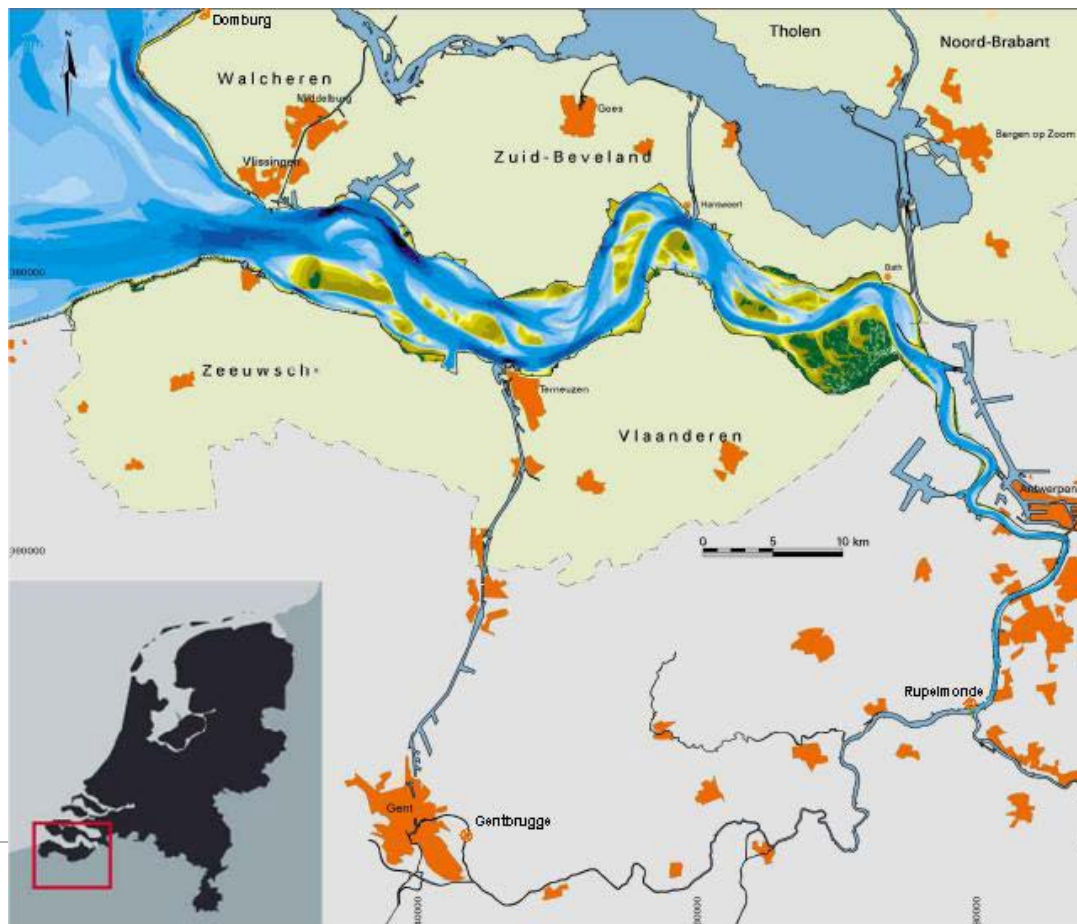# Collaboration in Scheldt estuary

Developing and using system knowledge
in a bilateral setting

30 november 2012

- Stories, lessons out of the Scheldt estuary
- ➢ Increased cooperation, enabling a growing role of system knowledge
- ➢ The tide elaborated as case
- ➢ More focus on Western Scheldt, multiple channel system

+ 3 questions:
- Actors
- Role information, learning
- Insights (learning influenced coastal governance ?)

