



REST-COAST

Deltares



# Brief overview of aims, cases, partners, work packages

Mindert de Vries

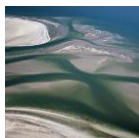
14 December 2021



This project receives funding from the European Union's Horizon 2020 Research and Innovation action under grant agreement No 101037097.

# About

- 2021-2025
- Addresses Green Deal 7.1 Restoring Biodiversity and Ecosystem Services
- Aims to demonstrate the feasibility of **large-scale restoration** for threatened low-lying coastal systems and their ESS to provide a **biodiversity-rich and low-carbon** solution to climate adaptation and disaster risk reduction.
- Value: 15 million euros
- Multiple pilot sites across Europe/Middle East, 3 main cases



Wadden Sea,  
NL and DE



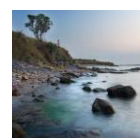
Ebro Delta,  
ES



Venice Lagoon,  
IT



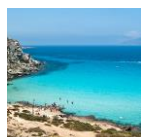
Vistula Lagoon, PL



Foros Bay, BG



Rhone Delta, FR



Sicily Lagoon, IT



Arcachon Bay, FR



Nahal Dalia Estuary,  
IL



# Consortium Members

Coordinator: Universitat Politècnica de Catalunya (UPC)

Partners: 38 from Bulgaria, France, Germany, Israel, Italy, Netherlands, Poland, Spain, Switzerland, Turkey, UK, USA

## Dutch partners:

**Deltares**



**provincie  
 groningen**



**EEMS20  
 DOLLARD50**



**WAGENINGEN**  
UNIVERSITY & RESEARCH  
*Marine Research*



**WAGENINGEN**  
UNIVERSITY & RESEARCH  
*Water Systems and Global  
Change*



**GLOBAL  
CENTER ON  
ADAPTATION**



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# Work packages

WP01	<i>Cases: Evidence-based coastal restoration practice and techniques <b>Groningen (ED2050), Deltares and partners involved in WS casus (experts)</b></i>
WP02	<i>Modeling: Climate risk reduction through restoration <b>Deltares involved in modelling (postdoc+experts)</b></i>
WP03	<i>Financial arrangements and business plans for restoration <b>Deltares: financial arrangements (PhD)</b></i>
WP04	<b>Adaptive Management for Restoration and Upscaling (Deltares lead) WMR, WUR, GCA, Ecoshape <i>Deltares+WMR: Blue carbon (PhD)</i></b>
WP05	<i>Transformative governance for upscaling <b>Deltares</b></i>
WP06	<i>Social transformation/engagement tools for restoration upscaling (dissemination/exploitation) <b>GCA</b></i>
WP07	<i>REST-COAST Management and cooperation/clustering with other EU/International projects &gt; WATERLANDS and MERLIN!</i>

UPC-LIM  
Barcelona  
Coordinator



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## WP1

### Wadden Sea Pilot: focus on sediment dynamics and implementing NBS

co-leads: Mindert de Vries (Deltares),  
Joanna Staneva (HEREON)

## All NL-DE Partners



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## REST-COAST CONCEPT

- Sediment is driver for lagoon and inland functions and NBS
- Sediment connects the whole system across scales
- If sediment sources and sinks change, the whole system will change

Questions for case:

- -What are sources and sinks of sediment?
- -Can we predict its dynamics & long term trends?
- -How do NBS influence sediment and deliver services (safety, carbon seq., biodiversity, productivity)
- -How much NBS do we need to produce enough ESS to achieve goals?
- -How is this related to climate change?

