal / advise
* **@Explore the option of contracting a report writer to draft the texts**
* …

**Who?**

* in consultation of EG Salt Marshes and Dunes
  + See list attached;
  + **@Update names in EG**)
* in parts also with external experts
  + **@Decide on including EG-Climate**
  + **@Enquire for names to participate**
  + D
  + DK
  + NL – Bas Kers??; Jeroen Bergwerf?;
* …

**When?**

* **@Deadline for delivery outcomes?**
* ???
* …

**Where?**

* Preferably physical meetings and for the (Corona / COVID19) time being online sessions
* …

**REASONING**

**From the WSB32 Progress report**

The TG-MA envisaged a series of workshops to be conducted in 2021 with the aim to fill the discovered deficiencies, but also to explore the integration of new parameters from emerging issues (e.g. climate change, new pollutants, alien species). The workshops would be planned in cooperation with relevant trilateral groups but in parts also with external experts.

Due to the travel and contact restrictions resulting from the COVID-19 pandemic, most of the workshops were expected to be held in an online format. This was considered as a limiting condition but needs to be overcome to safeguard further progress.

The following conceptual TMAP workshops are planned during 2021 to further modernize and develop the programme:

Beaches and Dunes / Salt Marshes / Subtidal Habitats / Geomorphology and Hydrology

An additional TMAP workshop, involving also external/international experts was planned on emerging issues, like e.g., climate change or alien species, with the aim to explore options for an enhanced coverage of these topics by TMAP.

**From the TG-MA 21-1 summary record**

4. Trilateral Monitoring and Assessment Programme (TMAP) and data handling

The chairperson summarized the TMAP data inventory workshop in December and noted that the major progress on the table would be the foundation for next steps. In this regard, he requested members to further complete the table where necessary and to foster investigations on discovered gaps.

To proceed with the data handling issue, he announced that he would contact the persons in charge of the regional data handling to initiate an exchange with TG-MA on the development of a common strategy for the future.

The secretary informed on the commission of a consultant to explore the TMAP contaminants data set with the aim of its reorganization and to develop a sufficient data handling process as basis for the corresponding future QSR Thematic Report. He added that this report would be delayed due to this process but was still scheduled for completion in time for the Ministerial Conference end of 2022.

Members expressed their concern of having any physical workshops/meetings in the first half of 2021. The meeting agreed to explore alternatives in an online format. Responsibilities for envisaged workshops were allocated as follows:

* Beaches and Dunes: Mr Vossebelt and Mr Scheiffarth in consultation of WG Salt Marshes and Dunes
* Subtidal Habitats: Mr. Eskildsen
* Geomorphology / Hydrology: Mr Kellermann, Mr Frederiksen and Mr Eskildsen
* Mr. Kellermann and Mr Klöpper would take the lead on an additional expert workshop, with a broader participation envisaged, for discovering options for further improving TMAP by considering new challenges (e.g. Climate Change and Alien Species).

It was agreed to draft outlines for the events by 15 February 2021 and to involve the expert/working groups where necessary.

**Current members of EG-SMD**

Checked 11 March 2021: <https://www.waddensea-worldheritage.org/nl/members/expert-group-salt-marshes-dunes-eg-smd>

**@Update the list with actual members**

* Kai Jensen (**Chair**; Institute of Plant Science and Microbiology, Klein Flottbek, Universität Hamburg, D)
* Jürn Bunje (National Park Authority "Niedersächsisches Wattenmeer", D)
* Kolja O. Dudas (Biol. Gutachten K.O. Dudas, Advisor)
* Willem van Duin (Artemisia-saltmarsh research, Advisor)
* Kelly Elschot (Wageningen University and Research (WUR), Dept. Wageningen Marine Research, NL)
* Peter Esselink (PUCCIMAR, Ecological Research and Consultancy, Adivsor)
* John Frikke (Danish Wadden Sea National Park, DK)
* Marie S. Glahn (Ministry of Environment and Food, Environmental Protection Agency, DK)
* Norbert Hecker (National Park Authority "Niedersächsisches Wattenmeer", D)
* Maike Isermann (Bremen University, D)
* Peter Körber (Environmental Authority of the free Hanseatic City of Hamburg (BUE), National Park Administration Hamburg, D)
* Jörg Petersen (Nature-Consult, Advisor)
* Martin Stock (Schleswig-Holstein Agency for Coastal Defense, National Park and Marine Conservation, National Park Authority, D)
* Marieke van Woensel (Rijkswaterstaat, NL) GV: Left RWS in 2019 (check on who is now member of te group)
  + Denise Roffel (kwelders), Raven (Zeegras) - Jan Theo Ynse (trekker natuurprogramma) **@afstemmen** / Rick Hoeksema
* Kristine Meise (**Secretary**; Common Wadden Sea Secretariat)

