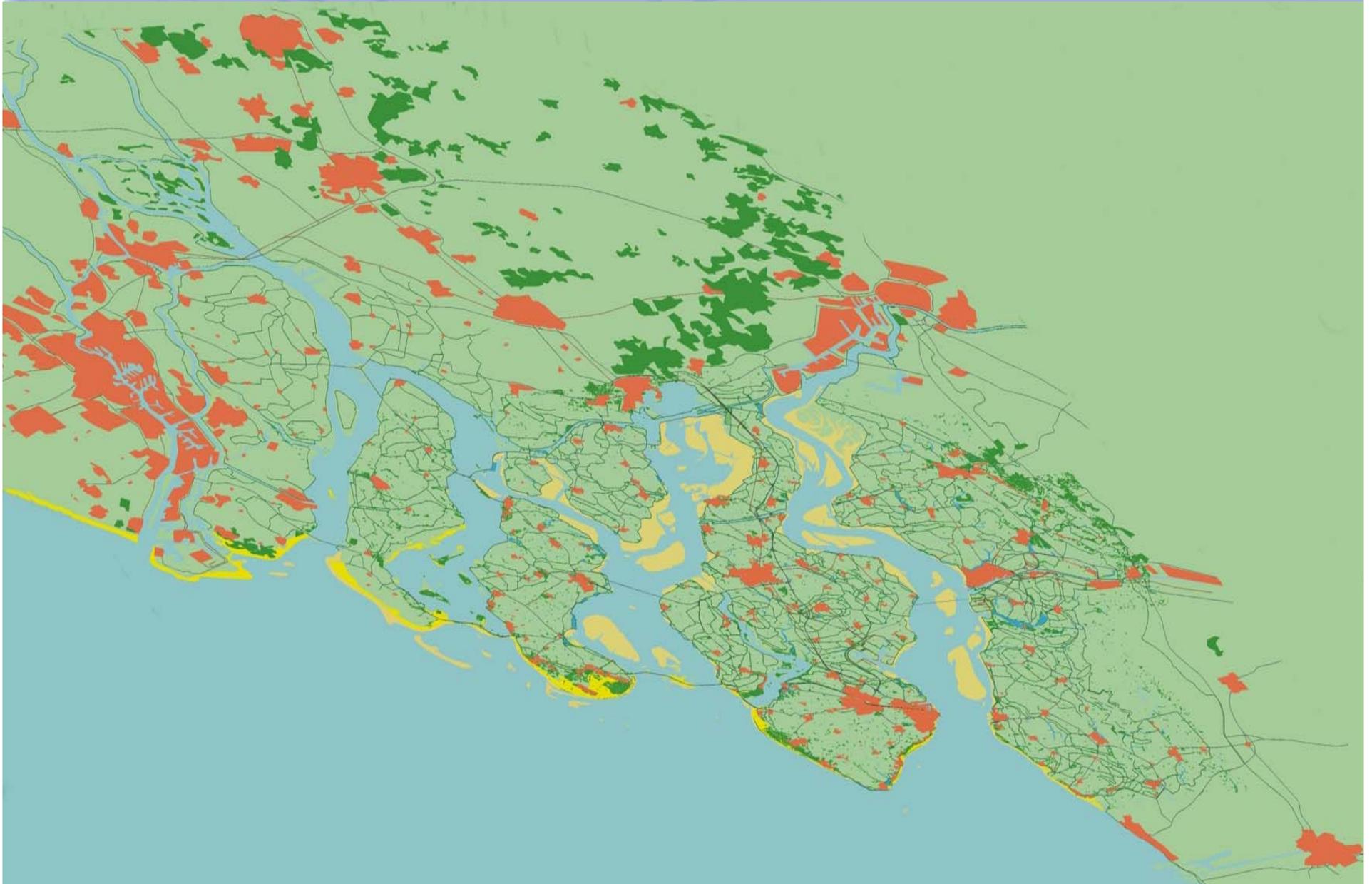


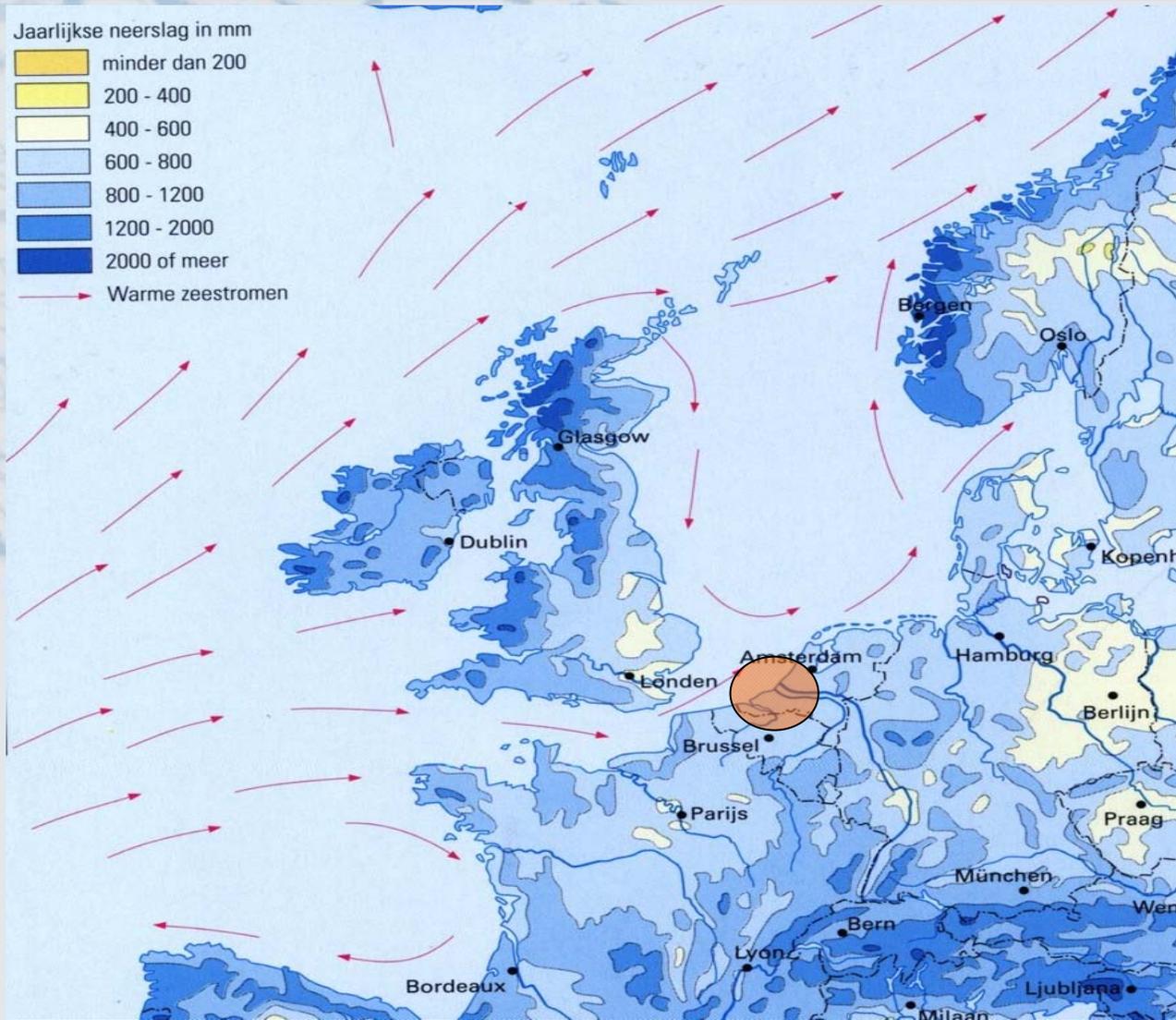