Sources  
Sinks



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## WP2

### Modelling of climate risk reduction through restoration

### Focus on Eems-Dollard, Jade Bight and East Frisian Wadden Sea

### Bas van Maren (Deltares) / Joanna Staneva (Hereon) + UPC-LIM

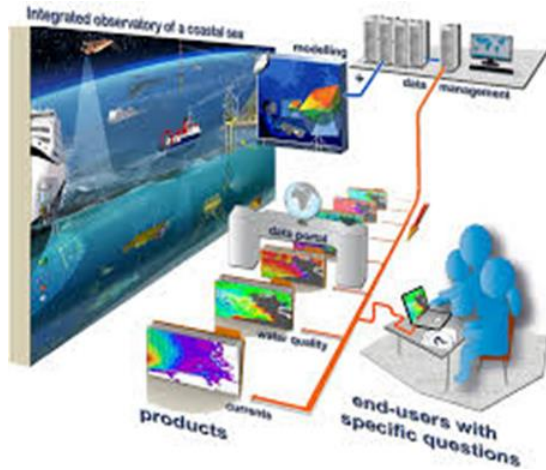


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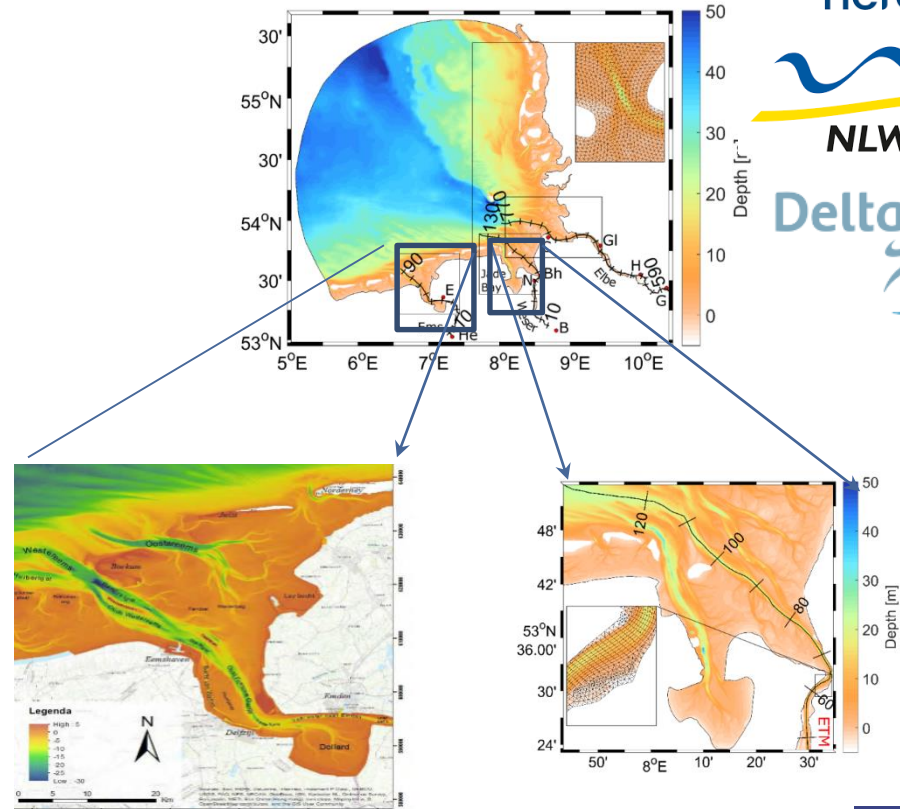


# Modelling sediment dynamics and ESS (downscaling/upscaling)

- Jade Bight/Weser Estuary
- Ems-Dollard Estuary -> NL-DE transboundary case
- East Frisian Wadden Sea



integrated Model and Data products





# Output of WP 2 (Bas van Maren, Jasper Dijkstra)

## Outputs related to modeling

- Coupling van HEREON SCHISM model and Delft3D FM model for analysis of climate scenarios and impact of NBS on estuary and Wadden Sea scales
- Quantified interaction sediment dynamics – vegetation – NBS design
- Present and future habitat quantifications
- papers

## Interesting for Deltares, partners and ED2050

- A state-of-the-art model for the Ems & WS but also in terms of methodologies to deal with SLR and quantify ESS
- A boost for vegetation modelling, test case for carbon sequestration
- A new way of combining our D3D models with flooding models, including ESS





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## WP4 Adaptation management for restoration and upscaling