|  |  |
| --- | --- |
| Criterion (viii)  Outstanding geological processes | 1 - Unbroken tidal flat barrier system |
|  | 2 – Typical geomorphological diversity |
|  | 3 - Ongoing natural geomorphological processes |
| Criterion (ix)  Ongoing ecological and biological processes | 4 - Intact natural intertidal ecosystems |
|  | 5 - Linked geomorphological, biophysical and biological processes |
|  | 6 - High biomass production typical for the Wadden Sea |
|  | 7 - Key site for sustaining abundant wildlife beyond ist borders |
| Criterion (x)  Vital habitats for in-situ biodiversity conservation | 8 - High typical biodiversity |
|  | 9 - Staging, moulting and wintering area for migratory birds |
|  | 10 - Essential stopover for the East Atlantic Flyway |

**UNESCO CRITERIA FOR SELECTION**

http://whc.unesco.org/en/criteria/

(viii)

to be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features;

(ix)

to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals;

(x)

to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

**FROM: Wadden Sea Quality Status Report - Beaches and dunes - 2017-12-21**

1. Introduction

…

The targets for Beaches and Dunes, as defined in the Wadden Sea Plan 2010, are:

* *Increased natural dynamics of beaches, primary dunes, beach plains and primary dune valleys in connection with the offshore zone.*
* *An increased presence of a complete natural vegetation succession.*

…

Monitoring programmes mainly concern the dunes, whereas the beach ecosystem is

relatively poorly studied and not at all monitored.

3. Assessment

5. Summary

Beaches and dunes form the sandy outer side of the Wadden Sea area and contain a

variety of habitat types. Beach area and ecological status are currently not monitored.

Dune-vegetation monitoring is increasingly harmonised trilaterally, but not all time

series are consistent and trends can therefore not be identified, yet.

Status and trends

* Natural dynamics of beaches and dunes occur mainly on the uninhabited parts of the barrier islands without coastal protection, and on small uninhabited islands. In the Netherlands, dune activation projects are carried out to increase dynamics.
* A total of about 20,000 ha of dunes and dune slacks were mapped in the Wadden Sea region: approximately 8,000 ha in the Netherlands, 5,000 ha in Lower Saxony, 54 ha in Hamburg, 4,000 ha in Schleswig-Holstein and 3,000 ha in Denmark. Almost all are located on the barrier islands. The relative occurrence of vegetation types varies between islands and regions. The small islands in the Wadden Sea exhibit a large range of dunes differing in age, dynamics and vegetation types. Invasive alien plant species encroach in the dunes and dune slacks, and the TMAP monitoring should be improved to include these developments.
* Beach ecological status cannot be reported, but information on beach nourishments and recreation indicate that this ecosystem is under pressure.
* The various threats to dunes and beaches are estimated to be at approximately the same level as in 2009.
* Groundwater extractions and atmospheric nitrogen deposition have in most instances not, or marginally, decreased since 2009, and therefore still have (in some cases potentially) negative effects on the dune vegetation.

Assessment

Target 1: Increased natural dynamics of beaches, primary dunes, beach

plains and primary dune slacks in connection with the nearshore zone

* This target still lacks descriptors and dedicated monitoring.
* Qualitative interpretation shows that the combination of nitrogen deposition, coastal protection works, dune fixation, drainage, and recreation-related activities and buildings has since long resulted in a loss of dynamic processes initiated by wind and water. Trends in natural dynamics cannot be identified.

Target 2: An increased presence of a complete natural vegetation

succession

* All successional stages of the vegetation are present, but trends cannot be identified.
* Beach ecosystem: As already concluded in the QSRs of 2004 and 2009, there is still insufficient knowledge to assess the ecological status of beaches in the Wadden Sea.
* Ecosystem engineering processes: Ecosystem engineering dune grasses are abundantly present in the foredunes, but the processes are often inhibited to various degrees by past and/or present coastal protection measures.

Recommendations

* Improve the targets both in wording and in contents, and complement them with additional targets on the beach ecosystem and dune fauna.
* Indicators and monitoring for beaches and natural dynamics should be designed and implemented trilaterally, as soon as possible.
* Vegetation monitoring should be further harmonised trilaterally and extended with invasive alien plant species and rare plant species.

