



Nature Protection and Climate Change in the Wadden Sea



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Relevant effects of climate change

- More people will seek recreation in the Wadden Sea.
- More losers and winners in the Wadden Sea biota.
- Enhanced ecological dynamics and more disasters.
- Islands, salt marshes and some tidal flats may become smaller.

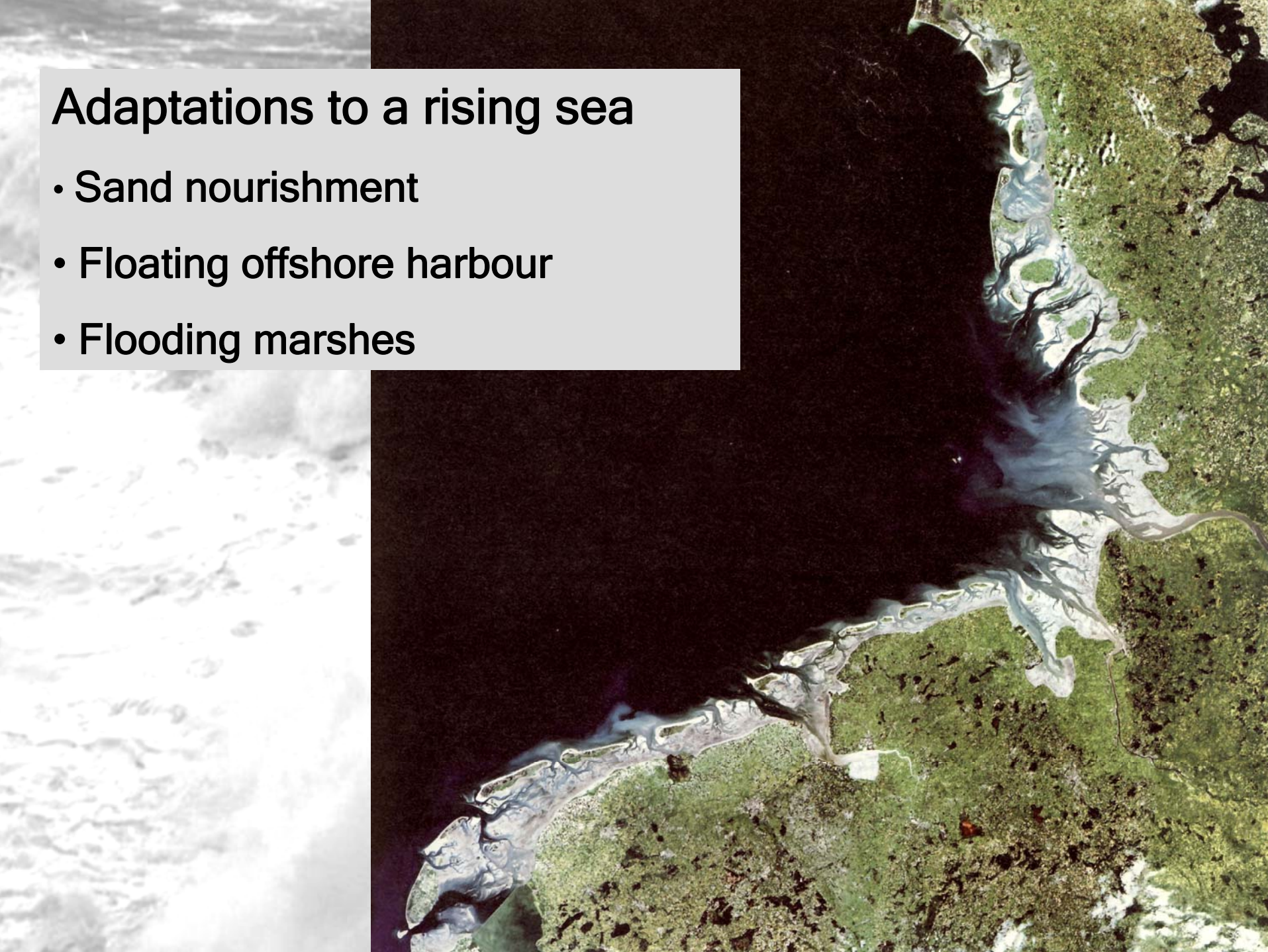
Targets of the Trilateral Wadden Sea Plan which may be affected by Climate Change

- 1 An increased area of natural salt marshes.
- 2 An increased area of ... undisturbed tidal flats and subtidal areas.
- 3 An increased area ... of natural mussel beds and seagrass fields.
- 4 A natural dynamic situation in the tidal area.
- 5 Increased natural dynamics of beaches, primary dunes ...
- 6 Protection of valuable parts of the estuaries.
- 7 Favourable conditions for migrating and breeding birds ...