Delta InZicht / Delta InSight



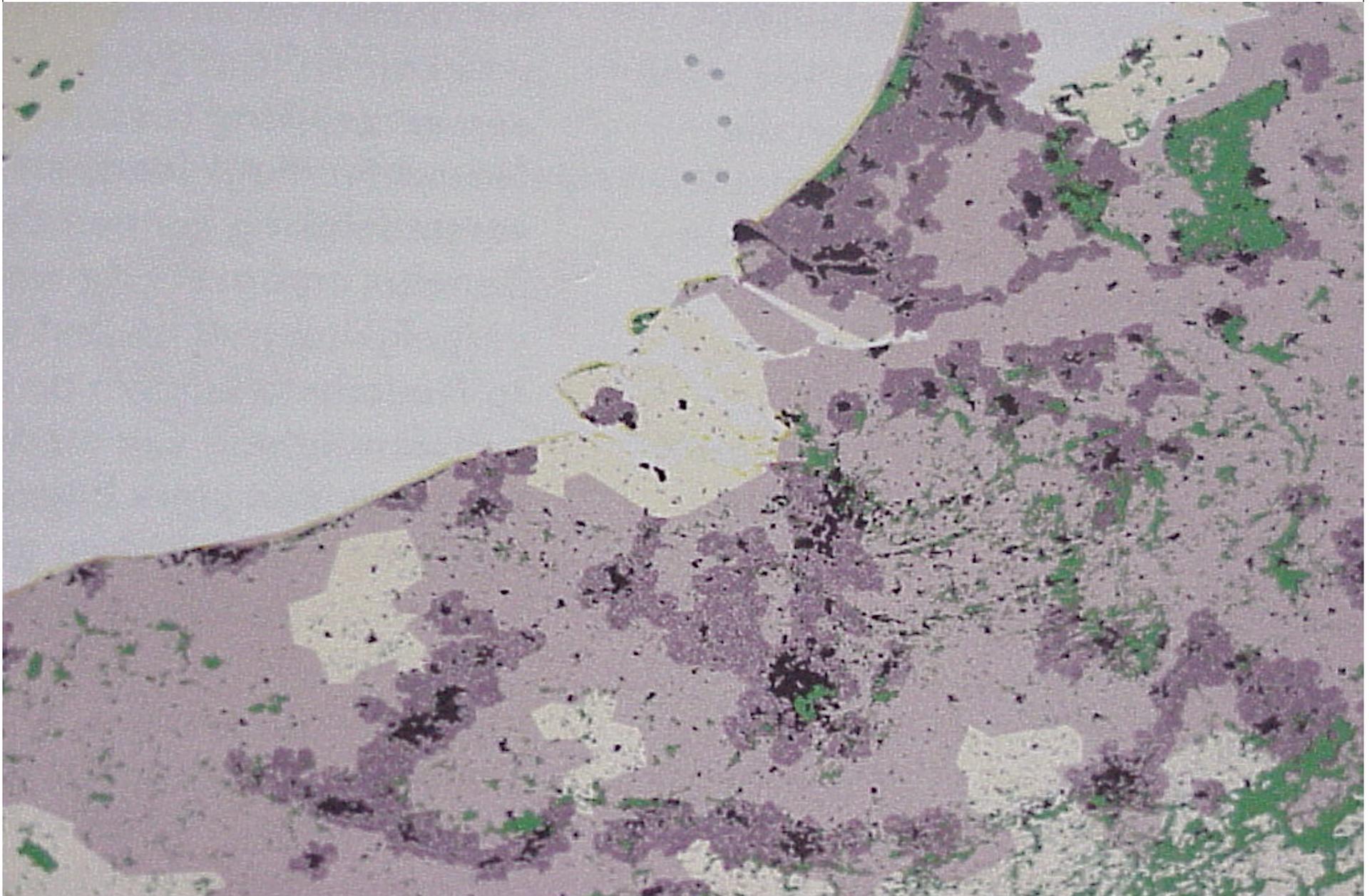


The Delta region in Europe