**FROM: Wadden Sea Quality Status Report - Salt marshes - 2017-12-21**

1. Introduction

Trilateral policy and management

All salt marshes in the Wadden Sea area are part of Natura 2000 areas. In addition to the national legislation and nature protection regulations in the Netherlands, Germany and Denmark, the trilateral 2010 Wadden Sea Plan (WSP) provides the framework for the management of the entire area (CWSS, 2010). In the WSP, the following five targets have been formulated for salt marshes:

1. To maintain the full range of variety of salt marshes typical for the Wadden Sea landscape;
2. To achieve an increased area of salt marshes with natural dynamics;
3. To achieve an increased natural morphology and dynamics, including natural drainage of mainland salt marshes, under the condition that the present surface area is not reduced;
4. To maintain a salt marsh vegetation diversity reflecting the geomorphological conditions of the habitat with variation in vegetation structure;
5. To maintain or to achieve favourable conditions for all typical species.

4. Recommendations

4.1 Recommendations for monitoring and research

Most recommendations for monitoring and research from the 2009 QSR, sometimes

slightly revised, are still valid:

1. **The monitoring according to the TMAP guidelines should be fully implemented.**

In order to assess the “favourable conservation status” of the Habitat Directive on the trilateral level, the TMAP Salt Marshes and Dunes Expert Group (SMDEG) concluded that the TMAP monitoring according to TMAP guidelines is a pre-requisite. Therefore, in order to allow a trilateral assessment, implementation of the TMAP salt marsh monitoring programme by Denmark is awaited.

1. **Distinction of secondary pioneer vegetation in the TMAP typology.**

The primary pioneer zone and the secondary pioneer plant communities in the inner salt marsh are not ecologically equivalent. In order to assess both communities separately, it is advised to subdivide the following two TMAP vegetation types: the *Spartina anglica* type (S.1.1) and of the *Salicornia* spp. / *Suaeda maritima* type (S.1.2; Petersen et al., 2014).

1. **The monitoring according to the TMAP guidelines should be extended with monitoring of marsh surface elevation.**

Surface elevation is a basic measure for all salt marshes. Change of surface elevation is an essential parameter for the evaluation of salt marsh development. Monitoring of surface elevation on selected permanent transects or monitor stations is therefore strongly recommended. This also would yield the possibility to evaluate marsh surface-elevation change on a regular base (§ 2.8).

1. **The monitoring according to the TMAP guidelines should be extended by monitoring plant species of the TMAP vegetation types.**

The TMAP monitoring programme does not provide monitoring data at the level of plant species, but on the level of plant communities only. In order to assess processes of salt marsh change, Bakker et al. (2005) recommended the annual monitoring of vegetation types at selected permanent sites in relation with elevation changes and management data. This recommendation can be specified as the monitoring of plant species in permanent plots, which is already common use in some sectors (Annex Table I.1). Ideally, this monitoring should be executed in relation with marsh elevation and management.

1. **Addition of landform type in GIS.**

This recommendation from the 2009 QSR has not been fully implemented yet (cf. § 3.2). In order to analyse vegetation maps or vegetation changes, data on substrate and salt marsh type are very relevant. So far, such information is not available at the trilateral level. The SMDEG therefore recommends the addition of standardized geomorphological map layers to the TMAP vegetation maps.

1. **Data harmonisation.**

The SMDEG successfully developed a standardized vegetation typology. In order to fully exploit the data that has been collected, harmonisation of GIS data sets is required and recommended.

1. **Every six years vegetation mapping according to TMAP typology shall be applied.**

For salt marshes the Habitat Directive requires an evaluation cycle with a time interval of six years. The SMDEG recommends to harmonize the mapping frequency with this evaluation cycle, and to adapt to a 6-year time interval for the next vegetation mappings in all sectors.

1. **Integration of additional relevant available data in relation to salt marshes, especially legal protection status, ownership and land use.**

Land use of Wadden Sea salt marshes can be subdivided into agricultural exploitation and nature conservation. These two land-use types cannot be quantified with the available data. In order to separate, for instance, agricultural exploitation by livestock grazing and grazing as management tool in nature management, the land-use types should be available in a harmonized GIS-dataset. It is recommended therefore to add a harmonized dataset on legal protection status, ownership and land use.

1. **Continuation of long-term study sites and incorporation of these sites into the International Long-Term Ecological Research sites (ILTER).**

The following three recommendations are novel:

1. **Monitoring of artificial drainage in salt marshes.**

The current TMAP monitoring assesses the time since the last human intervention, but does not give any information about the actual status of the drainage system. The SMDEG recommends to adapt the monitoring on drainage according to a harmonized method.

1. **Summer polders should be monitored as landform type.**

Although summer polders cannot be considered salt marsh (H 1330) they are former salt marsh with a high potential for salt marsh restoration.

1. **A method to evaluate and assess the target** *“to maintain a salt marsh vegetation diversity reflecting the geomorphological conditions of the habitat with variation in vegetation structure”* **is lacking, and should be developed.**

4.2 Recommendations for management

…