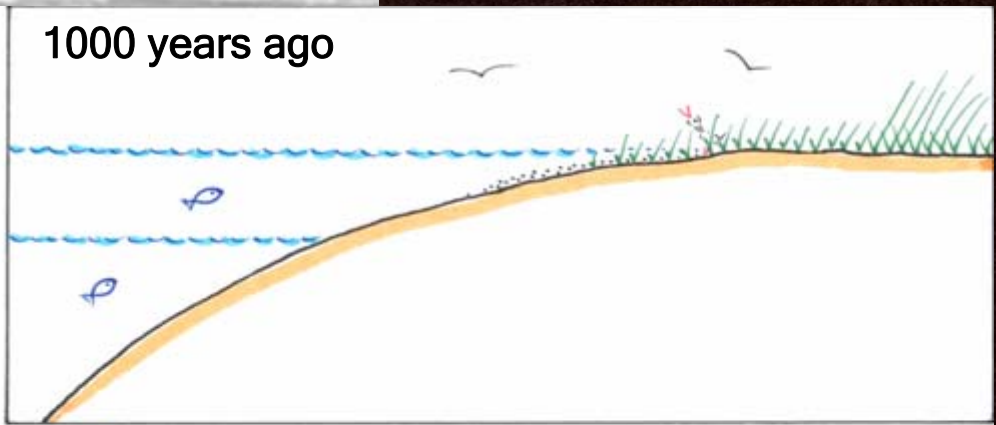
Adaptations to a rising sea

- Sand nourishment
- Floating offshore harbour
- Flooding marshes

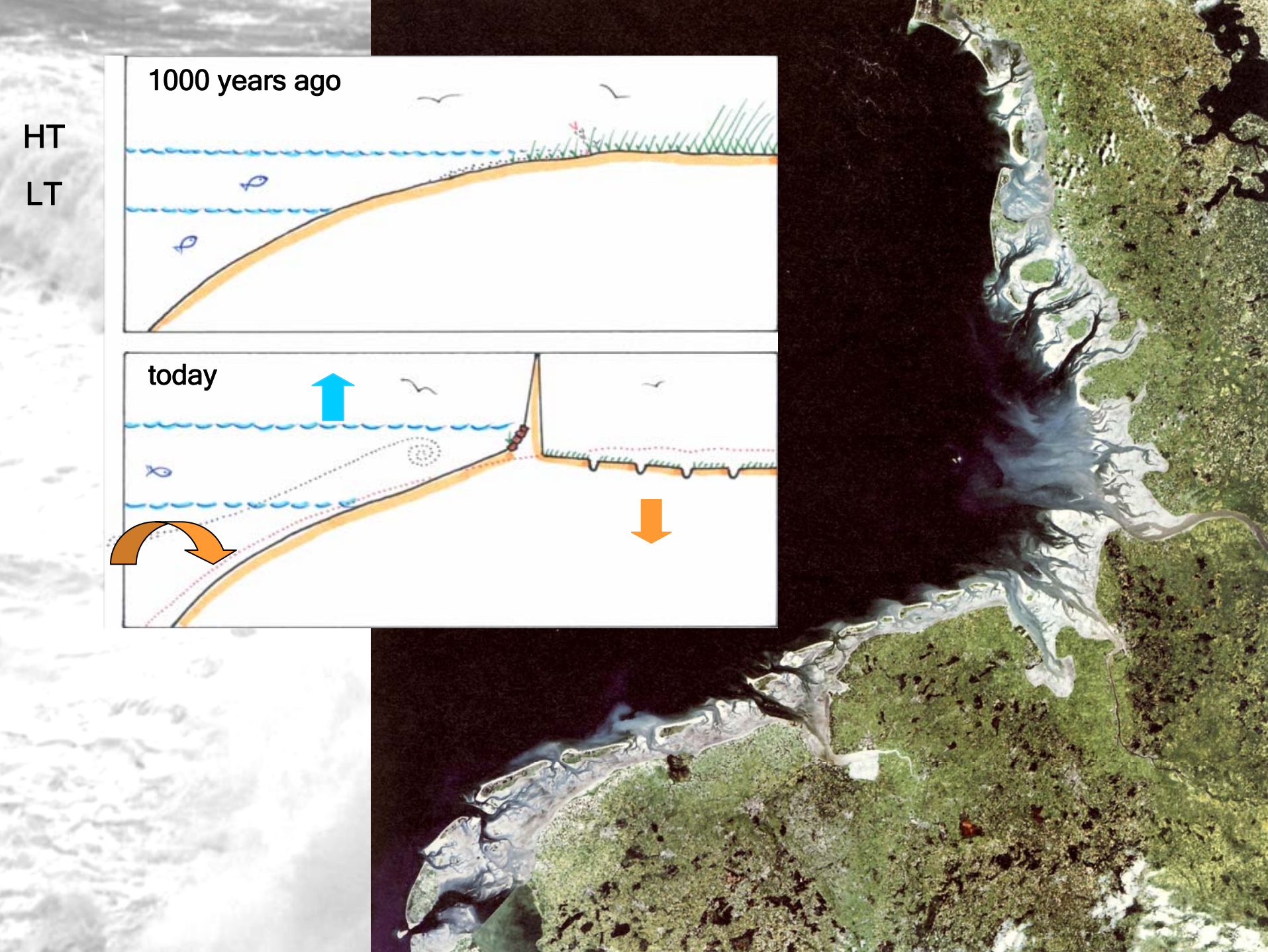
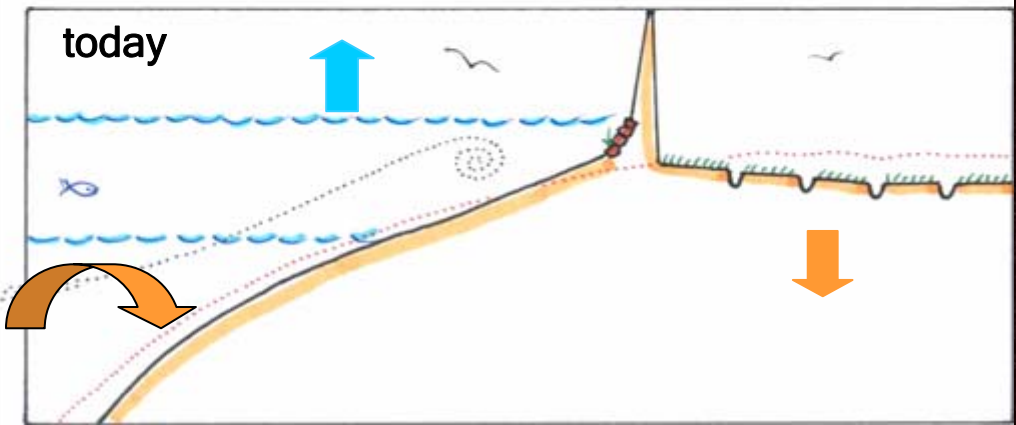