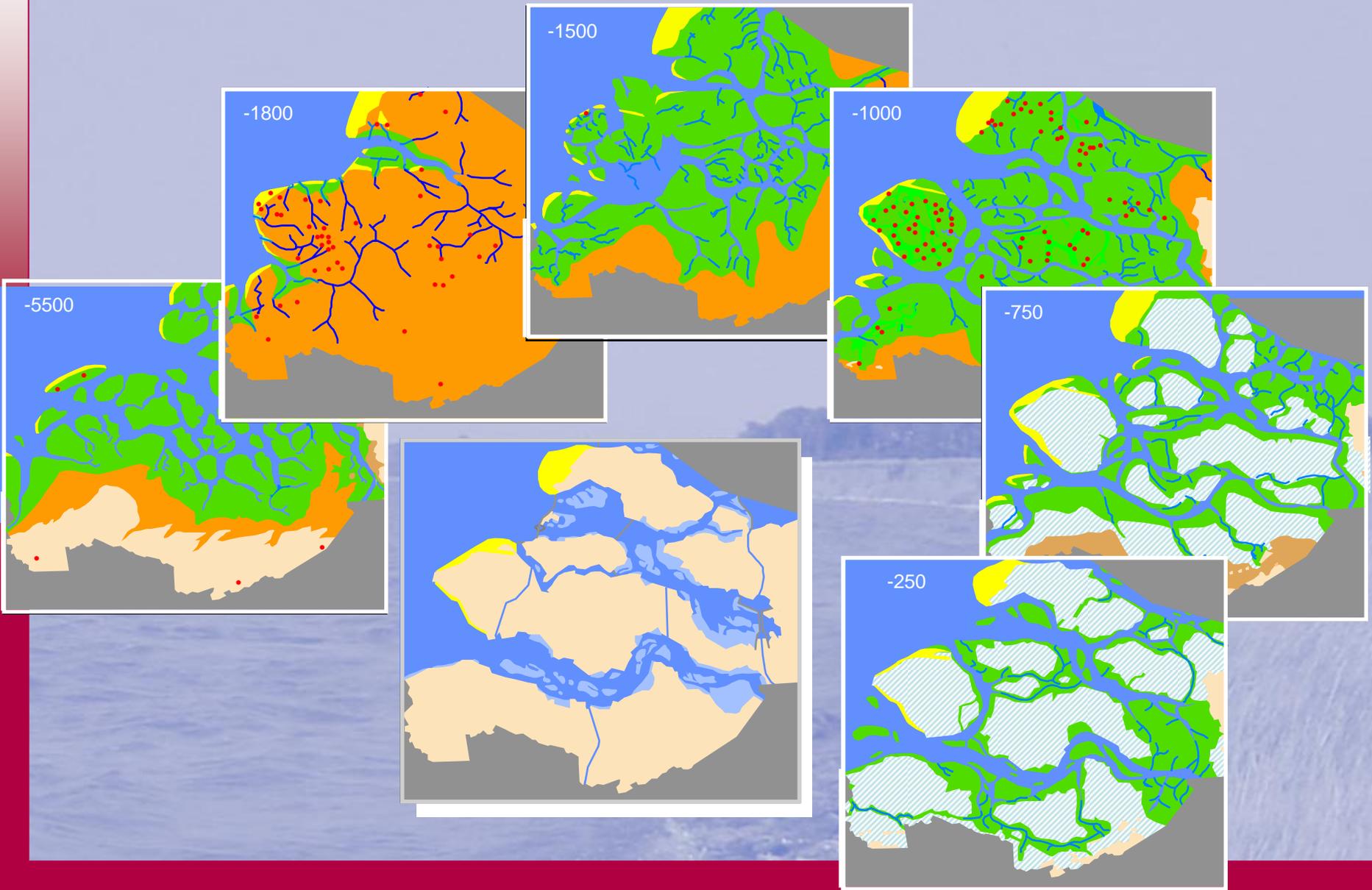




