

Beach nourishment and the impact on Natura 2000

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Beach nourishment and the impact on Natura 2000

- Background of this presentation
- The Belgian coastline
- Impacts of beach nourishments
- Legal framework
- Case study



Background of this presentation

- Belgian Master Plan for Coastal Safety
 - Appropriate Assessments
 - Set up of an **ecological working group**



- From case studies to generalized paper

Background of this presentation

- Authors of the paper



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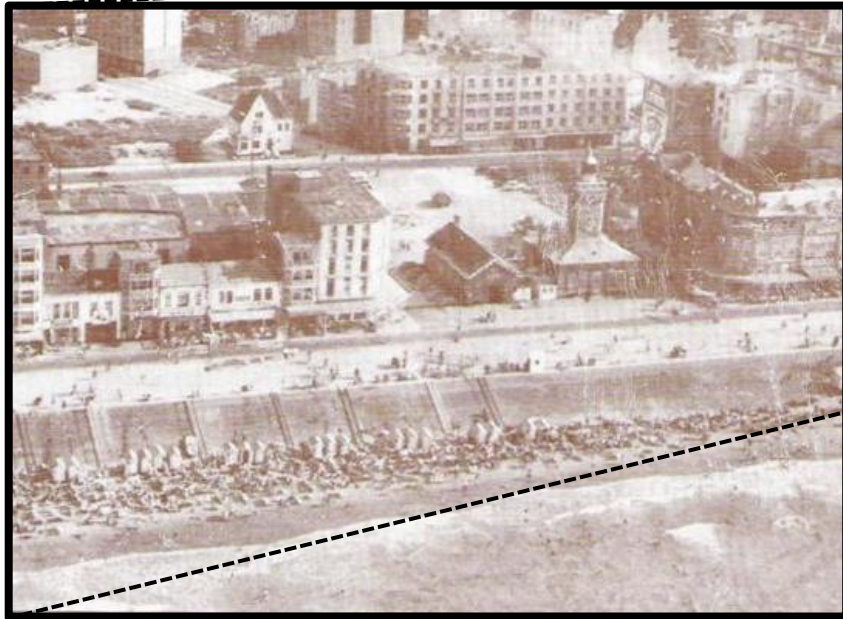
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The Belgian coastline: natural dynamics versus anthropogenic conservation



The Belgian coastline: natural dynamics versus anthropogenic conservation



The Belgian coastline: natural dynamics versus anthropogenic conservation

- Goal: protection against 1000 year storm event



The Belgian coastline: natural dynamics versus anthropogenic conservation

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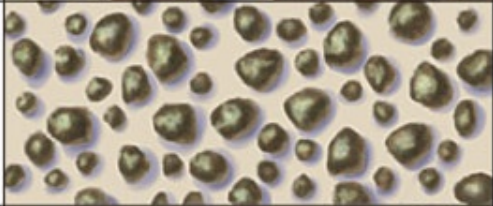
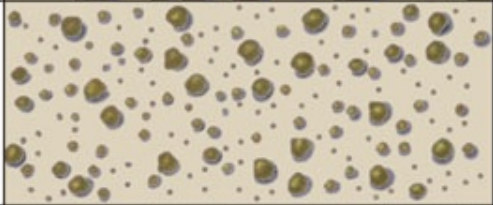

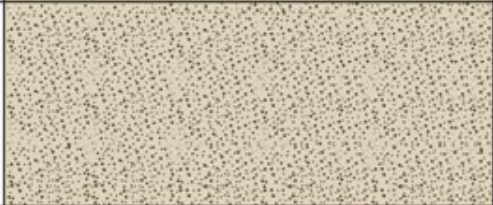




The Belgian coastline: natural dynamics versus anthro

- Grain size optimization

Geotechnical point of view

Natural beaches & preference
from ecological point of view

"Gravel" > 2mm	Pebbles 4–64 mm	
	Granules 2–4 mm	
	Coarse sand 0.5–2 mm	
	Medium sand 0.25–0.5 mm	
	Fine sand 0.06–0.25 mm	
	Silt 0.004–0.06 mm	
	Clay < 0.004 mm	