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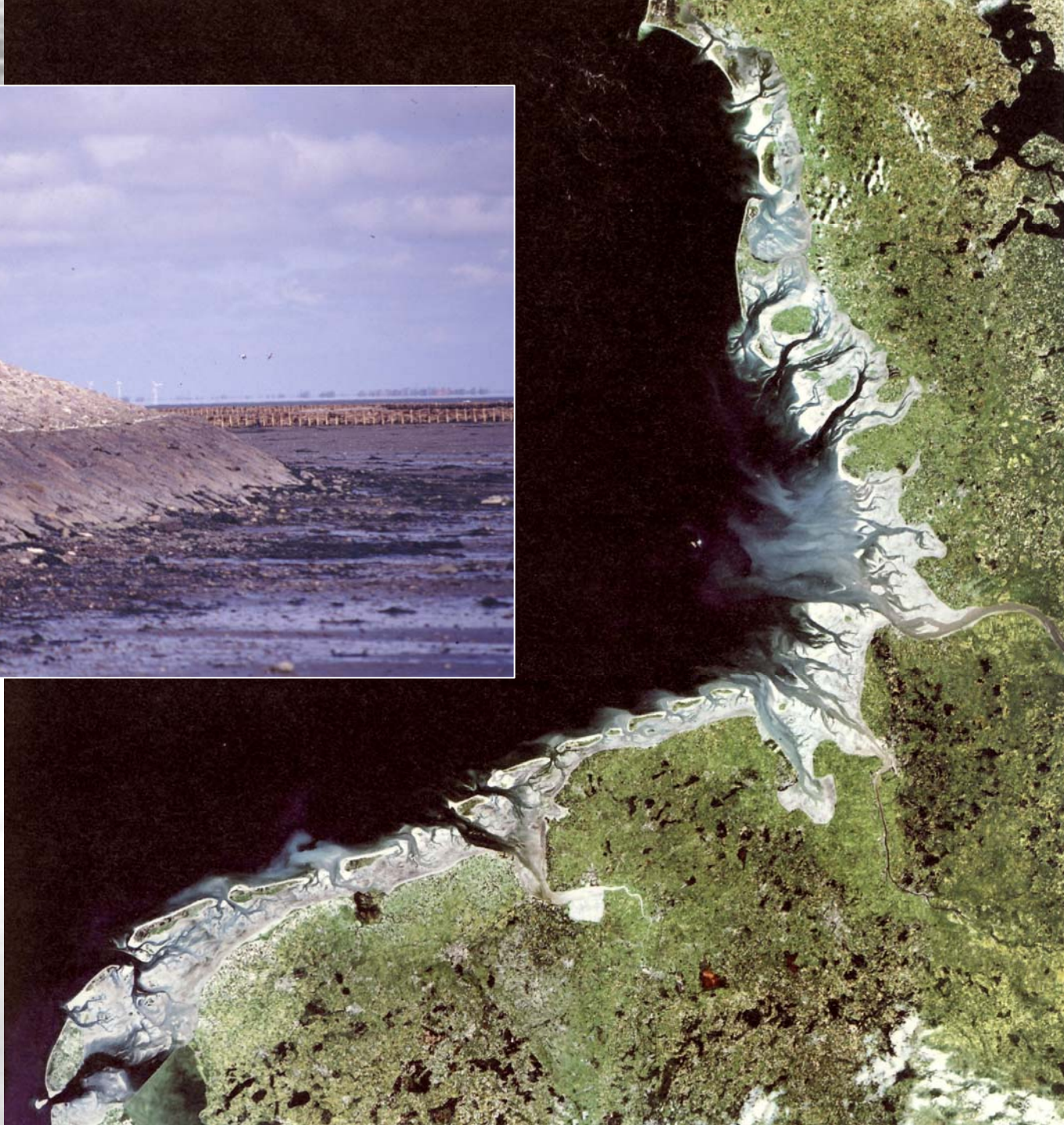