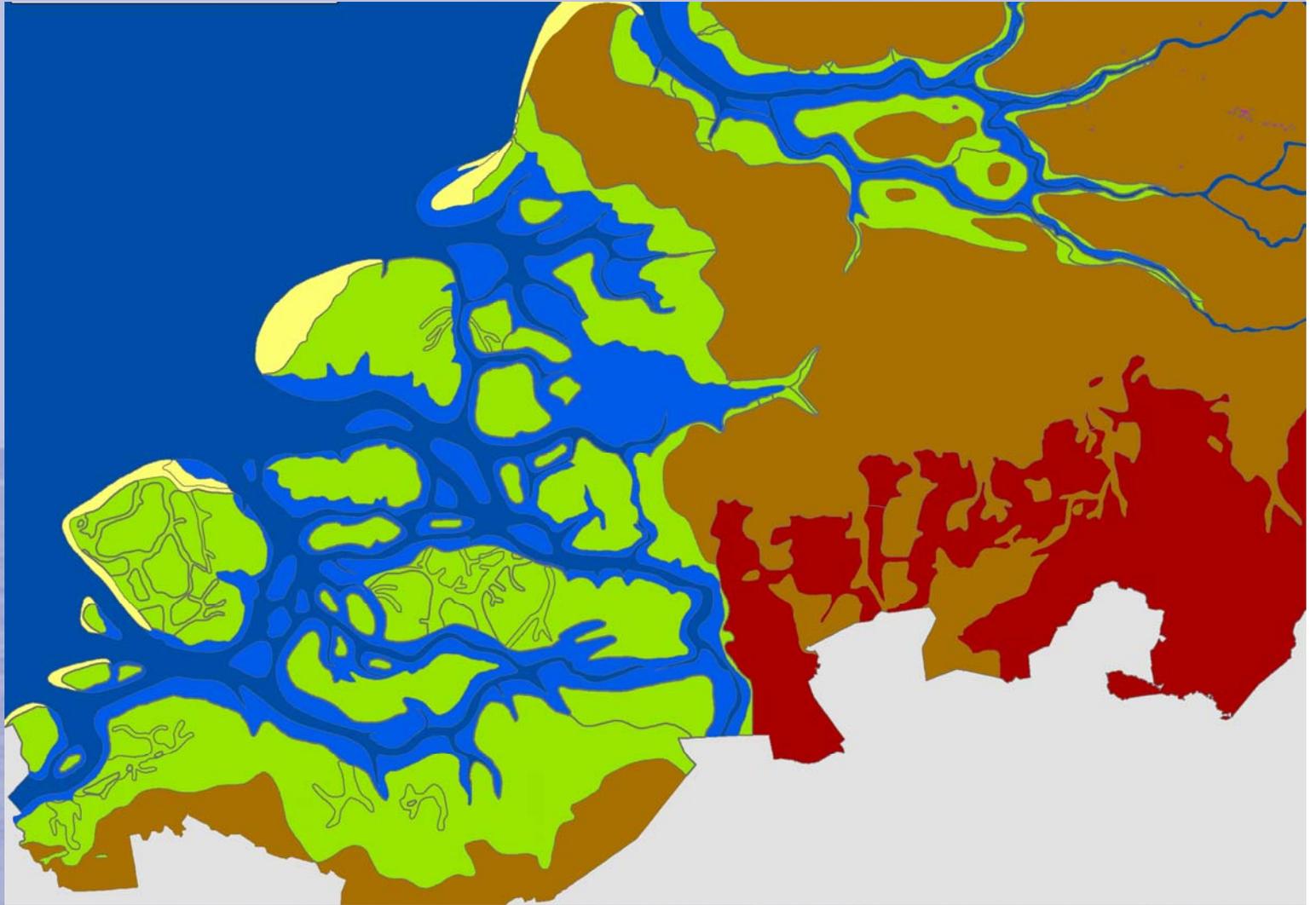
The blue-green oasis



