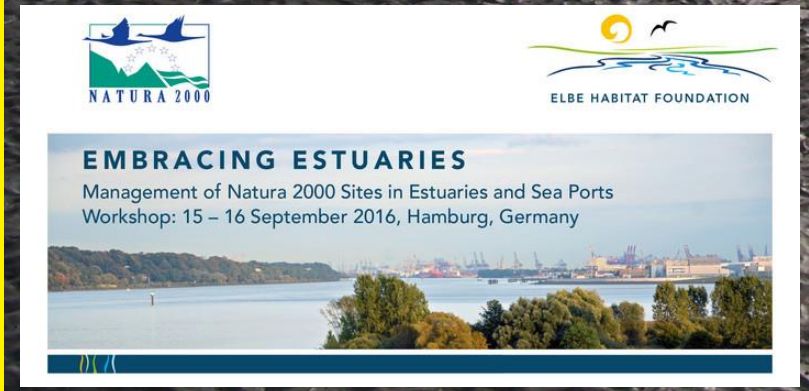
A new disposal strategy in the Schelde-estuary, conciliating port accessibility and nature



Ir. Yves Plancke

Hamburg, September 16th 2016

Schelde-estuary

- Tides (range = 4 m)
- Salt water
- Sandy sediments

- Discharge (120 m³/s)
- Fresh water
- Muddy sediments

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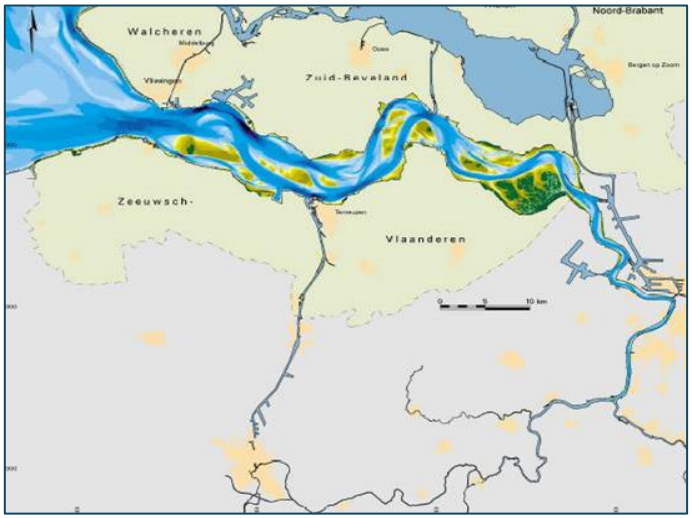
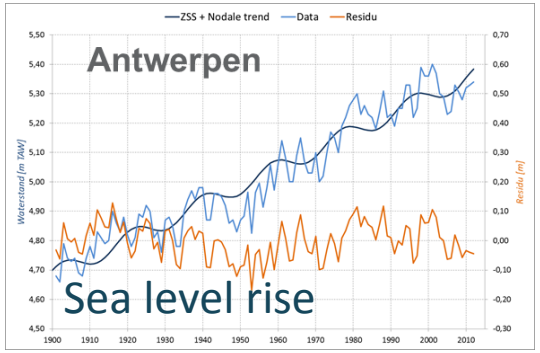
Future challenges





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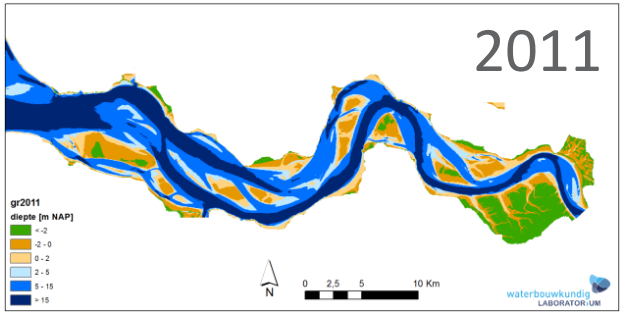
Long Term Vision

- **In 2001 Dutch and Flemish government agreed on a LongTerm Vision for the Schelde-estuary, focussing on 3 principal functions:**
  - → Safety against flooding
  - → Port accessibility
  - → Ecology

- **Importance of morphology: "preservation of physical characteristics is the cornerstone for management"**