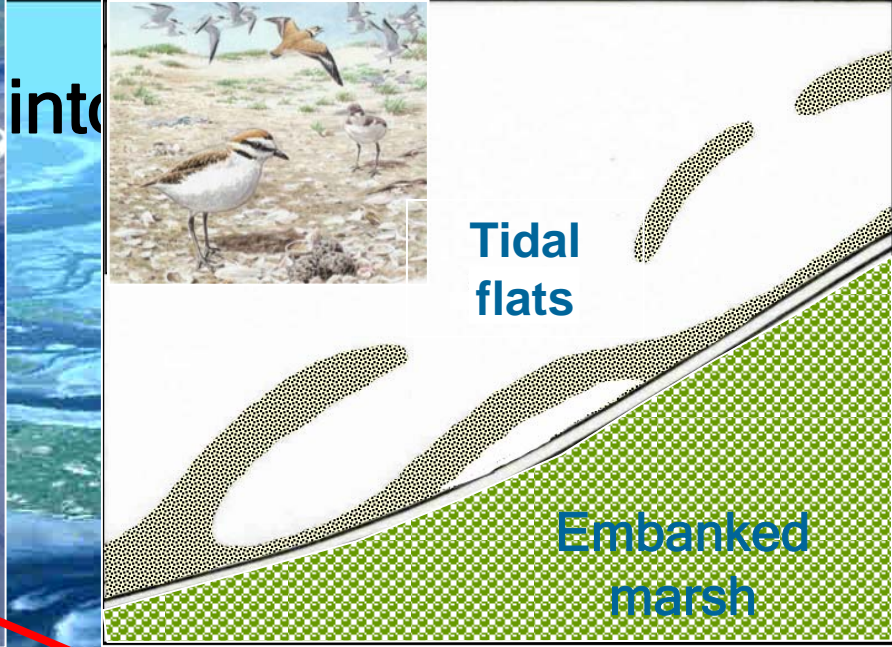
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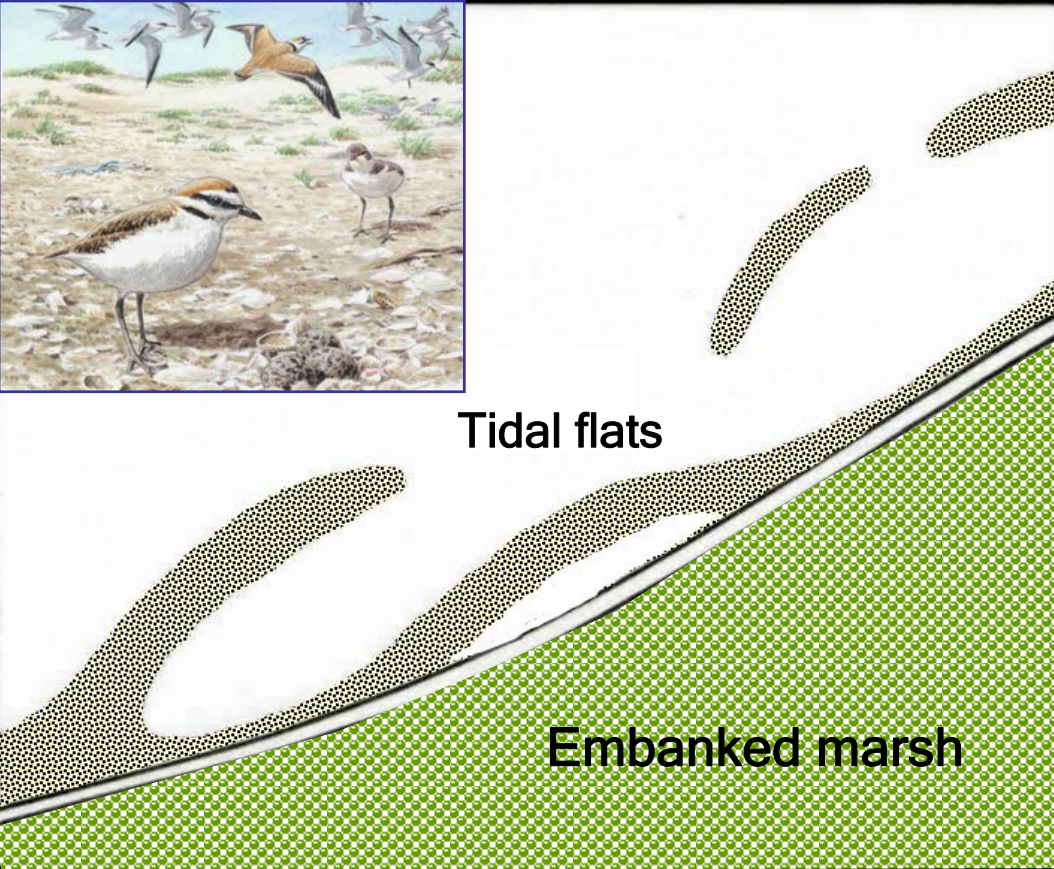