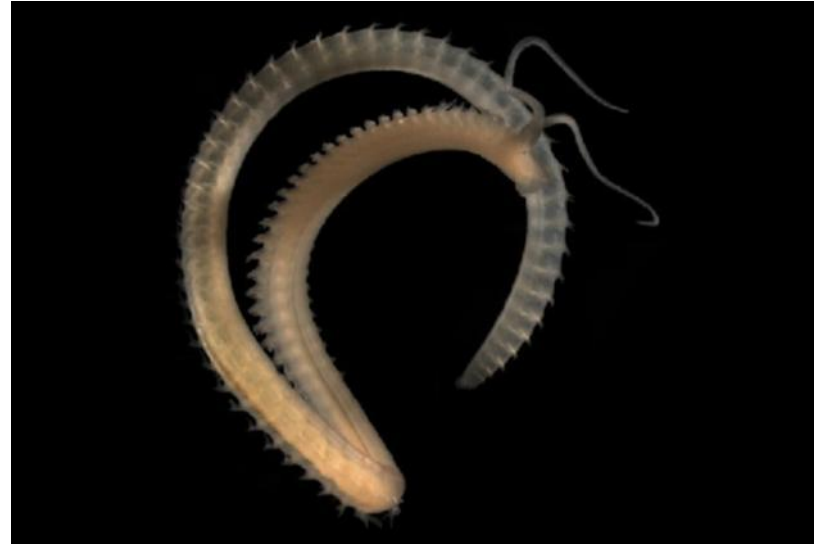
Impacts of beach nourishments on the sandy beach ecosystem

- 6 impact factors:
 - Nourishment technique
 - Timing
 - Location
 - Changes in beach slope
 - Changes in grain size
 - Amount of nourished sediment



Impacts of beach nourishments on the sandy beach ecosystem

- Focus on macrobenthos



Impacts of beach nourishments on the sandy beach ecosystem

- Small modifications are tolerated
- Fast recolonization via dispersion of pelagic juveniles
- Other species (molluscs, starfish, ...) need more time
- Total recovery 4-5 years, if ...
 - Natural sediment
 - Natural beach slope

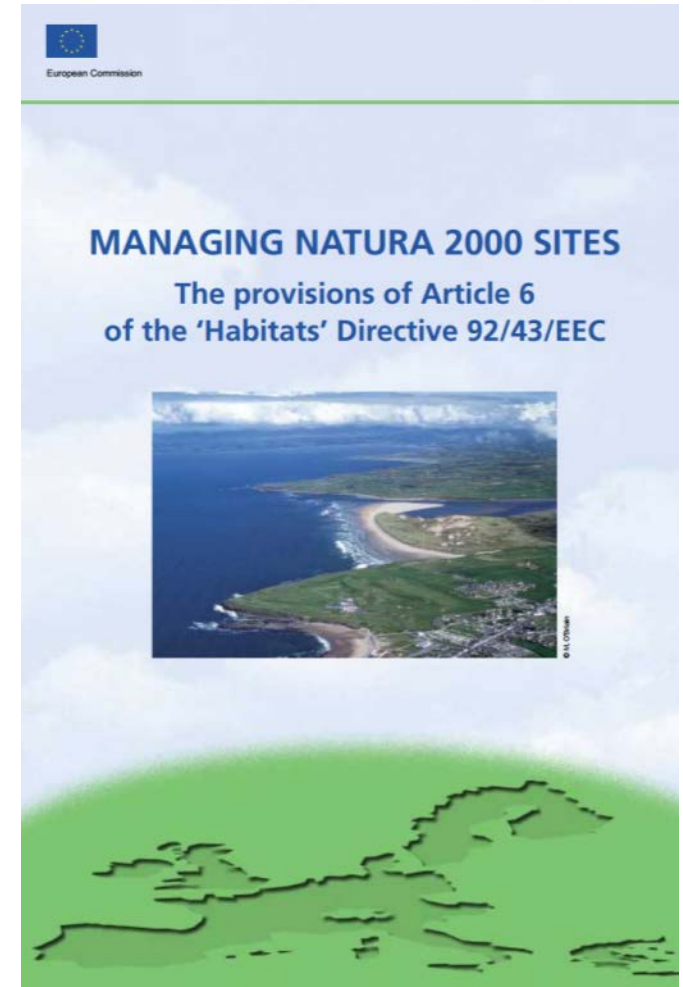
Legal framework which regulates the impacts of beach nourishment on Natura 2000

- Natura 2000 = ecological network of protected areas in EU
 - Special Protection Areas (SPAs) → Birds Directive
 - Special Areas of Conservation (SACs) → Habitats Directive
 - !! Art. 6 of Habitats Directive: Provisions which govern the conservation and management of Natura 2000 sites



Legal framework which regulates the impacts of beach nourishment on Natura 2000

- Habitats Directive, Article 6, §§3-4:
 - Plan or project
 - Significant effects
 - Appropriate assessment
 - Integrity of the site
 - Alternative solutions
 - Compensatory measures
 - Mitigation measures
 - Compensatory measures *sensu strictu*
 - ≠ Measures required for the 'normal' implementation of the 'Habitats' or 'Birds' directives



