Rijkswaterstaat
Ministry of Infrastructure and Water Management

Long term sediment strategy in the Scheldt estuary

An exploration of new solutions to adjust the sediment management strategy

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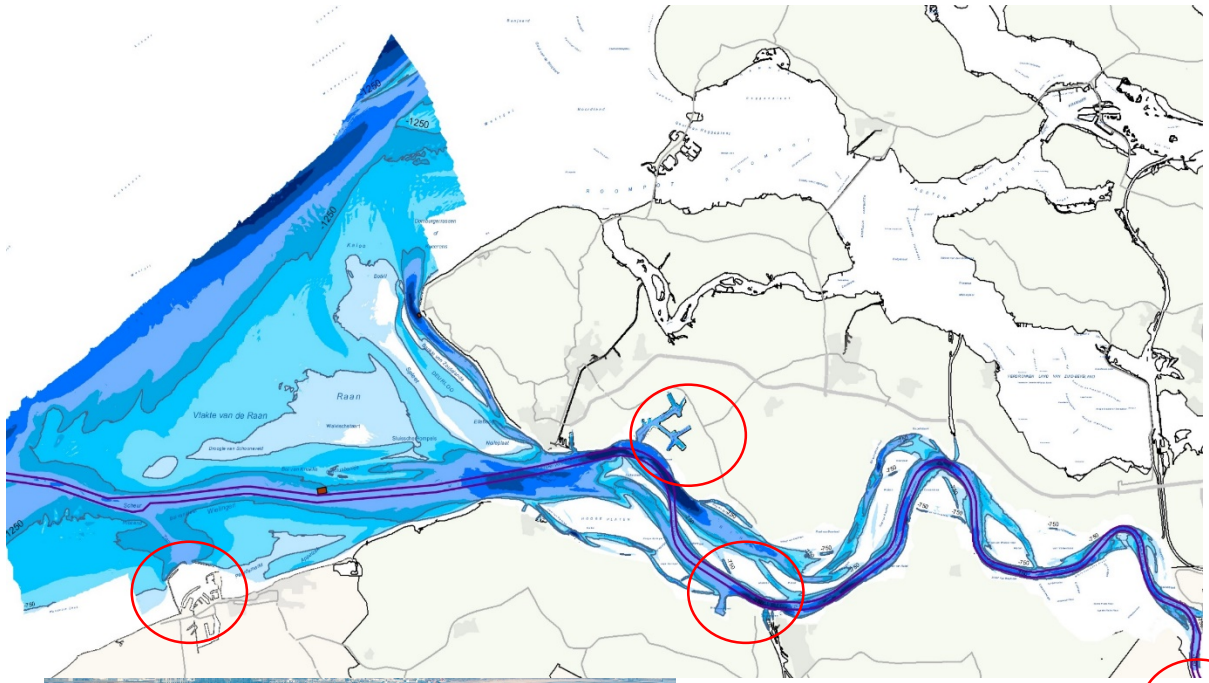

