



How to prepare for adaptation to sea level rise in the Wadden Sea region?

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Wadden Sea habitats -
threatened by accelerated sea
level rise due to man-made
climate change













Impacts on the Wadden Sea

Accelerated sea level rise due to man-made climate change: islands, dunes, salt marshes and mud flats are threatened by erosion.

Possible scenario: natural habitats disappear, people live in very low-lying marshland behind dikes.



H.-U. Rösner/WWF

Dike made of rock on the island of Wangerooge



Growing with the Sea

Pilot projects for adaptation to sea level rise in the Wadden Sea region

1. Our overall objective & approach
2. Conceptual groundwork
3. Possible pilot projects and activities

Overall objective and approach

Preservation of the Wadden Sea despite sea level rise

- Function
- Geographical extent
- Quality



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North frisian saltmarsh in Westerhever

Overall objective and approach

Nature conservation and coastal protection

work together towards

1. human safety against flooding and
2. protection of the Wadden Sea against the impacts of sea level rise

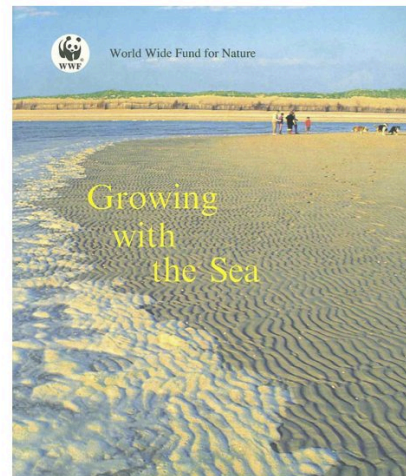
Develop and initiate **pilot projects**



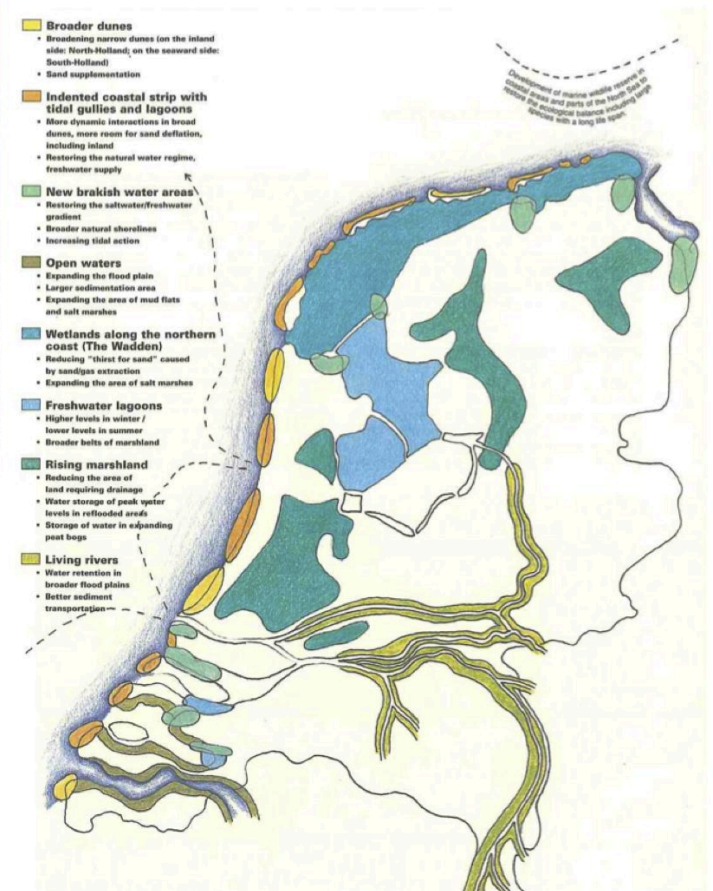
Example from UK: Abbots Hall Farm,
Blackwater Estuary, Essex