Nearshore hunger
for sediment



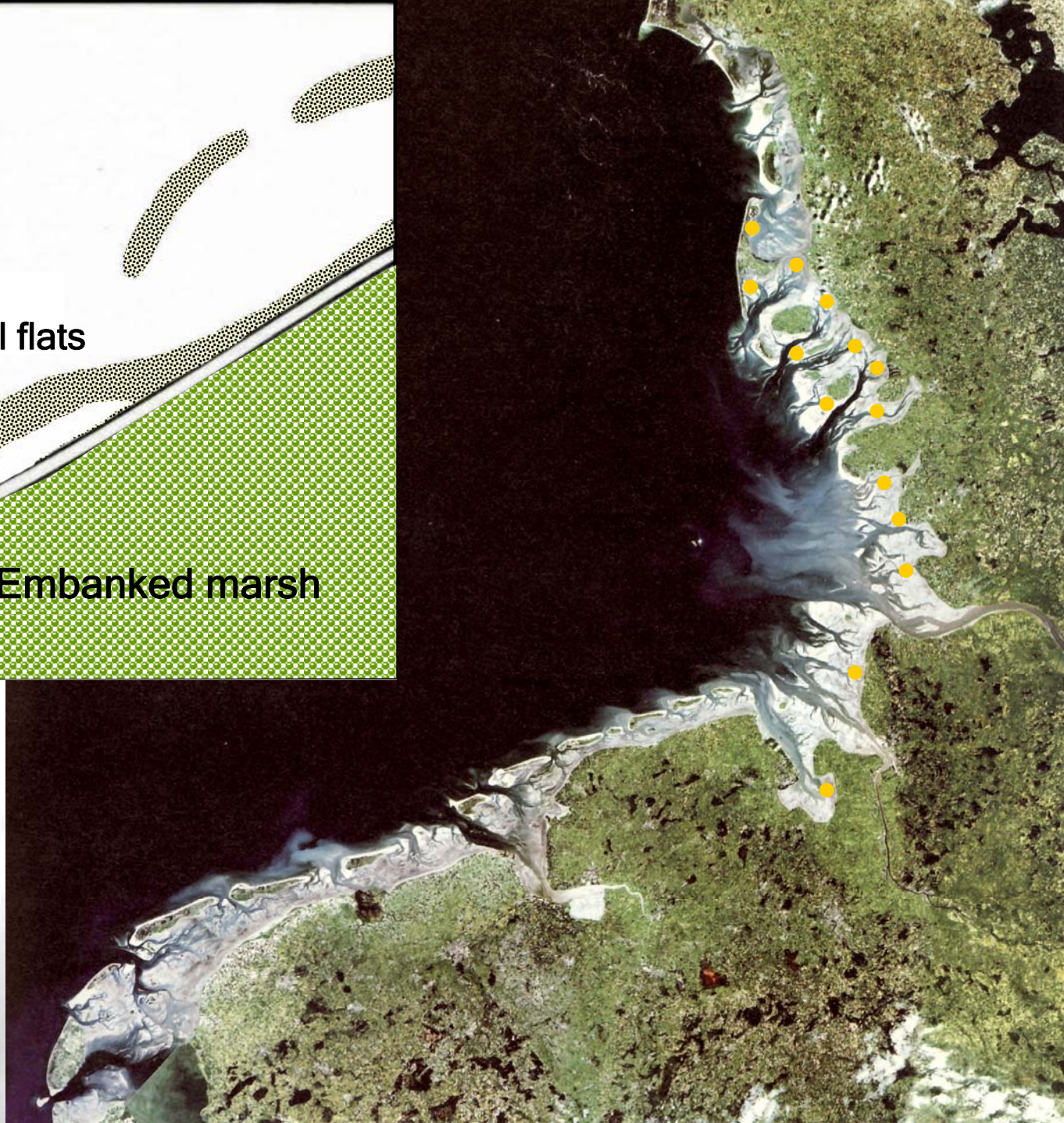




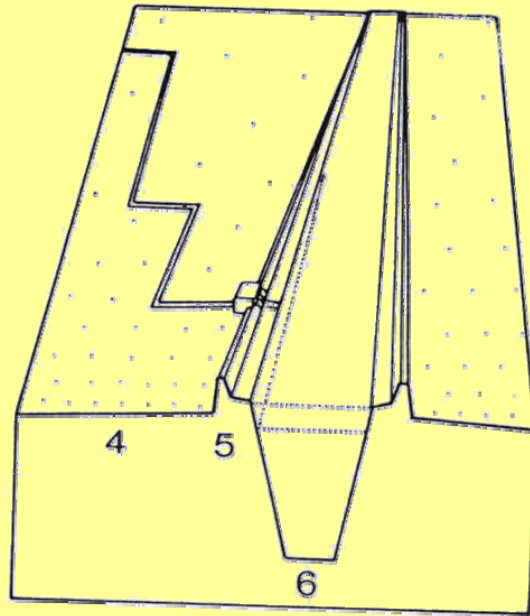
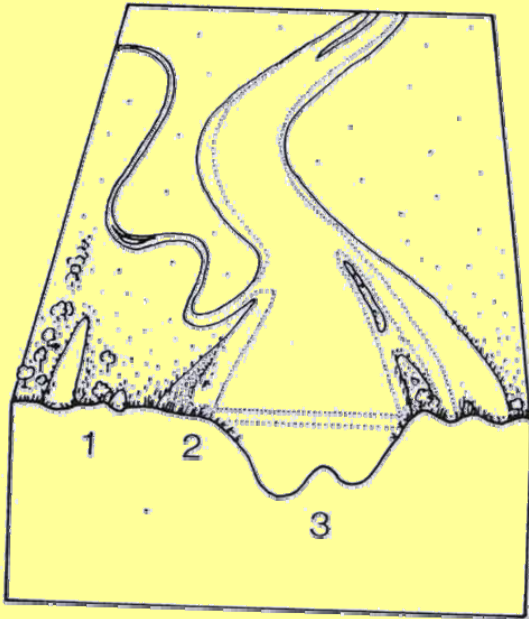
Tidal flats