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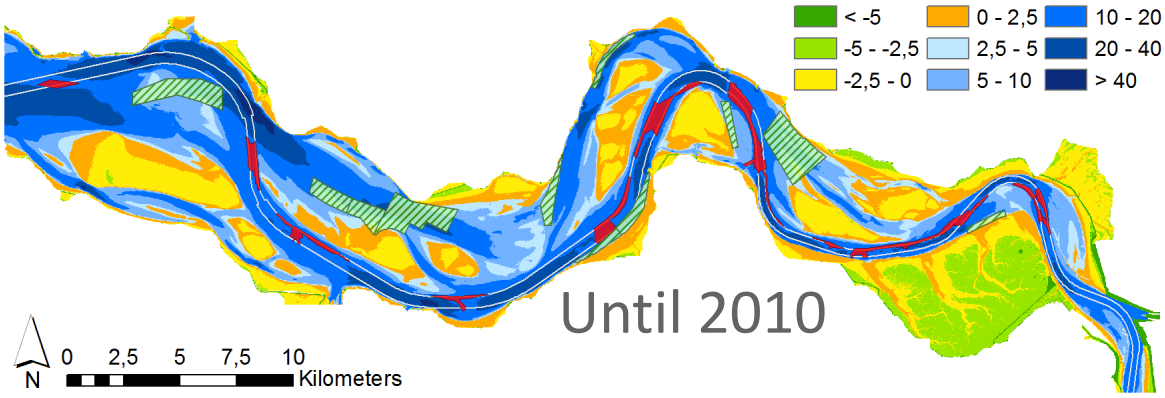
Development scheme 2010

- **First phase of LTV: 26 projects to reach intermediate goals:**
  - → Execution of Actualised Sigmaplan (safety against flooding)
  - → Deepening of navigation channel (accessibility)
  - → Depoldering and reduced tidal areas (nature)
  - → …
- **Stakeholder involvement (OAP – advising organisations)**
- **Parallel: disposal strategy could jeopardise physical characteristics ⇔ feasibility of new disposal strategy "Walsoorden pilot case" (Port of Antwerp Expert Team)**



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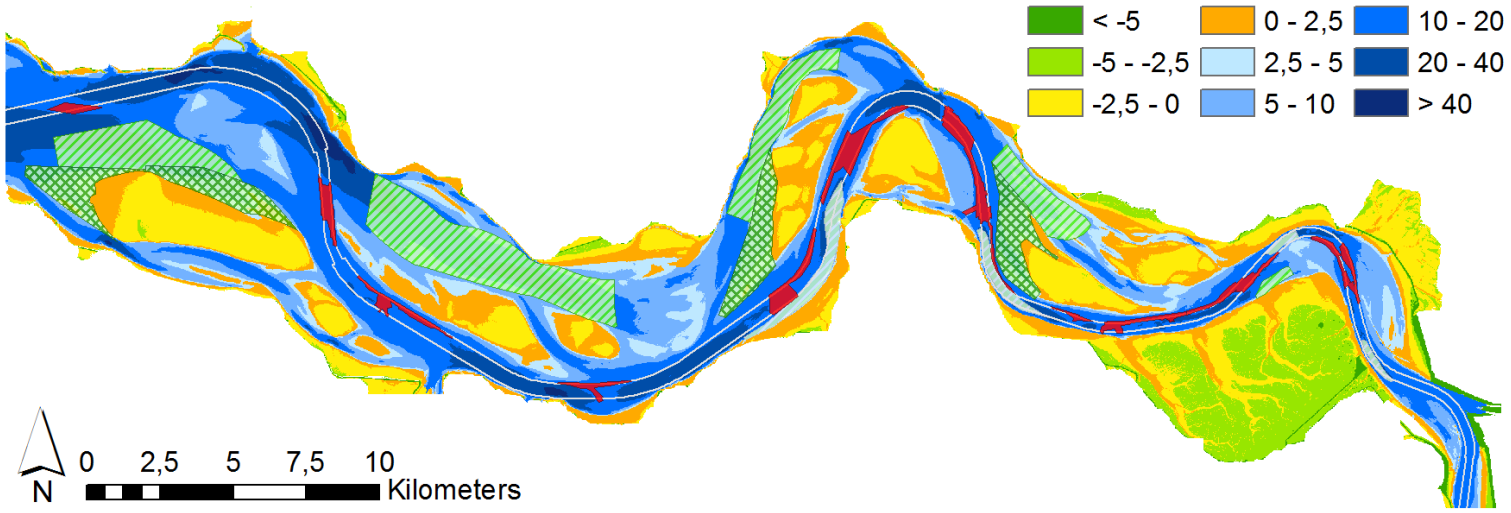
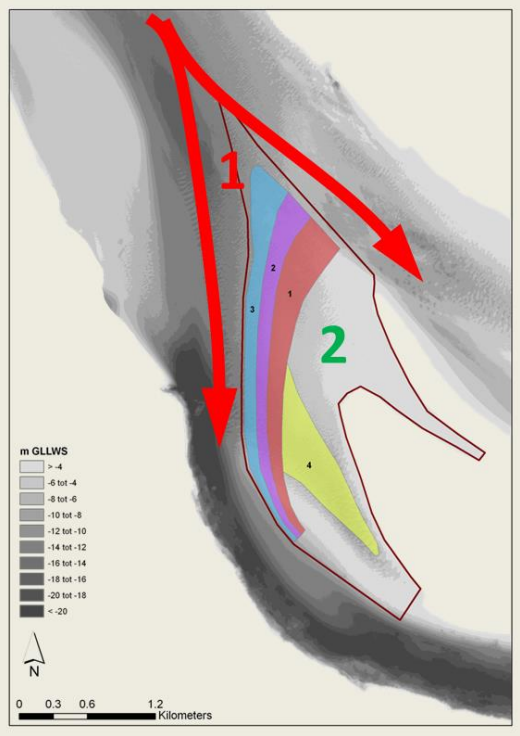
New disposal strategy Westerschelde

