Using innovative geotextile constructions to control fine sediment transport and to improve water quality

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Content

• Introduction
• Design innovations
• Results
Wormer- and Jisperveld

• A large uninterrupted peaty grassland near Amsterdam (The Netherlands)
• Long history of different activities
• European Natura 2000 protection area
Current situation

- Land subsidence
- Poor water quality
- Reduces growth of aquatic plants
- Shoreline erosion
- Contaminated sediment
- Bottlenecks for recreational use of the area
- Dredging operations
Sediment Settler

Dutch innovation award 2015

Tauw

02.02.2015
Hydrodynamics (1)

stroomsnelheid (m/s)
windcondities: 210 gr. N, 19.5 m/s
Control measures installed

- 13 locations
- 2,200 meters of geotextile
- 5 hectares water surface enclosed
- 30,000 m³ storage capacity
Installment Sediment Storer

• [https://www.youtube.com/watch?v=VERVvWVoc64](https://www.youtube.com/watch?v=VERVvWVoc64)
Results ~ sediment

- Sedimentation in ‘de Marken’ (max. 30 cm)
- Consolidation in the Sediment Stores
- Forming lee zones
- Creating new balance

In November 2015 another measurement
Results ~ lee area
Results ~ water quality (1)
Results ~ water quality (2)
Results ~ ecology (1)
Results ~ ecology (2)
Results ~ ecology (3)
Results ~ ecology (4)
Results ~ ecology (5)
Results ~ ecology (6)

2013  2014 (pilot)  2015

Pilot Sediment Storer  Vegetation recovery

Tauw
Results ~ recreation
Advantages Sediment Storer/ Settler

Very cost effective because of the combi effects:
1. Reuse of (contaminated) sediment
2. Sustainable protection of shores
3. Wetland reconstruction
4. Improving water quality
5. Yearly small scale dredging possibilities
6. CO$_2$ reduction
7. Time
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