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Different viewpoints / issues
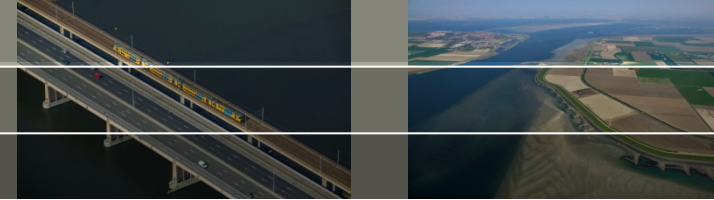
- **Safety** against flooding
  * disaster of 1953

- **Accessibility** port of Antwerp
  * Flanders needs permit in Dutch waters
  * History (a.o. closing off the estuary)

- **Naturalness**: N2000 / unique estuary
  * EU regulations (habitat 'estuary')
  * inhabitants Province Zeeland skeptical (link it to Flemish interests)

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Actors
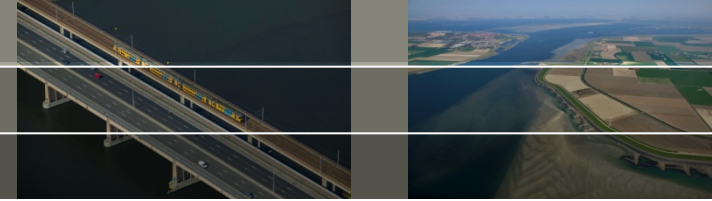
Governance:

- Flemish government (public works, nature)
- Dutch government (public works, nature)
- Province of Zeeland

≠

Coalitions (interests)

- Pro-Antwerp (pro-harbour)
- Environment (in both countries)
- 'Farmers coalition'

Gradual convergence of Dutch and Flemish perceived interests
   (≠ coalitions !!)

-   After request 3rd deepening -> development Long Term Vision
    agreement on : conservation of the multiple channel system in the Western Scheldt, influencing all three utility functions
-   Measures agreed on in 2005: treaties, amongst which treaty on
    'collaboration on the area of management and policy in the Scheldt estuary',
    with aims on joint monitoring, research and effect-evaluation

!! Collaboration breaks with 300 year tradition of conflict over Scheldt

!! No (or less) delay!, much faster than 2nd deepening

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So, from a period with much mistrust to joint….

- Vision, decision making (policy) -> sediment management
- Monitoring and evaluation
- List of questions from management to research / consultancy
- Research, executed by consortia of Dutch and Flemish institutes / consultants
- Guidance of research by estuarine managers

!! Important role for system knowledge (knowledge base collaboration)

!! Translation policy / management to system knowledge (and back) does (as always) require 'hard work'

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Where to go?

System Knowledge

What can we do?

Questions from management

2 x 'translation'

System knowledge (estuarine processes)

2 x 'translation'

Questions from management

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NATURALNESS
(N2000 / permits)
parameters
determining
habitat: e.g.
- **% flooding**
- **length waterline**
- **flow velocity**
- **area**
- **mud dynamics**

