Living Lab Wadden Sea: Learning from Transboundary Pilots on Nature Restoration and Nature Based Solutions

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Background & Objectives

The Wadden Sea is protected by international agreements on nature conservation in recognition of its unique tidal mudflat ecosystem (see Figure 1). From the 1970s, management was mainly focused on the preservation of existing nature and landscape values, and existing habitat areas. Since 2000, there has been a shift forward increasing the area of targeted nature habitats, enhancing natural morphological and dynamic processes, and restoring the structure of salt marshes to improve conditions for wading birds. Since 2010 there is increasing attention to the role of the Wadden Sea in flood risk management. The row of barrier islands, the tidal flats, banks and salt marshes dampen waves, and help to protect the mainland. Therefore, adaptive management was introduced. Moreover, several pilot projects were implemented to explore innovative ways to integrate flood protection and nature development.

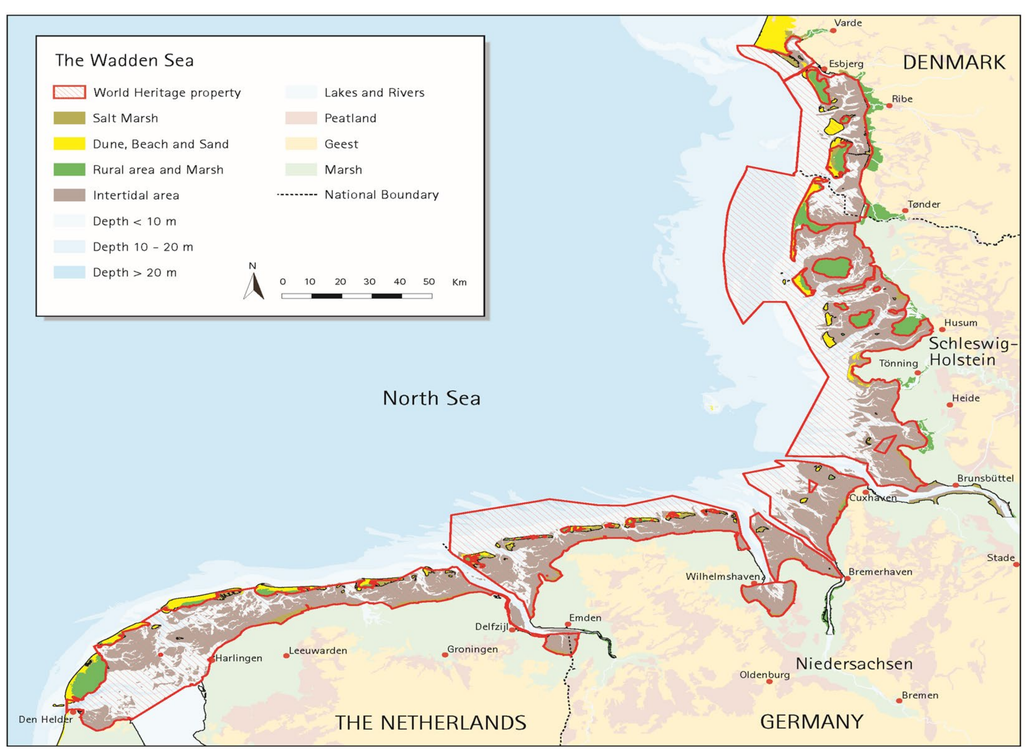

Figure 1. The Wadden Sea World Heritage Map. Source: © UNESCO

Scope

Within the EU Horizon 2020 Green Deal project REST-COAST[1], the Wadden Sea is one of the 9 pilot sites because of all ongoing projects and programs (e.g., Eems-Dollard 2050[2], CORE-PLAT, WaterLANDS[3]). They have resulted in the implementation of a multitude of pilots on nature conservation and restoration (see Figure 2 and Figure 3).
The scope of REST-COAST for Living Lab Wadden Sea is among others:

- transboundary exchange of knowledge and experiences,
- enhanced commitment of scientists, citizens, stakeholders and policymakers to long-term coastal conservation,
- mutual development and sharing of models to support nature conservation and development,
- gain ex-ante insight in the impact of transboundary measures,
- exploring Nature Based Solutions within different spatial and temporal scales for improved natural dynamics and connectivity.