Vlakte van de Raan
Raan

Sea level rise and climate change

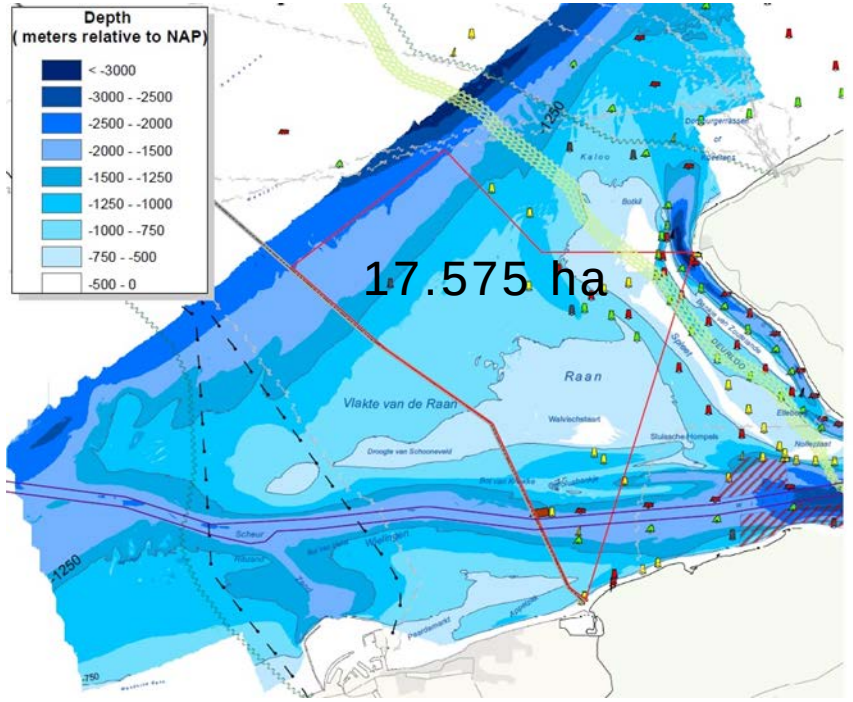
- How and when will (accelerated) sea level rise affect nature, safety and accessibility of the Scheldt estuary?
- Can these effects be mitigated by using a smart sediment strategy?
- What are the effects of such a strategy on nature, safety and accessibility?

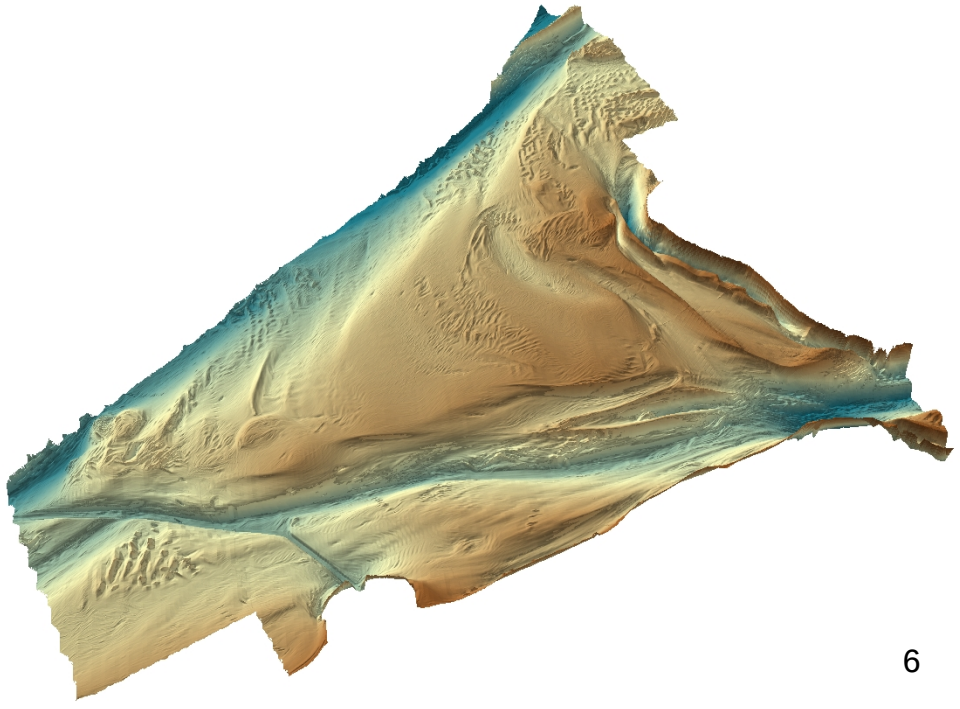
Programs and projects

- Programs
  - Delta program: effects of sea level rise and climate change
  - VNSC: long term sediment strategy
  - PAGW: improvement of habitats
- Projects
  - Maintenance of reference coastline and coastal foundation (nourishments)
  - Maintenance of navigation channel (dredging and depositing)
- Decisions taken
  - Sand mining is stopped from 2014 -> keep sediment in the system
  - Execute pilot nourishment in the mouth of the Western Scheldt (Delta program)