Conceptual groundwork

WWF Netherlands (1997) proposed measures to restore natural resilience



Quelle: WWF Niederlande 1997





Leitlinien für einen naturverträglichen Küstenschutz

*Der Klimawandel erfordert
neue Küstenschutzmaßnahmen
für das Wattenmeer*



WWF Germany
(2003)
Guidelines for
environmentally sound
coastal protection

Possible pilot projects and activities

- 1) Mainland coast / Husum Dockkoog
- 2) Halligen
- 3) North Frisian islands



Mainland coast / Husum Dockkoog

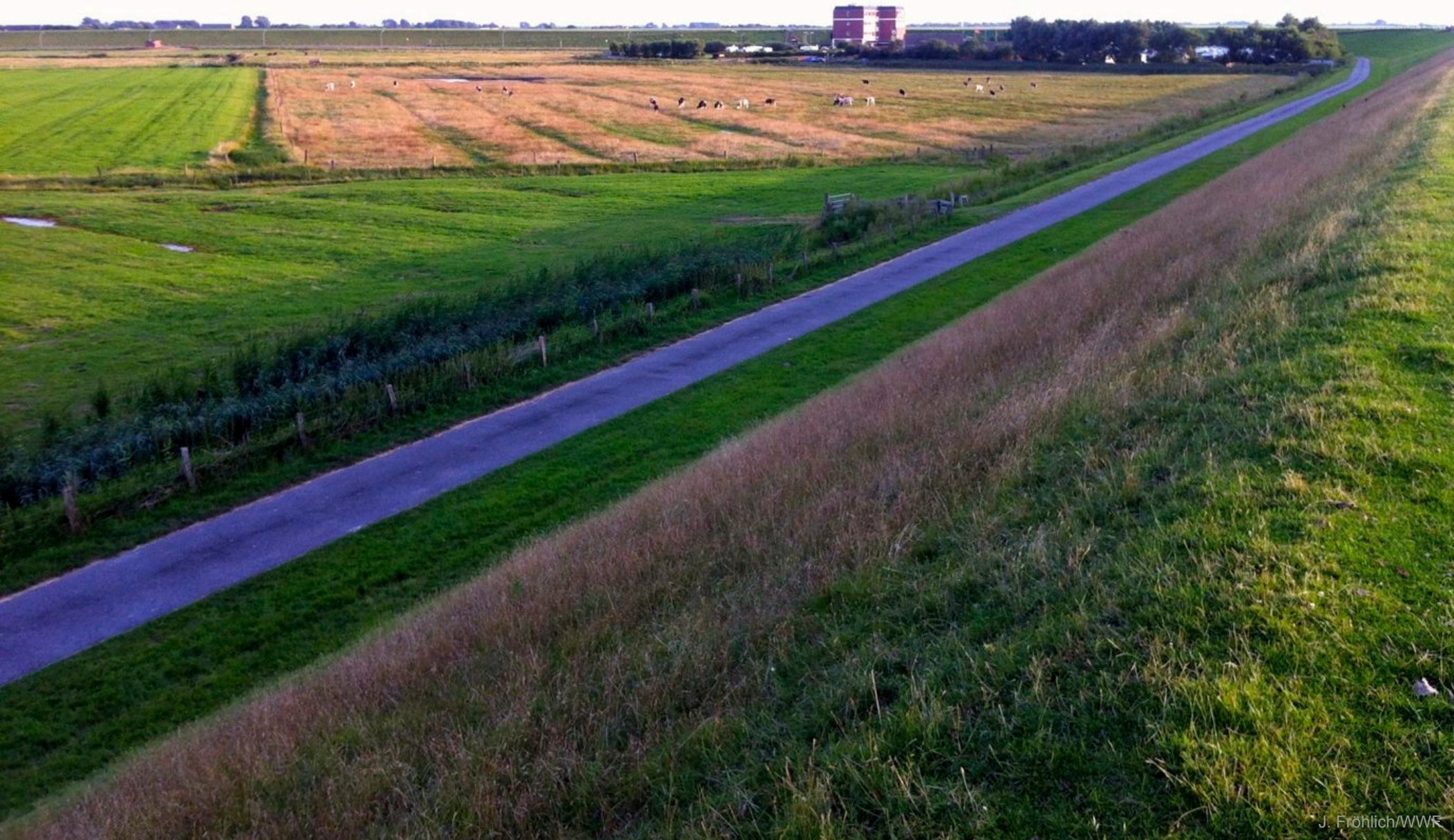


How to develop a polder landscape under conditions of sea level rise?



Map:
IPG Huntlosen /
Stadt Husum
2013

Mainland coast / Husum Dockkoog



Mainland coast / Husum Dockkoog

- Planning process
- Joint adaptation concept
- Integrated view on coastal protection, nature conservation, tourism and recreation

Partner:

- City of Husum
- Coastal protection agency
- Citizens initiative
- WWF
- Other partners



Halligen / small islets

Are the Halligen able to grow with an accelerated sea level rise?



Small islet of Hallig Hooge in the north frisian Wadden Sea: soil layer shows how the islet grew in the past centuries

Halligen / small islets

Study sedimentation in field experiments

- height and structure of vegetation
- terrain characteristics



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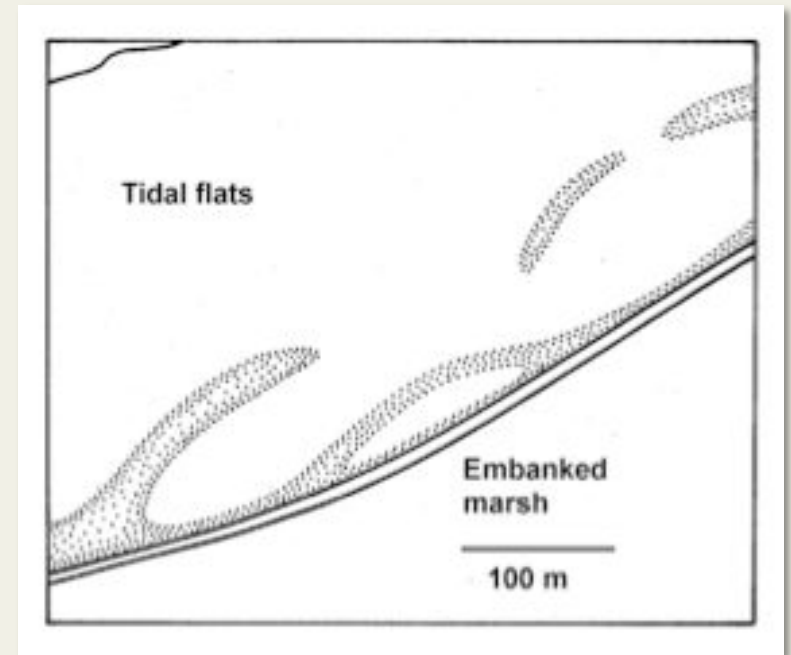
North Frisian Islands

What are the opportunities and threats of “soft coastal protection” and “ecological engineering” for Wadden Sea protection? (cf. Borsje et al. 2011)



North Frisian Islands

Artificially added sand deposits in front of a dyke on an island, a possible solution?



Sketch: Reise 2003

Thank you for your attention
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