MEETING DOCUMENT

**Expert group Climate Change Adaptation (EG-C 7)**

16 December 2020

Online meeting

**Agenda Item: 6. Single integrated management plan (SIMP)**

**Subject: Impacts on OUV**

**Document No.:** EG-C 7/2

**Date:** 14 December 2020

**Submitted by: CWSS**

Coastal flood defense and protection is one key topic of the single integrated management plan (SIMP).

At their EG-C 6 meeting, EG-C agreed to identify activities to determine impacts of coastal flood defence on the OUV and to send their top three activities under consideration of positive and negative impacts on the OUV to CWSS until 30 October 2020. This list was reviewed by the chair Mr Zijlstra.

In this process, it was recommended by EG-C members to involve an external consultant in the process (resources would need to be found).

This document contains

* Possible tasks for a consultant, as well as
* Annex 1. Preliminary list of coastal protection activities with potential impacts on OUV and
* Annex 2. Key values derived from the Statement of Outstanding Universal Value.

**Proposal:** Discuss and agree on draft activities affecting OUV key values related to coastal risk management and on next steps

**Task specification for possible consultant**

1. An **assessment on the (potential) conflicts and opportunities** of Coastal Flood Defence and Protection measures (or coastal flood and erosion management – CFEM measures) with the Outstanding Universal Value (OUV) of the Wadden Sea World Heritage. Environmental impact analyses (EIA) conform EU legislation can contribute with base information. The assessment should include:
   1. a description of the existing Coastal Flood Defence and Protection measures activities and their (potential) impacts. A preliminary list has been gathered by the EG-C and can be used as a starting point (Annex 1). Describe the impacts, including: positive and/or negative, current and/or potential, originating inside and/or outside of the property, Spatial scale: restricted (i.e. affecting less than 10% of the property’s area at any one time); localised (i.e. affecting between 11 and 50%); extensive (i.e. affecting between 51-90%) or widespread (i.e. affecting between 91-100%), and temporal scale: one off or rare, intermittent or sporadic, frequent or on-going.
   2. according to its criteria and the associated key values (see Annex 2) assess in the matrix, if the impacts are/would be insignificant (no colour), minor (green), significant (yellow), or major (red), and their trends using arrows to show if the trend of the overall impact (negative or positive) is decreasing, static or increasing.
   3. recommendations to reduce or eliminate negative effects on the OUV or to leverage positive effects. This analysis should benefit from discussions with the relevant TWSC groups in coordination with the SIMP development process.

**Annex 1. Preliminary list of coastal protection activities with potential impacts on OUV**

* Construction of dikes and dams, fixation of dunes on islands
  + Ongoing morphological effects of closures and dike building: impact on natural dynamics.
    - instant destruction or narrowing of benthic habitats
  + Long term perspective (looking back in time): great loss of specific Wadden habitats and inland water systems got isolated from the Wadden Sea (mainly for fish)
    - Loss or disappearance of species and biodiversity
    - Habitat change results in the simplification and homogenization of : species pool, food web, ecosystem functions and even the production of goods and services from the area
* Dike strengthening and maintenance
  + Space required: potential loss of habitats
  + Disturbance during construction/maintenance
    - further impact the ongoing ecological and biological processes in the area, the development of coastal and marine ecosystems and communities are hindered
  + Opportunities (ongoing in NL):
    - restoration of connectivity (e.g. new fish migration facilities)
    - building with nature solutions: positive effects on habitats and species
    - replacement of revetments by more ecological sound solutions
* Sand nourishments
  + Negative impact on habitats and species (burial) (however: in NL this is outside Wadden Sea area and thus formally no negative impact on OUV)
    - destruction of resident and characteristic benthic community structures and functions
    - disappearance of key species and settlement of new and exotic species capable of habituating the new environment
  + Changes of sediment composition (chemical, grain size)
    - changes in sediment composition results into changes in benthic species composition and even disappearance of benthic communities

* + But also: sand nourishments contribute to keeping up with sea level rise and thus support the system (protect habitats on macro scale)
* Construction of groins/dams (mainly on islands)
  + Block transport of sediments (natural dynamics hindered) and morpho dynamics which includes hydrodynamics, sediment transport, morphology and interaction with biological elements and processes which play important roles in demobilizing sediments and in generating eco engineers causing eco-morphological landscape units such as mussel beds and salt marshes.
  + Dwelling mounds and ditches also help to protect and secure homes from flooding (e.g. Harlingen). This pattern of small scale modification helped to maintain coastal marshes and inland habitats ensuring higher biodiversity but larger scale transformations for dykes construction included the embankment and drainage of coastal marshes leading to the disappearance of natural wetlands, and relevant coastal habitats and furthermore generating to a more homogenized and completely different landscape.

**Annex 2. Key values derived from the Statement of Outstanding Universal Value**

| **Statement of OUV** | **Key value** |
| --- | --- |
| ***Criterion (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;*** | |
| *The Wadden Sea is a depositional coastline of unparalleled scale and diversity.*  *It is distinctive in being almost entirely a tidal flat and barrier system with only minor river influences and an outstanding example of the large-scale development of an intricate and complex temperate-climate sandy barrier coast under conditions of rising sea-level.* | 1. Unbroken tidal flat and barrier system |
| 1. Typical geomorphological diversity |
| *Highly dynamic natural processes are uninterrupted across the vast majority of the property, creating a variety of different barrier islands, channels, flats, gullies, saltmarshes and other coastal and sedimentary features.* | 1. Ongoing natural geomorphological processes |
| ***Criterion (ix) – to be outstanding examples representing significant ongoing ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals;*** | |
| *The Wadden Sea includes some of the last remaining natural large-scale intertidal ecosystems, where natural processes continue to function largely undisturbed.* | 1. Intact natural intertidal ecosystems |
| *Its geological and geomorphologic features are closely entwined with biophysical processes and provide an invaluable record of the ongoing dynamic adaptation of coastal environments to global change.*  *There are a multitude of transitional zones between land, sea and freshwater that are the basis for the species richness of the property.* | 5. Linked geomorphological, biophysical and biological processes |
| *The productivity of biomass in the Wadden Sea is one of the highest in the world, most significantly demonstrated in the numbers of fish, shellfish and birds supported by the property.* | 6. High biomass production typical for the Wadden Sea |
| *The property is a key site for migratory birds and its ecosystems sustain wildlife populations well beyond its borders.* | 7. Key site for sustaining abundant wildlife beyond its borders |

| **Statement of OUV** | **Key value** |
| --- | --- |
| ***Criterion (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.*** | |
| *Coastal wetlands are not always the richest sites in relation to faunal diversity, however this is not the case for the Wadden Sea. The salt marshes host around 2,300 species of flora and fauna, and the marine and brackish areas a further 2,700 species, and 30 species of breeding birds.* | 8. High typical biodiversity |
| *The clearest indicator of the importance of the property is the support it provides to migratory birds as a staging, moulting and wintering area. Up to 6.1 million birds can be present at the same time, and an average of 10-12 million each year pass through the property.* | 9. Staging, mouthing and wintering area for migratory birds |
| *The availability of food and a low level of disturbance are essential factors that contribute to the key role of the nominated property in supporting the survival of migratory species.*  *The property is the essential stopover that enables the functioning of the East Atlantic and African-Eurasian migratory flyways. Biodiversity on a worldwide scale is reliant on the Wadden Sea.* | 10. Essential stopover for the East Atlantic Flyway |

Key values formulated by the Common Wadden Sea Secretariat and the trilateral Task Group-World Heritage in their 27th meeting (May 2019).