Exploring possible solutions

- Mouth of the Western Scheldt is
  - A large area
  - Time scales of sea level rise are ~50 – 100 years.
  - Contains N-2000 area (Vlakte van de Raan)
  - Is adjacent to two other N-2000 areas (Voordelta, Westerschelde & Saeftinghe)
- In which way can a pilot contribute?





Approach (from abstract questions to measurements)

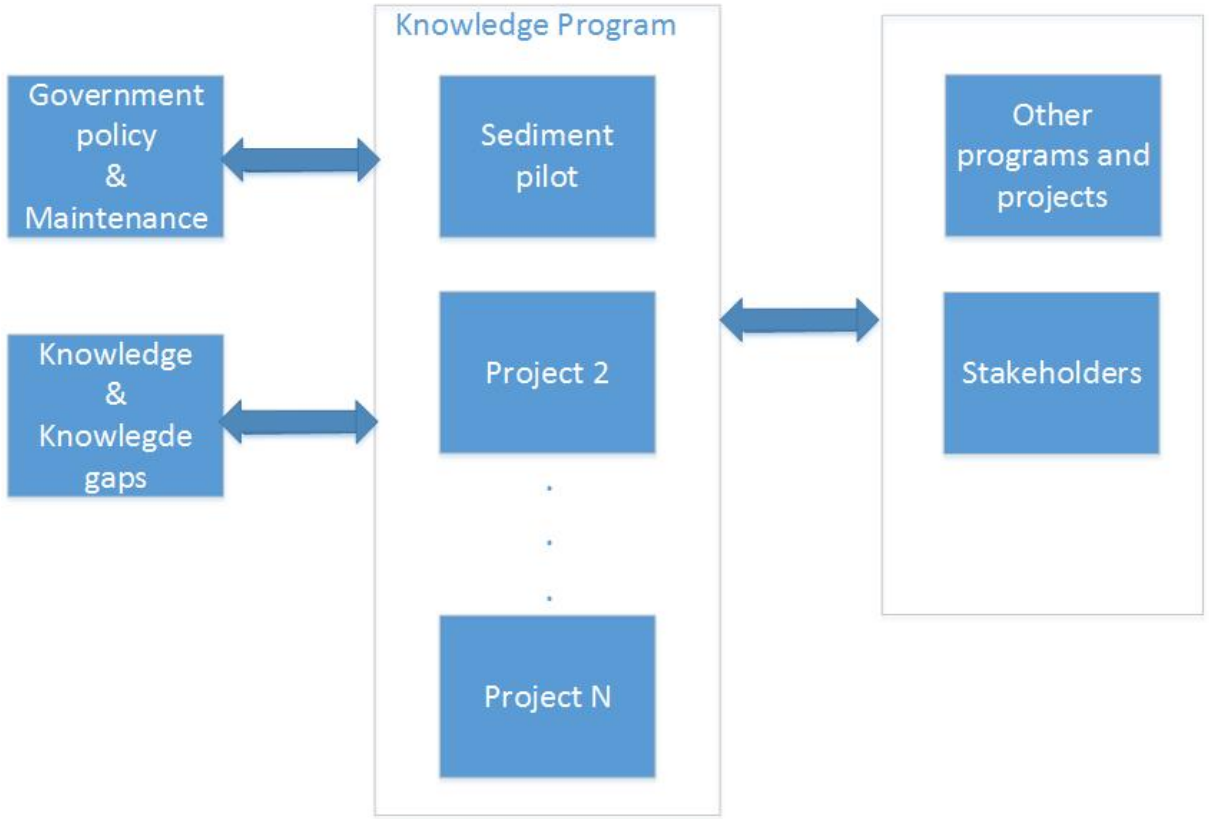
- List the relevant questions from policy and management
  - Make a distinction between short, medium and long term effects
  - Make a distinction between questions concerning ‘safety’, ‘morphology’ and ‘nature’