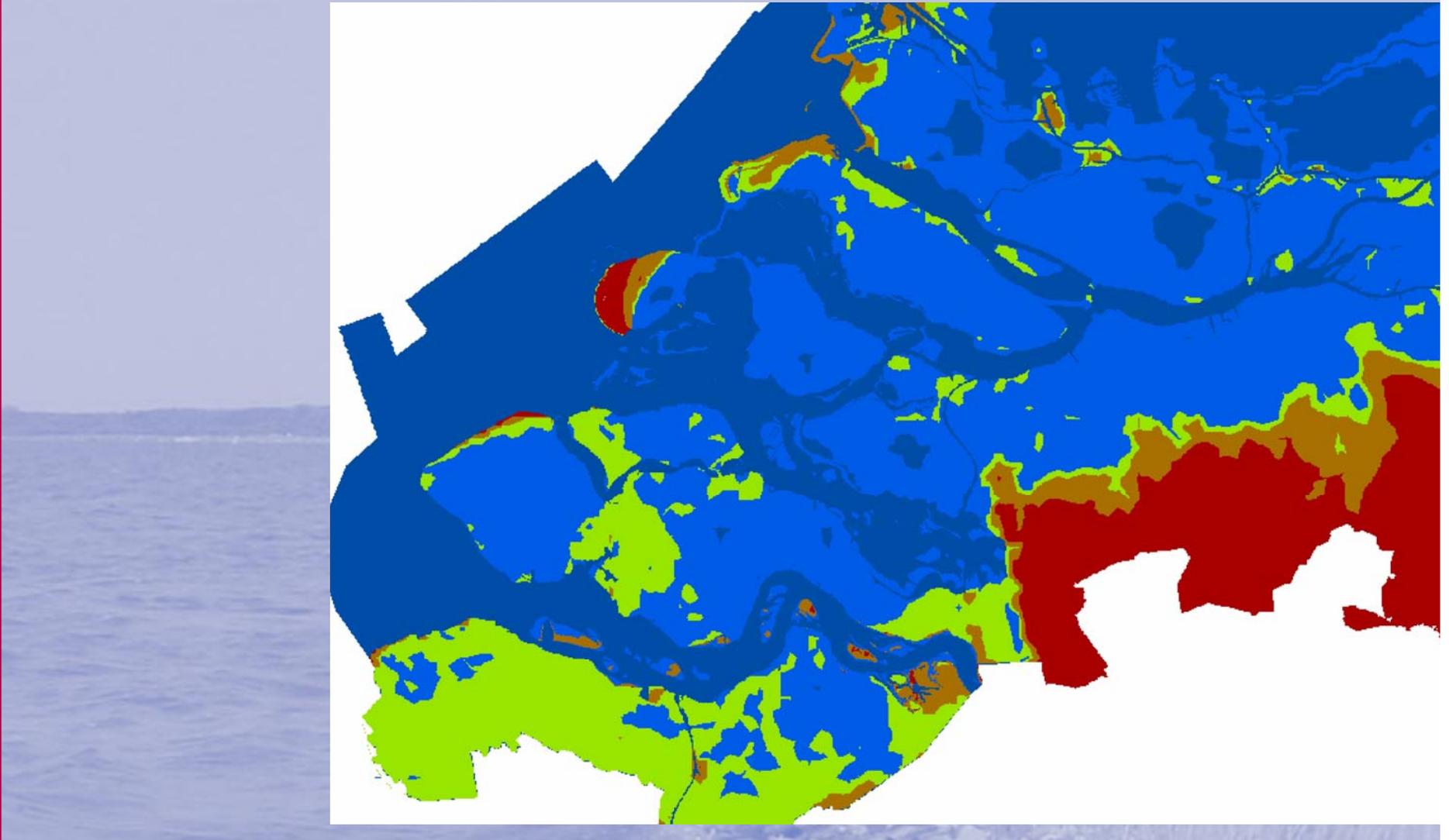
Dynamic environment