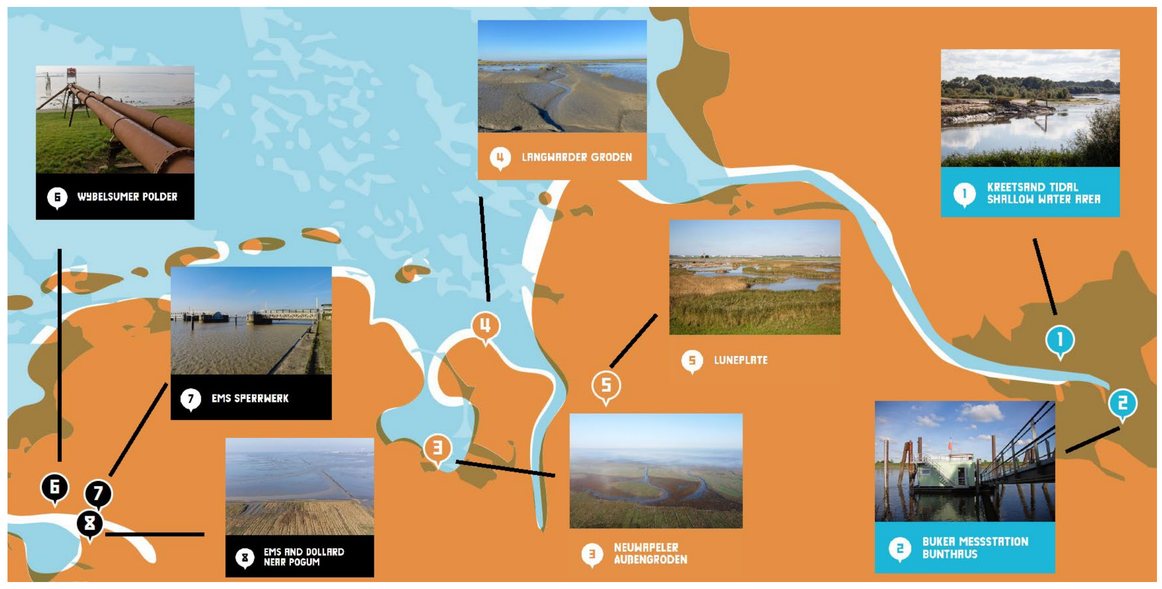

Figure 2. Sediment Solutions in Elbe, Weser and Eems-Dollard: Trilateral level adaptation and management of sediment, silt and sand[4].

Figure 3. Ems-Dollard 2050 pilot projects for transboundary collaboration towards climate adaptive coastal zone[2].

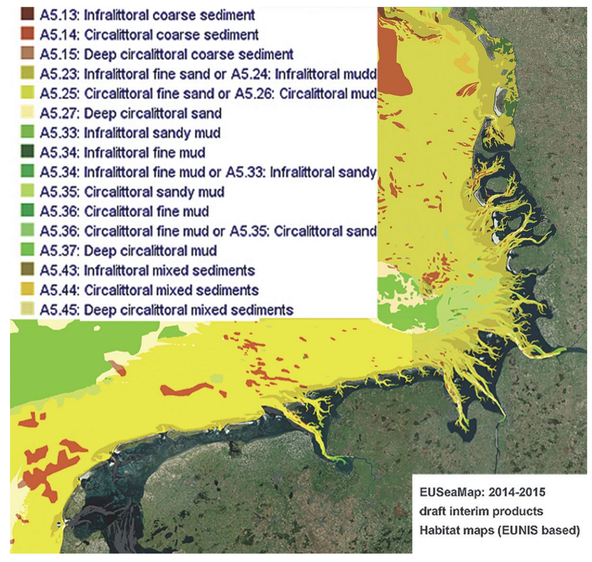

Figure 4. Habitat map of Wadden Sea and adjacent offshore areas based on EUNIS classification[5].

Outlook

Being one of the largest tidal flat system in the world with largely undisturbed natural processes, the trilateral Wadden Sea requires a holistic, whole system approach to efficiently and effectively conserve and restore its nature. Accordingly, the REST-COAST project aims to develop:

- joint network and joint activities e.g., Community of Understanding[4] on sediment management (see Figure 2),
- shared understanding of approaches in adaptation management, e.g., Eems-Dollard 2050[2] hands on restoration pilots for a healthy ecosystem (see Figure 3),
- joint tools, e.g., Ecosystem mapping of target species and habitats[5] (see Figure 4)

Supplementary Information

[1] REST-COAST (Large scale RESToration of COASTal ecosystems through rivers to sea connectivity) is an EU Horizon 2020 Green Deal Project aiming for healthy and climate resilient EU coastal regions. https://rest-coast.eu/
[2] Eems-Dollard 2050. Programme Plan 2021-2026. https://eemsdollard2050.nl/
[3] WaterLANDS (Water-based solutions for carbon storage, people and wilderness) is an EU Horizon 2020 Green Deal project. https://waterlands.eu/
[4] Sediment Solutions Excursion 2021, Program Towards a Rich Wadden Sea. https://rijkewaddenzee.nl/SedimentSolutionsExcursion2021/
[5] Vorberg R., Glorius S., Mascioli F., Nielsen P., Reimers H.-C., Ricklefs K. & Troost K. (2017) *Subtidal habitats*.

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