- Tide-independant draught up to 43’ to port of Antwerp
- 7.7 Mm^3 (capital) + ca. 10 Mm^3/year (maintenance)
- Uncertainties on potential long term effects
- Three-stage rocket approach



3-step rocket approach: STAGE 1

- **EIA most environmental friendly alternative: using dredged material to create new valuable areas for ecology (contributing to "estuarine restoration") => mitigate possible effects**



Dredged sediment used to create "soft" flow guiding structures:

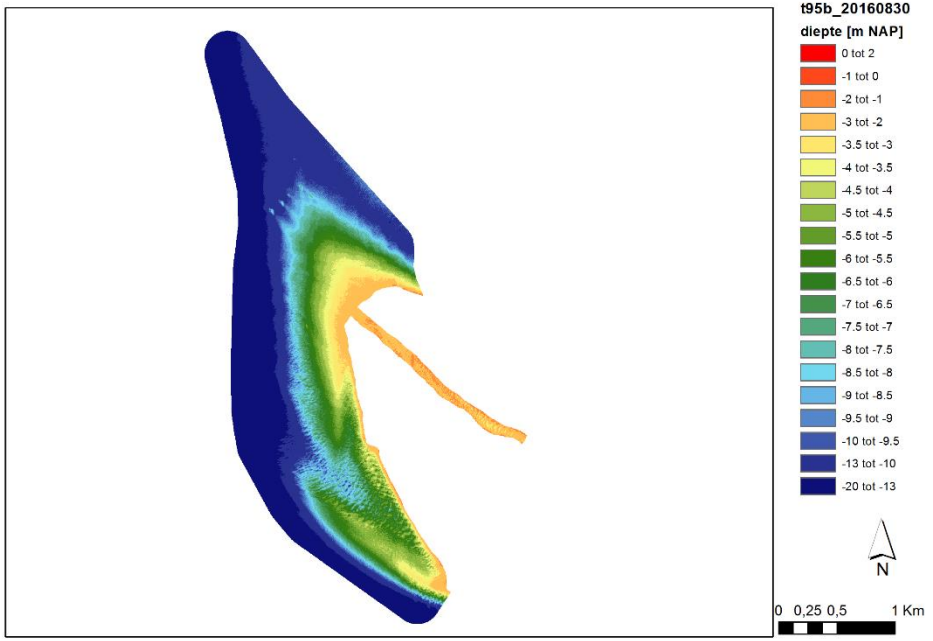
1. Megadune: splitting flow
2. Sandspit: guiding flow

E.g. Walsoorden sandbar (type 1):

- Multiple channel system
- Self-eroding capacity sill
- Reduction of currents on sandbar

3-step rocket approach: STAGE 2

- **Intensive monitoring (stability sediment, flow velocities, height of intertidal areas, grain size, ecology) and evaluation (bi-monthly meetings + annual evaluation of criteria)**