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Verloop gemiddelde getijslag langs het estuarium
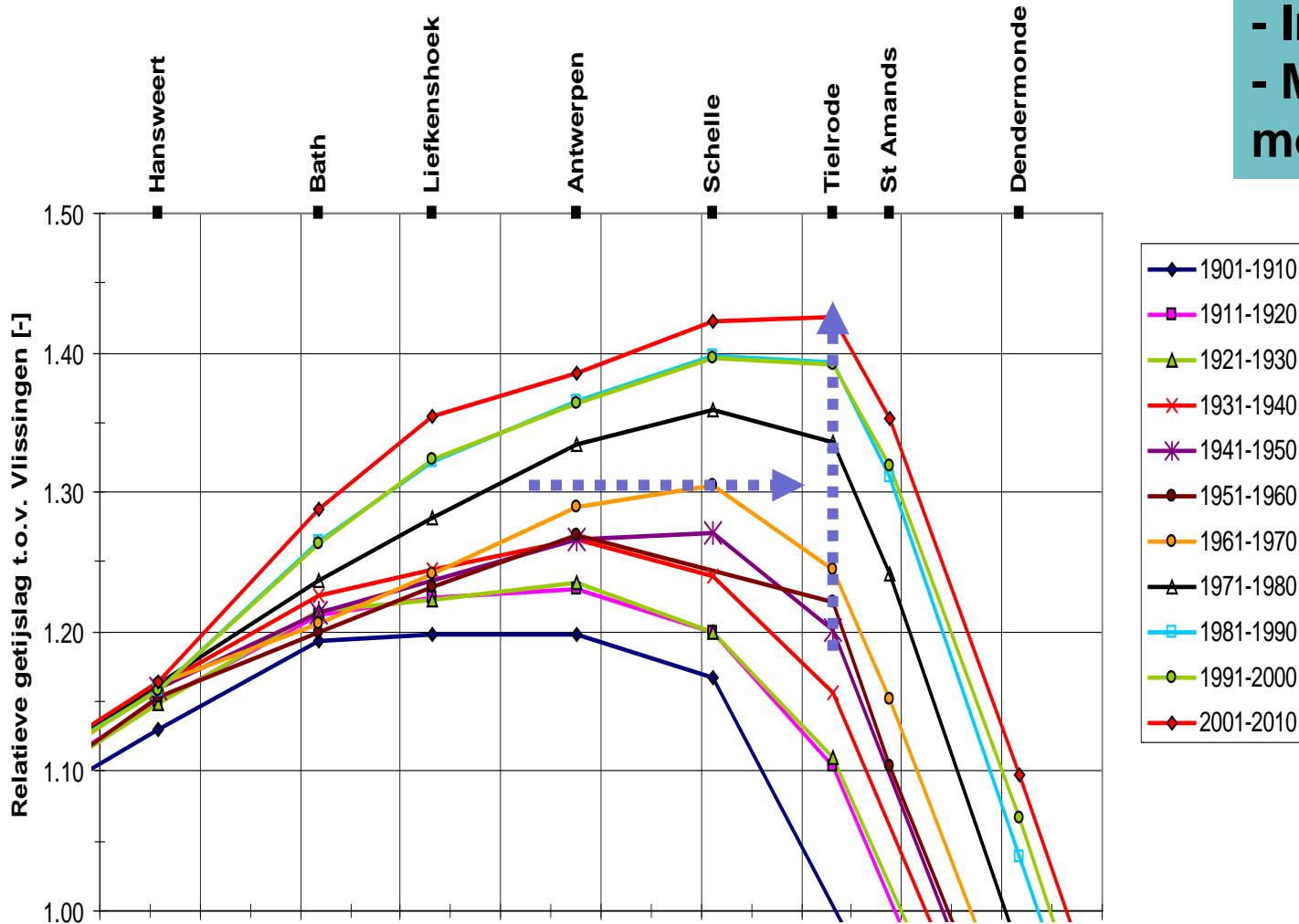
- Increase
- Maximum more upstream

Tidal Range -> agreement on its importance: 'system integrity on the large scale'