Embanked marsh

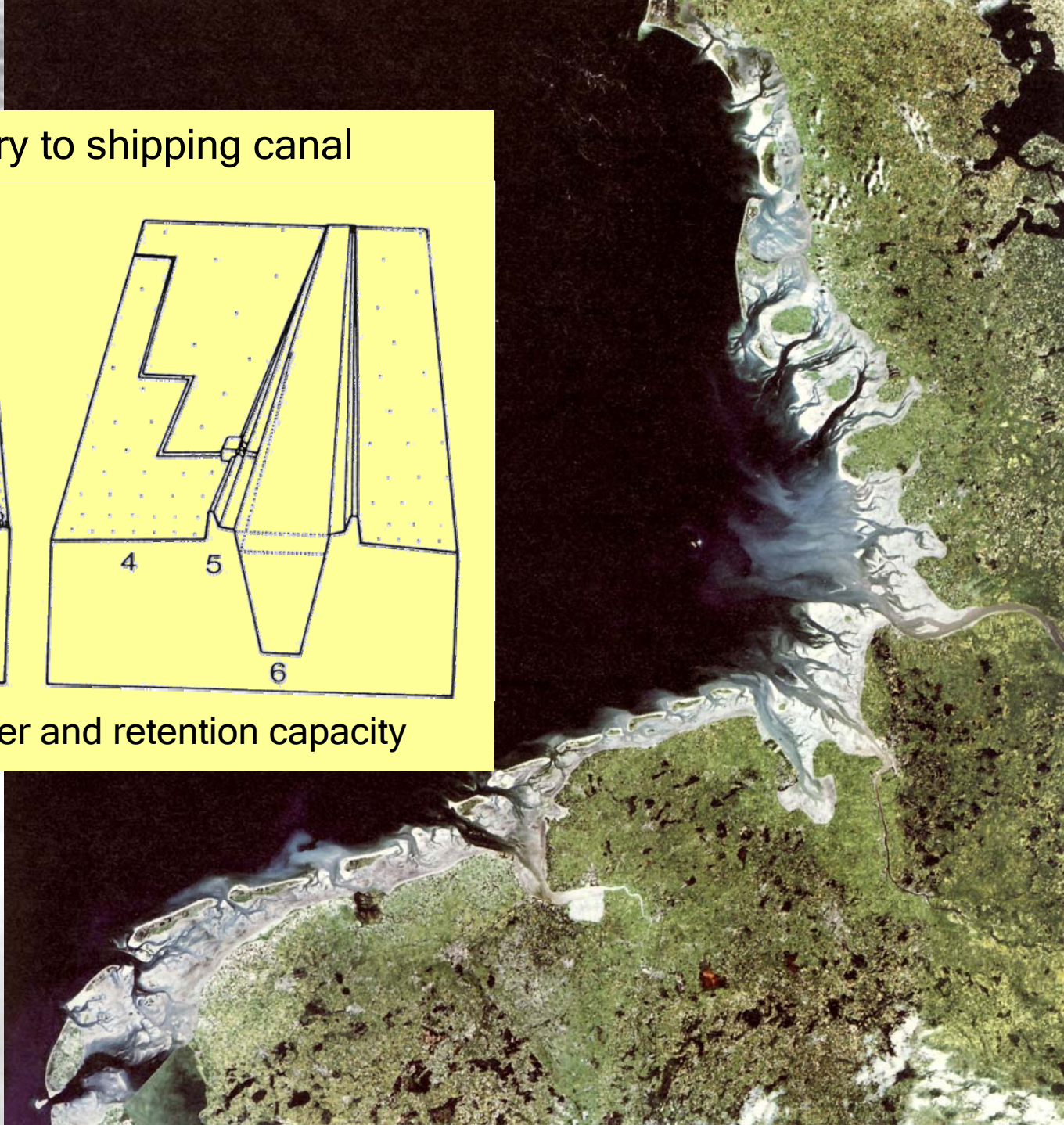
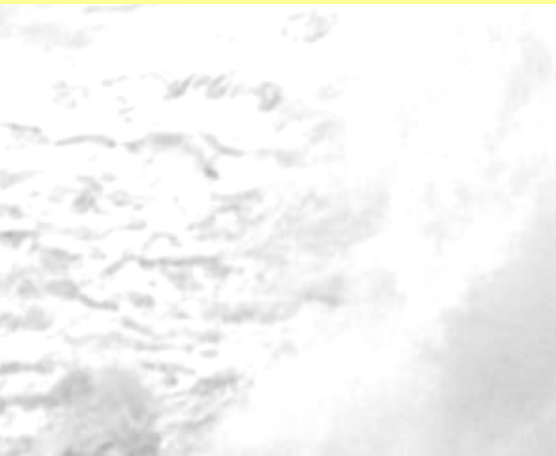
Sediment supply
from offshore to
inshore to keep
even with sea-
level rise