- Describe the study area
  - Knowledge (reports, models) and knowledge gaps (important)
  - Infrastructure
  - monitoring programs
  - restricted areas

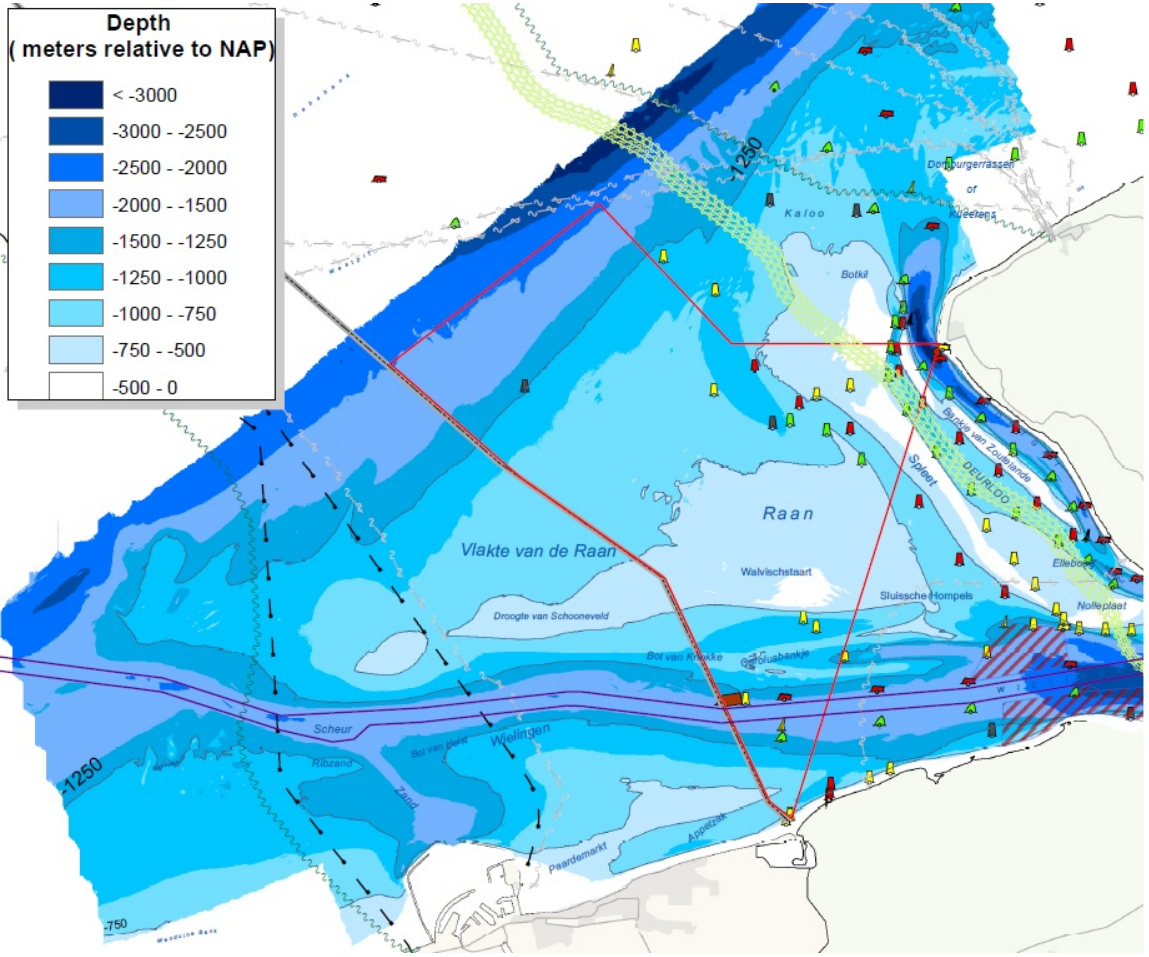
Approach (continued)