Main factors influencing tide on large scale

Changes sediment budgets mainly driven by human interferences

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┌─────────────────┐                    ┌─────────────────┐
│   Waterbed      │ ────────────────→  │      Tide       │
│   (changes)     │                    │                 │
└─────────────────┘                    └─────────────────┘
         ↑                                      │
         │        - Channel depth               ↓
         │        - Intertidal area
         │        - Bed roughness
         │        - Large scale shape
┌─────────────────┐                    ┌─────────────────┐
│   Transport     │ ←────────────────  │ Differences in  │
│  of sand or mud │                    │ flow            │
└─────────────────┘                    │ between ebb,    │
                                       │ flood           │
                                       └─────────────────┘
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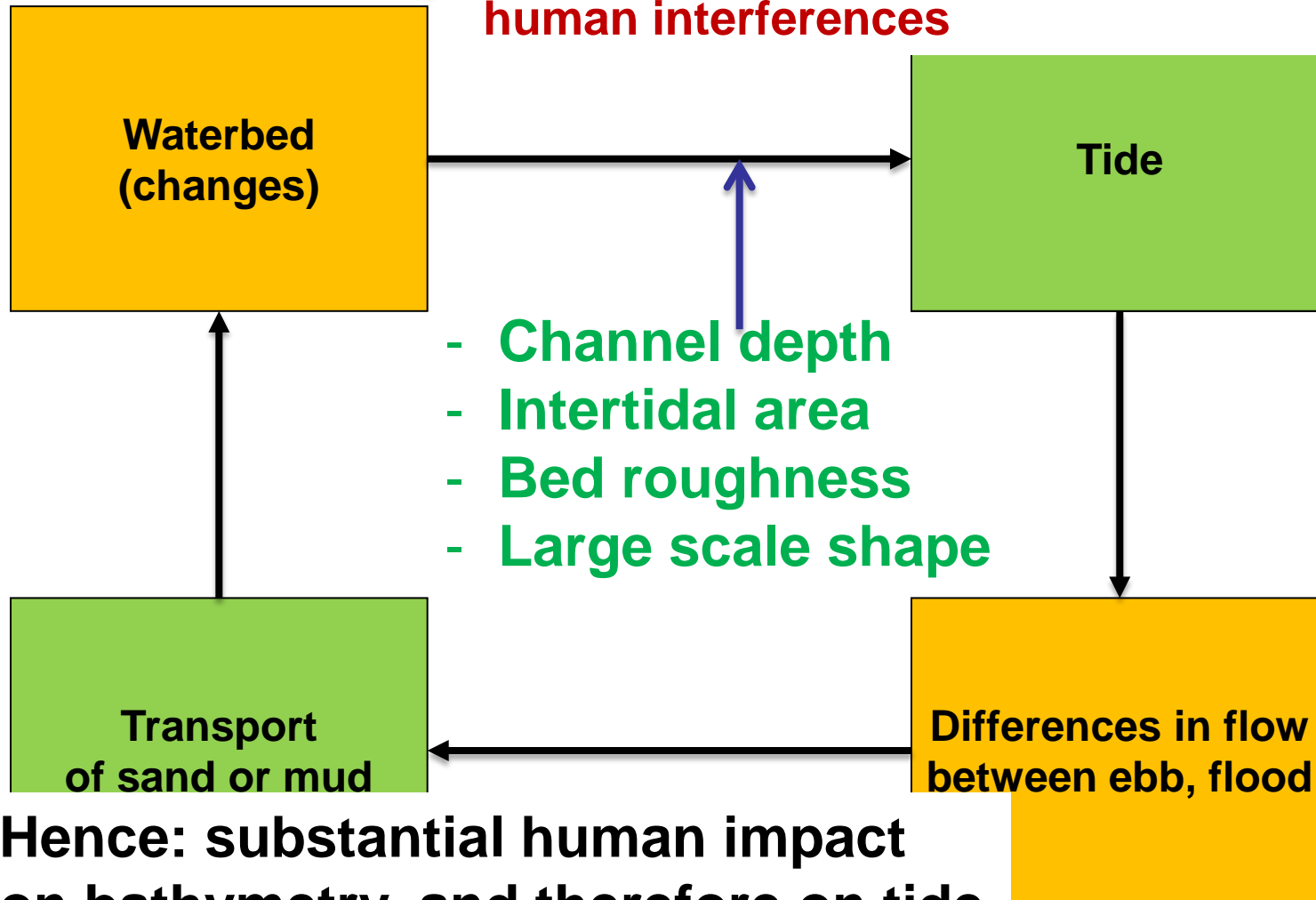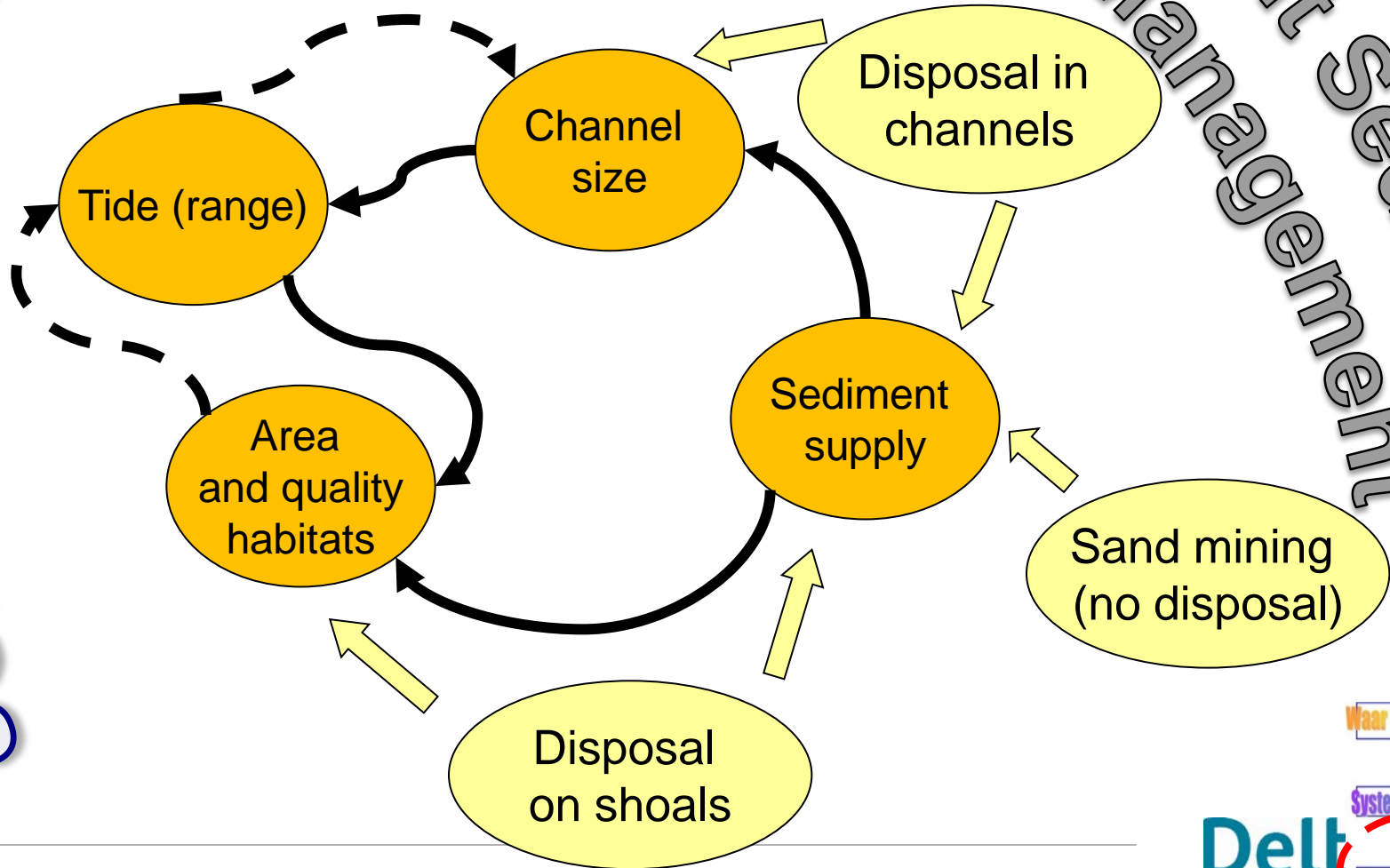
Hence: substantial human impact on bathymetry, and therefore on tide

Waar willen we heen?

Systeembeschrijving

Wat kunnen we doen?

Delt

Insights (did learning influence coastal governance ?)

!! Breakthrough in collaboration, triggered by system knowledge

- In LTV: concept / agreement 'multiple channel system'

- In treaty: Joint Fact Finding
  (and an organisation that makes it possible)

- Flexible disposal / sediment management
  (adjusting strategies on monitoring and system knowledge)

- Now: More central position development of the tide
  * a large scale parameter that can be evaluated well
  * much historical data
  * sound scientific concepts and numerical models to evaluate interventions

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