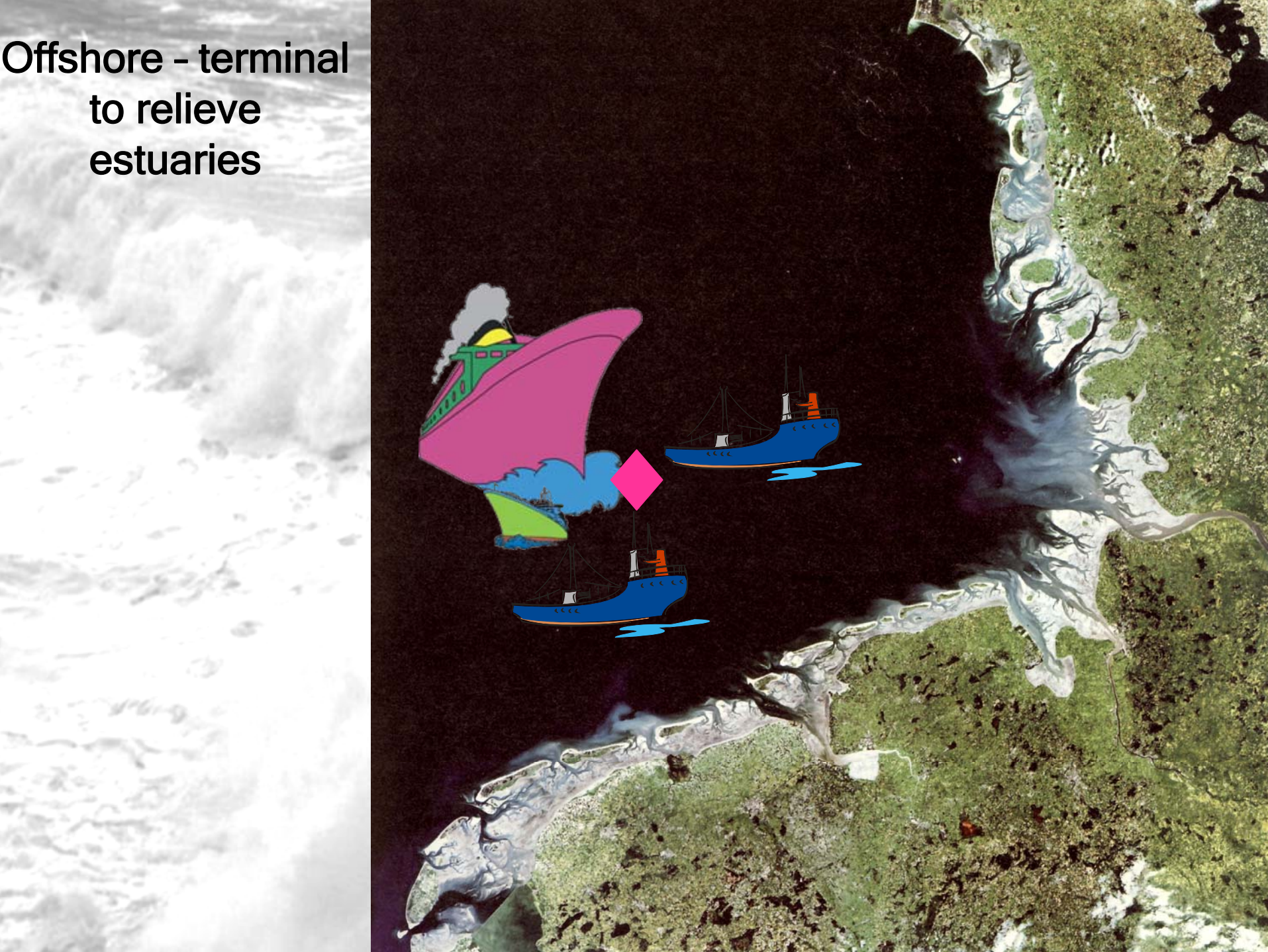
From estuary to shipping canal



Loss of ecological filter and retention capacity

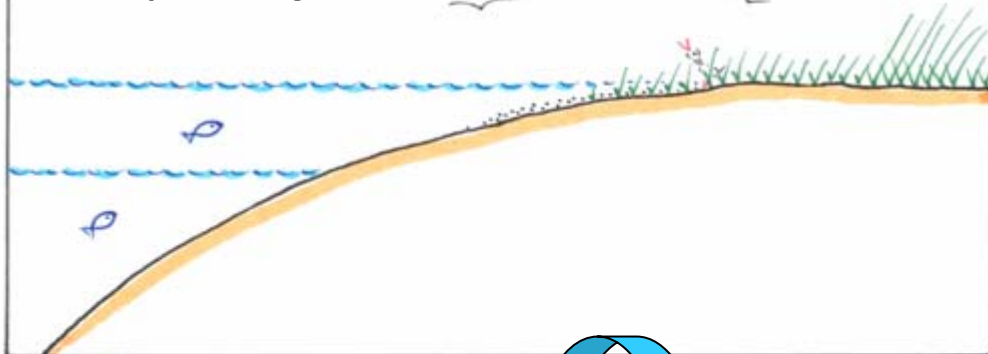


Offshore - terminal
to relieve
estuaries

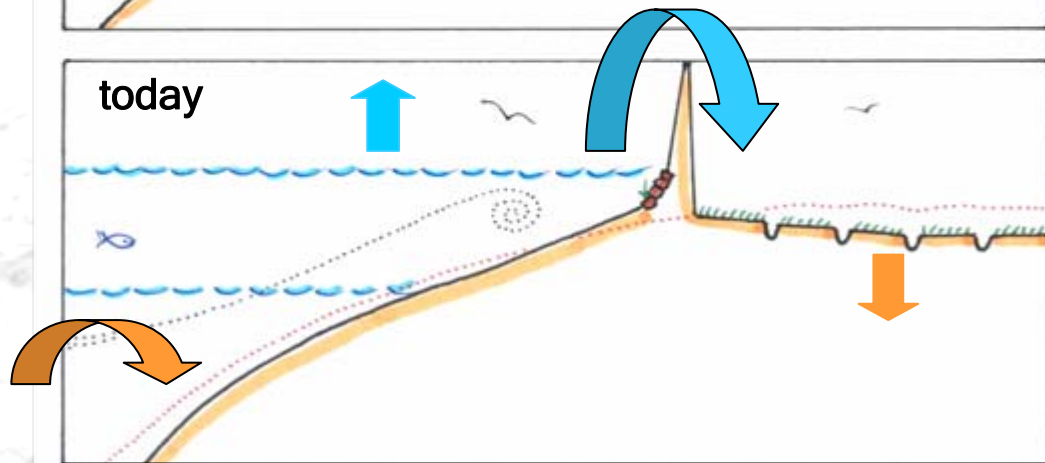


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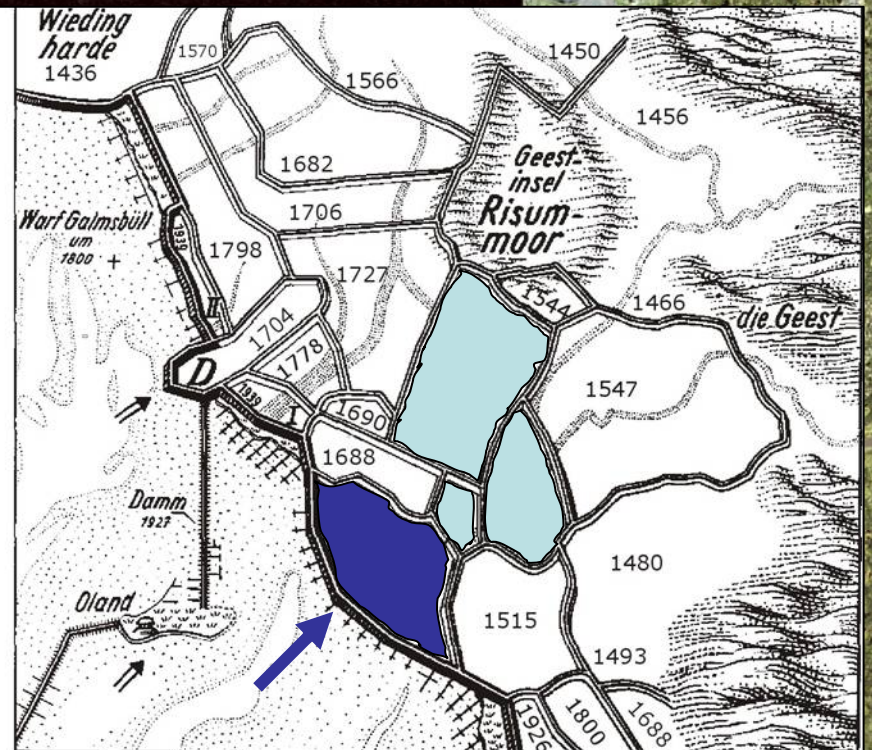


tomorrow: + 0.5 to 1.4 m until 2100?
(S. Rahmstorf 2007)





~1500



1965

Diking
Flooding



Flooding marshes



Der Zukunft bleiben wohl nur noch kleinere
Wasserlöcher, gleich Gottestränen, geweint um eine in
Alltäglichkeit verwandelte Urschönheit.

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- Habitat diversity and continuity prevent species losses.
- Sand nourishment to the tidal area may prevent habitat loss along shorelines.
- Adaptation of estuaries to sea level rise requires a diversion of large vessels to offshore harbors.
- Flooding of marshes to adjust the level to the rising sea and to restore brackish habitats.