- Define a knowledge program
  - based on the relevant questions, knowledge and knowledge gaps
  - coordinate it with other ongoing programs.
  - Setup detailed research activities within this program
    - Pilots
    - Monitoring
    - Research
    - …
- Goals of these activities are derived from the overall goal of the program and contribute to the overall result of the program
- Involve stakeholders from the start of the project and share (intermediate) results and progress (stakeholder analysis and communication plan)

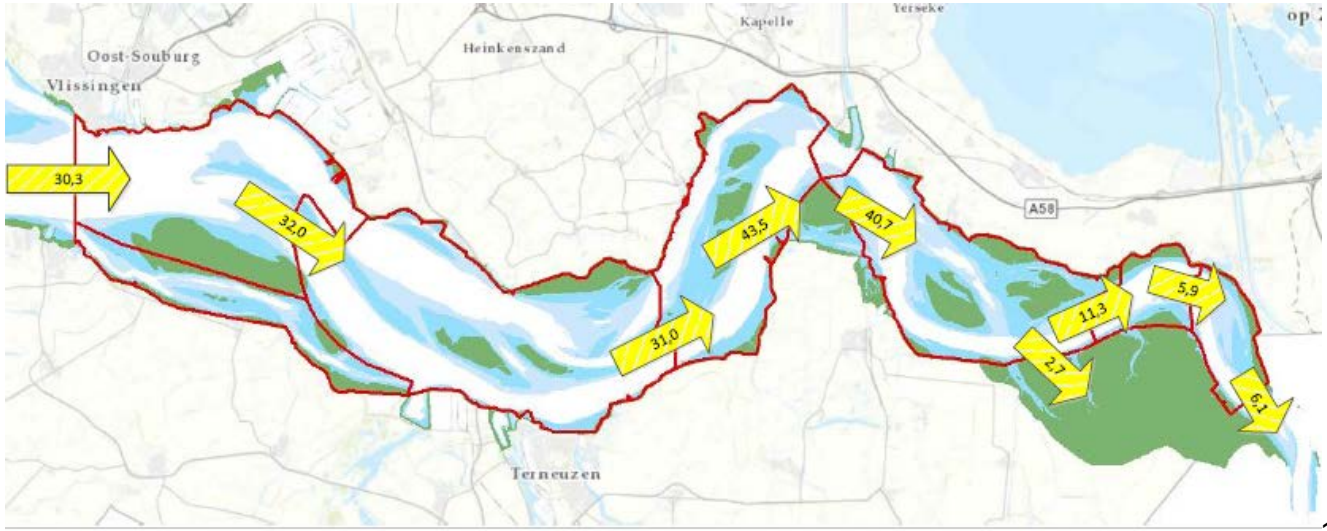
In image form



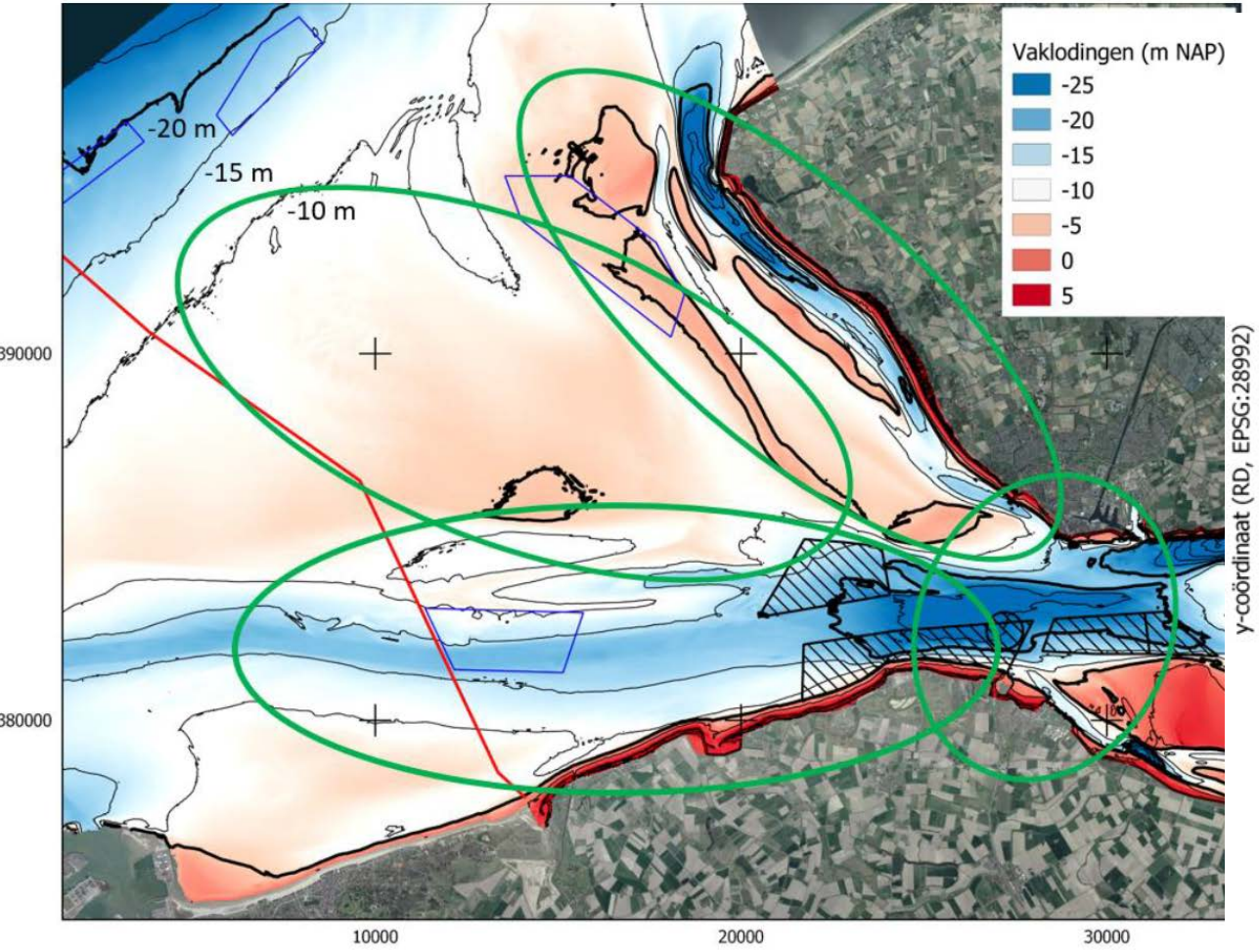