Mindert de Vries (WP4 lead) – DEL

Martin Baptist (Task 4.1) – WMR

Jantsje van Loon (Task 4.2) – WUR

Tom Bucx (Task 4.3) – DEL

Mindert de Vries (Task 4.4) – DEL

Pim Willemsen, Bregje van Wesenbeeck en Kelly Elschot > PhD supervision



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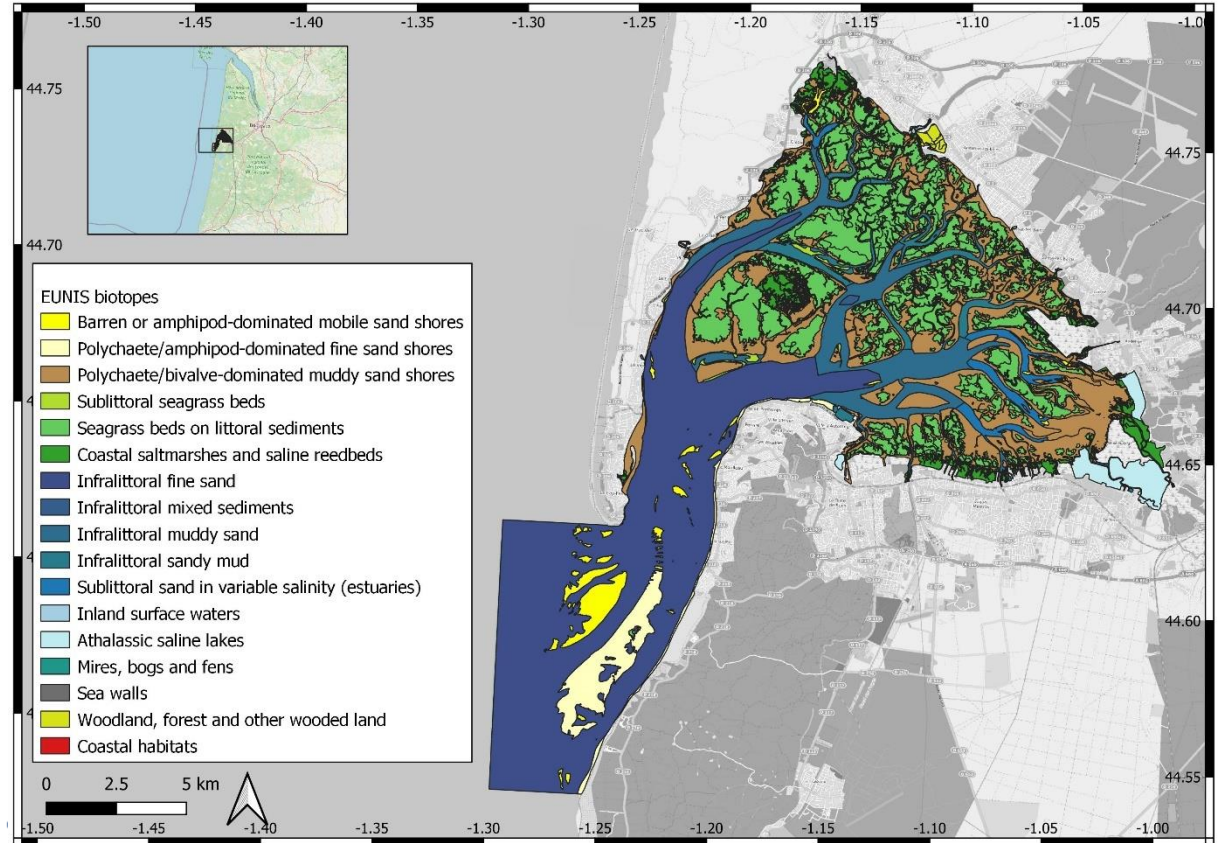
# WP4 overview - approach

- Task 4.1 Analysis of performance and management in coastal landscape restorations (*lead Martin Baptist, WMR*). **Welke NBS in de kustzone leveren welke ecosysteemdiensten, waaronder waterveiligheid, waterkwaliteit, CO2 vastleggen en biodiversiteit? WP1, WP2 > WP4**
- Task 4.2 A downscaling approach for developing restoration with NBS as building blocks (*lead Jantsje van Loon, WUR*) **Welke NBS bouwstenen zijn beschikbaar voor het methodisch ontwerpen van nieuwe restauratie projecten en benutten van meekoppelkansen? WP4 < WP5, WP6**
- Task 4.3 Scaling up: A systematic methodology to adaptation(-through-restoration) pathways (*lead: Tom Bucx, Deltares*). **Hoe werken NBS samen in tijd en ecosysteem? WP4, we use results from RISES-AM**
- Task 4.4 Scaling out: scalable plan for restoration-based adaptation (*lead: Mindert de Vries, Deltares*) **Wat is de meest effectieve route (transitiepaden) naar opschaling van NBS voor behalen van regionale, nationale en Europese klimaat en andere doelstellingen? WP3 > WP4 < WP5, WP6**



