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Description automatically generatedMEETING DOCUMENT

**Expert Group Climate Change Adaptation (EG-C 14)**

28 June 2022

Online meeting

**Agenda Item: 7 Trilateral Monitoring Assessment Programme (TMAP)**

**Subject: TMAP workshop climate**

**Document No.:** EG-C 14/7

**Date:** 23 June 2022

**Submitted by: Robert Zijlstra (chair),**

In the course of an integration of climate change to the Trilateral Monitoring and Assessment Programme (TMAP), EG-C had agreed (EG-C 10) that the chair will be in contact about the timeline with the chair of TG-MA, and to inform him. EG-C further agreed to identify persons for such a workshop.

The group noted that parameters for ecology may include new species or loss of species in the Wadden Sea and that important information is contained in Philippart et al 2017 (QSR thematic report climate ecology). The group further noted that a TMAP recommendation for climate change may include a recommendation as in the pending action item 9/9 9/8 *Recommend to TG-MA/QSR editorial board taking up climate change effects on a “smaller scale” in each QSR thematic report in future*

There was consensus that information on the State Master Plan for Coastal Flood Defense and Coastal Protection by including information on the Schleswig-Holstein situation for climate monitoring, presented by Jacobus Hofstede at EG-C 11) would be helpful for the workshop.

At EG-C 11, the direction for a planned workshop(s) on climate monitoring for TMAP) was discussed. First recommendations may be in the style of:

* Data are existing, but analysis is missing
* Parameters could include: Habitat area (salt marsh, tidal flat), geographical shift of species (including terrestrial), seasonal storm surges (in relation to breeding season of birds)
* Consistent calculations (how to calculate tidal flats)
* Meeting 9/1 Prepare a trilateral documentation on what kind climate related monitoring is being performed on regional level.
* Taking up climate change effects on a “smaller scale” in each QSR thematic report in future.
* Possibility for case study for analysis of existing data in cooperation with the TrilaWatt consortium

It would be preferential to have one workshop for geomorphology and coastal protection, and one for ecology.

This document contains a concept note by Adi Kellermann, chair of the Task Group Monitoring and Assessment (TG-MA).

**Proposal:** EG-C is invited to recommend participants and agree on a workshop concept.

Concept paper for an enhanced monitoring of climate change and its impact on the Wadden Sea and its OUV: proposal for a workshop to improve trilateral data collection and exchange

Adi Kellermann (Chair TG-MA) and Robert Zijlstra (Chair EG-C)

Version 20211108

**The starting point and background**

According to the AR5 of the Intergovernmental Panel on Climate Change (IPCC) there is no doubt that climate change and sea level rise are ongoing and will continue in foreseeable time scales. This has undoubtedly impacts on the Wadden Sea and its outstanding values as World Heritage area. Increasing sea levels will affect tidal flats and tidal channels and basins by increased inundation which in turn has consequences for sediment accretion either or loss. Predictions of what is going to happen are currently difficult and subject to model precision and variability.

Whatever the future development of sea level rise and its impacts on morphology and hydrology of the Wadden Sea will be, there is reason enough for enhanced consideration in a future-proof TMAP.

**Relevant parameters and programmes**

Focus of the trilateral EG-Climate in the past period was on the development of the Climate Change vulnerability index, being a challenging task. As a main result, the CVI has pointed out which climate change drivers appear to be most relevant when considering the Wadden Sea’s OUV, which may be input for TMAP. EG-C had several discussions in the Expert Group leading to the following first (draft) conclusions:

* With respect to measurements/data recording in the Wadden Sea the present (obligatory) programmes are not perfect but neither insufficient;
* Considering the basic data needed to look at the impact of climate change, these are generally present, this in the first place being hydrological and morphological parameters, such as water levels, water temperature, and tidal basin bathymetry.

One can always argue whether spatial and temporal scales are sufficiently small, but this obviously is a tradeoff between cost and benefit as measurements (especially bed levels) are costly in such a huge area. A first advice would be to have a closer look at the available bathymetrical data in the three countries as geomorphological changes – such as potential drowning of the Wadden Sea - are probably on the long run the most severe threats of climate change. Secondly, improving monitoring of the development of air and water temperature (trends), both mean and extremes is very important as these parameters are key to understand changes in the ecosystem. In the Netherlands for instance long term observations of water temperature are still rather scarce and comparable deficiencies may be present in the other countries.

What would be of added value too is to increase efforts to compare the available observations (and the regional/national analyses of these observations) at a trilateral level; e.g., are morphological developments in the different tidal basins comparable or not? And if not what needs to be done to make data comparable? These comparisons are being made, but usually at an ad hoc basis.  Do we see water level temperatures rising all over the Wadden Sea or are there regional difference? What can we learn from that on the potential impact of climate change? Of course these analysis are being made in the QSR, but this remains at a rather abstract level.

**Proposal:**

a workshop in early 2022 to develop recommendations and a plan to improve the power and coordination of the national monitoring programmes in question with relevance for climate change under the umbrella of TMAP.

* Step 1: Identify the ongoing national programmes and persons in-charge;
* Step 2: find out about their willingness to explore and if feasible to increase the power and relevance for improving the TMAP;
* Step 3: find out about how to improve ongoing programmes based on potential, resources and capacity;
* Step 4: if there is potential for doing so, find a date for the workshop