The sediment pilot

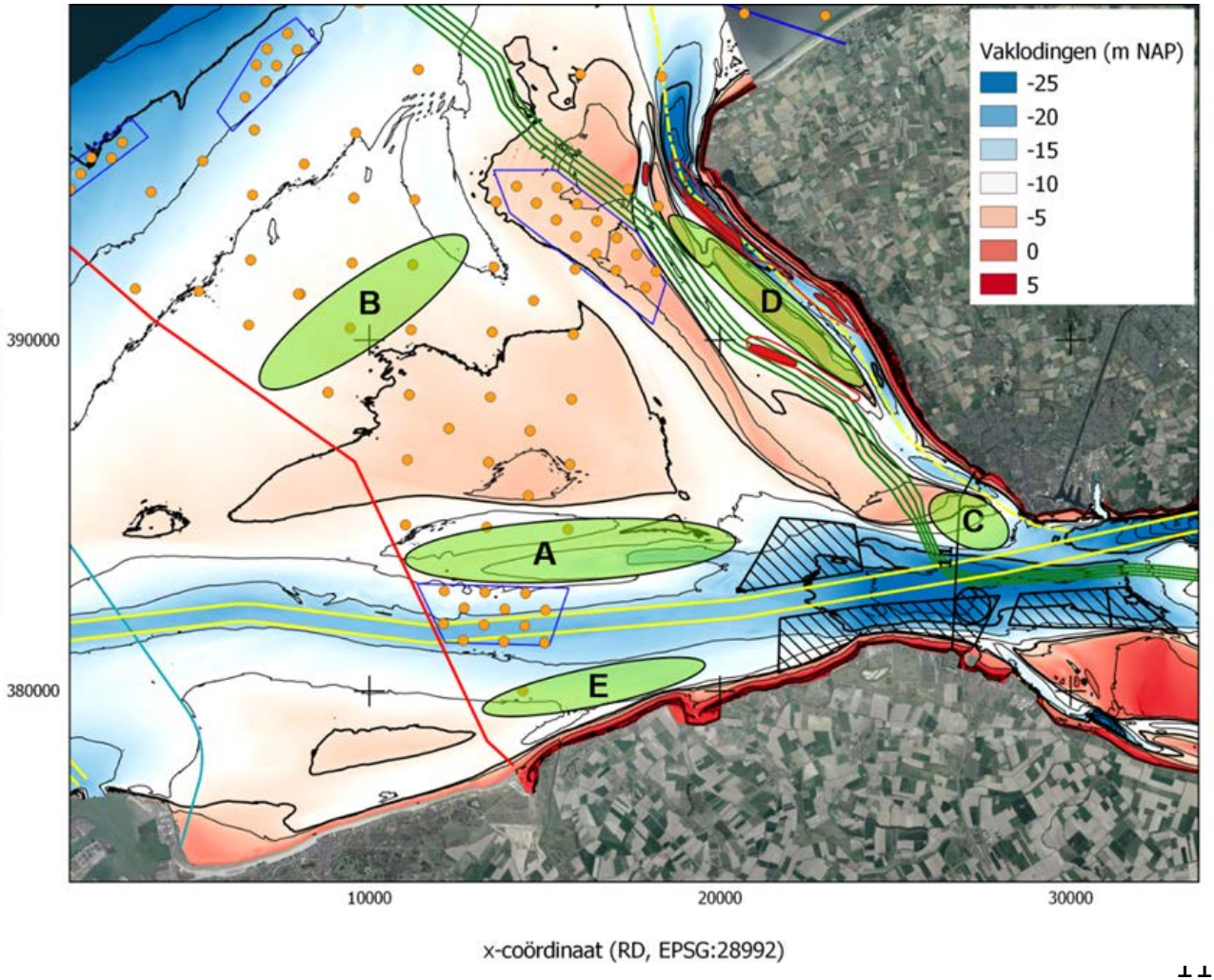


- Can sediments be used to mitigate effects of sea level rise?
- The sediment pilot is a project to gain a better understanding of the local sediment transport and ecology around a nourishment.
- What influences sedimentation/erosion on a specific location?
- What is the effect on ecology?



Selected areas based on areas of interest





Further steps

- Actual planning sediment pilot
  - Location assessment (report December 2020) based criteria defined by previous studies in this project
  - Design and T0 monitoring (now – 2023)
  - Construction of the nourishment (2023)
  - Monitoring development and effects (2023 – 2025)
  - Evaluation (2026)

Summary & Conclusions

- Sediment pilot
  - Generates more knowledge and data on local parameters
  - Will be used to improve numerical models
  - In combination with other research provides knowledge -> sediment strategies for the long term
- Overall program
  - Long-term project which contains research and measurements on a local level -> in between results
- Key components
  - Clear view of questions coming from government and maintenance
  - Involvement of stakeholders from project start
- Approach can be applied in other (parts of the) estuaries