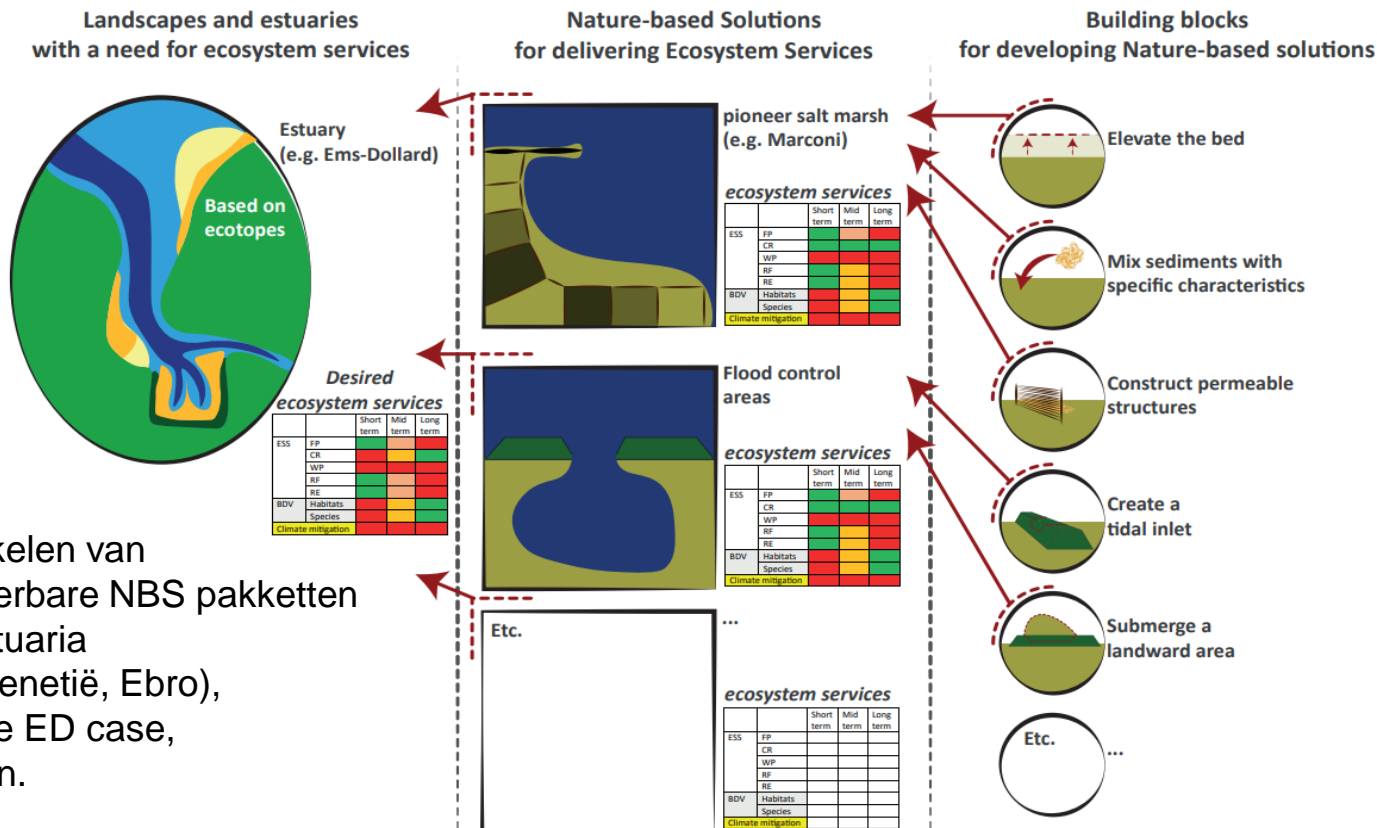
# T4.1: Can we use EUNIS habitat system as linking pin for ecosystem modeling approach and ESS delivery in all cases?

- Preliminary example for REST-COAST case Arcachon Bay





# T4.2 Can we organize NBS in building blocks, package them and predict total ESS?



Met partners ontwikkelen van effectieve en financierbare NBS pakketten voor Waddenzee estuaria en EU pilots sites (Venetië, Ebro), door benutten van de ED case, tools en methodieken.

# REST-COAST: Enhance collaboration with Germany

Follow process strategy of Ems-Dollard (ED2050)

**plus**

Joint effort Wadden Coast and Estuaries

- Develop **joint network and joint activities**
- Develop **shared understanding of approaches** to adaptation management by restoration in both countries
- Develop **joint tools**
- Link with **Sediment Solutions Community of Understanding**. = Share outputs with you!
- Involvement of **Hanze and Van Hall and German uni's**



Jantsje Van Loon (WUR, NL) and  
Joanna Staneva (HEREON, DE)



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# Thank you!



Photo : J. Staneva, Wadden Sea – Jabe Bay , October, 2021

