

# Wadden Sea ‘Sediment solutions’ Community of Understanding

## Summary report of the Sediment Solutions Webinar of June 18, 2021

### Introduction and future plans

Chairperson Mindert de Vries opened the webinar with the remarks that the interest in the community continues to be high, as can be derived from the participation of today: ca. 40 participants in total. Of course, there are still points of attention for the development of the community. For example, the balanced participation from the countries and the participation from science and management as well as the involvement of the youth.

Wim Schoorlemmer and Cristina Nazzari elucidated future plans for the community. Main messages:

- The Programme towards a Rich Wadden Sea will continue to support the community until, at least, the end of 2021.
- The Common Wadden Sea Secretariat will offer further support to the initiative and will help ensuring adequate connection to the existing trilateral groups whenever appropriate.

### Summary of the first session:

#### ‘Sediment-ecology interactions in the Wadden Sea ecosystem’

**Petra Dankers** introduced current Dutch projects aiming the improvement of the ecological situation of the Ems estuary, but also explained the main reasons for the ecological deterioration of the estuary (including the Dollard). These are the deepening and widening of shipping channels and the decrease of wetland area around the estuary, causing tidal pumping and hence increased sediment concentration in the water column. This, in turn, causes suppression of primary production, may lead to anoxic conditions (particularly in the lower river section) and also leads to general deterioration of channel and tidal flat habitats.

Petra showed various pilot projects in which sediment trapping is coupled to wetland restoration in the estuary. On the basis of these, larger projects may be defined and executed. Joint monitoring between Germany and The Netherlands is also being organized, in order to better understand the ecological interactions in the estuary.

**Johannes Pein** showed the effects of human interventions in the Elbe estuary on the basis of numerical model exercises. The results point at similar cause-effect relations as in the Ems estuary, but in the Elbe the human impact may even be stronger, due to the closure of the former main channel. Anoxic conditions in the lower river section may also increase due to climate warming and eutrophication. Measures to counteract negative effects may include opening of the former main channel and increased meandering of channels. But these measures may lead to decrease in the societally desired human functionality (shipping etc.), so that societal acceptance is crucial.

In the ensuing discussion, the similarities between the problems and potential solutions in both estuaries were pointed out, although there are also remarkable differences. It was concluded that trilateral cooperation on Wadden Sea estuary issues would be an important field of interest for the community. This could entail:

- Study of causes, effects and potential remedies and comparison across various impacted estuaries
- Define and promote ecologically effective as well as societally acceptable solutions.

### Summary of the second session:

#### ‘sediment application for coastal defence and other uses’

The project ‘Gute Küste Niedersachsen’ (<http://gute-kueste.de>), presented by **Oliver Lojek**, investigates ecosystem services of vegetation at salt marshes and dunes in favor of coastal protection and societal and environmental co-benefits. Many different measuring devices and methodologies are deployed in the field, at laboratories and wave flumes aiming to study the interaction of biotic and abiotic factors, i.e. the effect

of vegetation on energy levels of waves and currents, or the stabilization of the sediment against erosion. This ongoing research involves more than 25 researchers of 7 institutes and 3 universities at Lower Saxony, Germany.

Participants of the webinar asked whether the influence of benthic organisms on the sediment structure were part of the research. This is planned for a second project phase, commented **Maïke Paul** to the chat, senior scientist in the project. Still at the beginning of its five-year research phase, the joint project favors the exchange with other groups and scientists working on similar topics at the Wadden Sea.

**Marcel van den Heuvel**, technical manager of the Ecoshape - Clayripening project, presented the procedure to use sediment dredged from the port of Delfzijl and Ems-Dollard waterway and to convert it into usable clay for the construction or reinforcement of dikes. The clay extracted during the project phase is intended to cover the volume required to strengthen the 'Brede Groene Dijk' at the Dollard, which is part of a related project. Van den Heuvel outlined the difficulties involved regarding the technology and profitable efficiency, but also the implementation into existing legislation. He concluded that the success of the project is attributed to the fact that all stakeholders had been involved from the very beginning. Still in the testing phase, it is too early to foresee whether this methodology could substitute traditional harvesting of clay in the Netherlands or even on a larger scope.

Although there was little time for discussion, the audience commented on the benefits of existing clay harvesting practices in the Netherlands and on the overall costs involved with the presented technology. Considering clay from land as a finite source, this methodology thus could have the potential to solve sediment managing problems in the near future. A word of warning was spoken too, since a part of the clay ripening takes place on a salt marsh in the estuary: this is Natura2000 area, that should be respected.

### Organisation of the excursion

The webinar was closed by **Michiel Firet**, who presented a short update of the excursion organisation: It will take place **October 7 to 9, 2021** and will be the next connection opportunity of the community and will show practical examples of sediment solutions and challenges. Traveling between European countries seems to become possible again even if there will be with some Covid-regulations in place. We will strictly observe these during the planning phase and the excursion itself. **July 15** we will take the go/no go decision. The topics we could address in the site visits (still to be chosen) are:

1. Climate adaptation and coastal defence
2. Improvement of biodiversity and (habitat) connectivity, including 'softening the Wadden Sea-inland boundaries'
3. Harbour accessibility and estuarine issues/solutions
4. Regional meaning of the trilateral mud balance study.

At every site we will try to make a connection between the 'local history' (motives, chosen solution, society involvement etc) and the sediment solution systems approach and we will invite locally involved people (managers, landowners etc) and scientists to introduce their contributions. We will also invite CoU participants to 'mirror' the site cases with their own experiences. The excursion sites will be concentrated in the Ems-Elbe region.

The pre-registration is open until the **8<sup>th</sup> of July 2021**.

### More information

- Sediment Solutions - <https://rijkwaddenzee.nl/en/sedimentsolutions/>
- Program towards a Rich Wadden Sea - <https://rijkwaddenzee.nl/en/>