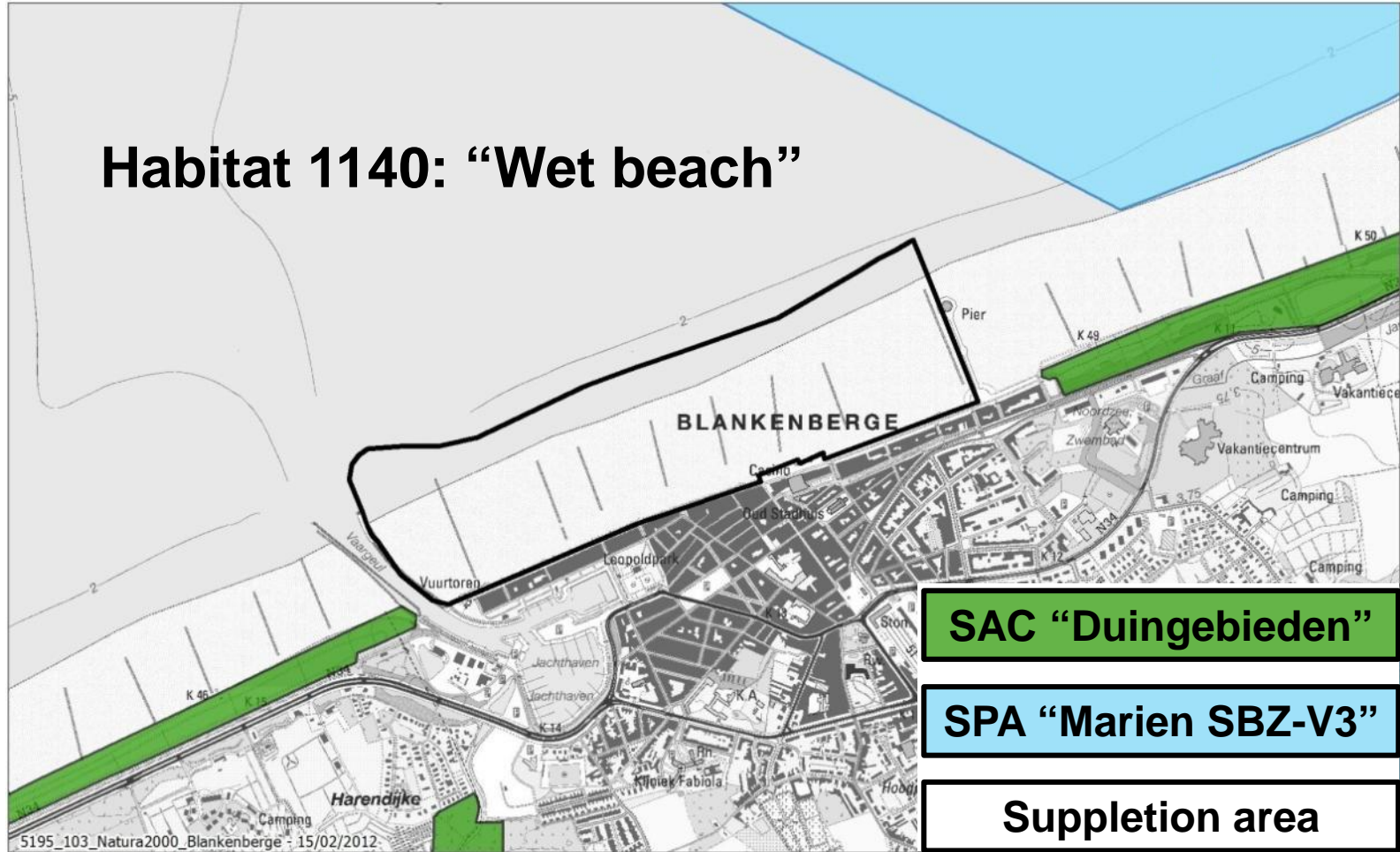
Legal framework which regulates the impacts of beach nourishment on Natura 2000

- Implementation of Habitats Directive, Article 6, §§3-4:
 - Royal Decree (14/10/2005): Federal implementation (BPNS)
 - Nature Conservation Decree (19/07/2002): Flemish Region
 - Projects exempted from prior license vs. appropriate assessment?
 - Scope of the appropriate assessments?
 - Strategic approach?
- Need for a more coherent legal framework with ecosystem based approach



A case study: Blankenberge and the Master Plan for Coastal Safety

Habitat 1140: “Wet beach”



A case study: Blankenberge and the Master Plan for Coastal Safety

- Habitat 1140:
Mudflats and sandflats not covered by seawater at low tide
 - Intertidal part of the beach → Wet beach
 - Only 16% lies within Natura 2000 area
 - Local conservation status not determined yet



A case study: Blankenberge and the Master Plan for Coastal Safety



Beach nourishment and the impact on Natura 2000 THANKS FOR YOUR ATTENTION!!