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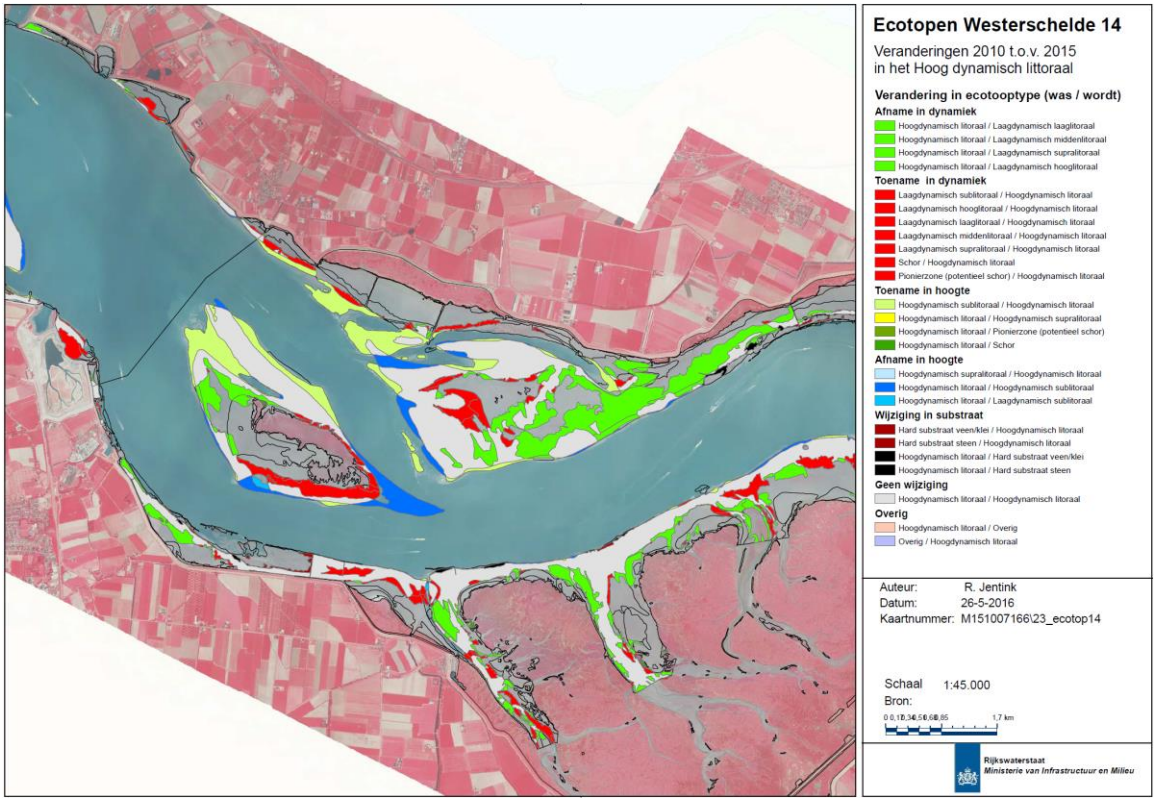
3-step rocket approach: STAGE 3

- **Stopping works (if necessary)**
  … but until now effects have been positive !!!

Location	LD area [ha]
HPW	-1
HPN	+51
RVB	*+74*
PWA	+35
SUM	**+159**



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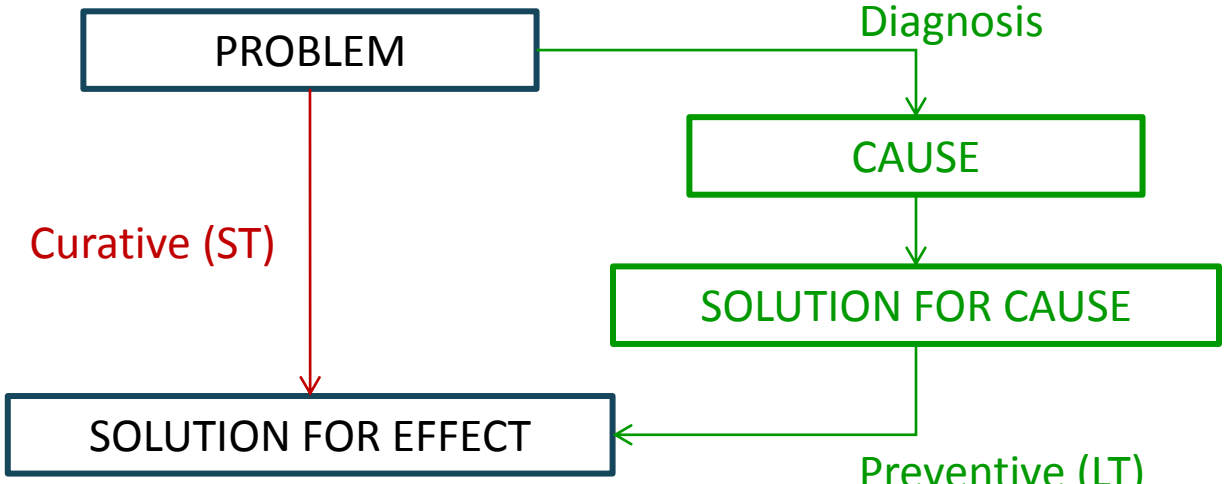
Conclusions I

- **LTV 2030:**
  → Taking into account different estuarine functions
- **Development scheme 2010:**
  → Stakeholder involvement
- **Enlargement navigation channel:**
  → External expertise introducing new disposal strategy
  → Limitations of knowledge and tools => uncertainty
  → 3-stage rocket approach, with important role for monitoring and evaluation of results (pre-defined criteria)

Conclusions II

- **Holistic approach based on system understanding**
- **Combining different ecosystem services and functions**
  => striving for WIN-WIN-situations

=> MORPHOLOGICAL MANAGEMENT



www.tide-toolbox.eu

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