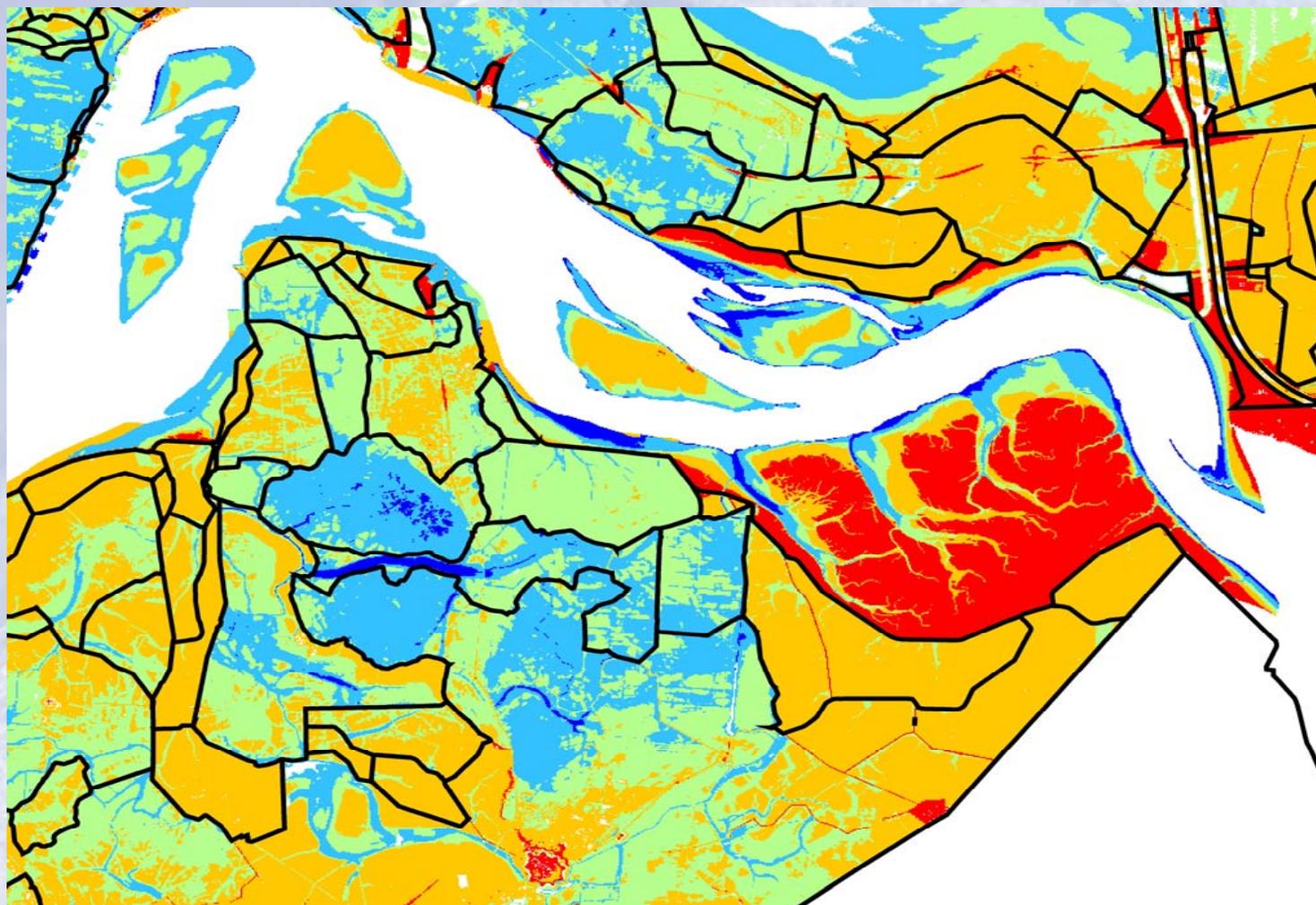
Marshy Delta without landreclamation



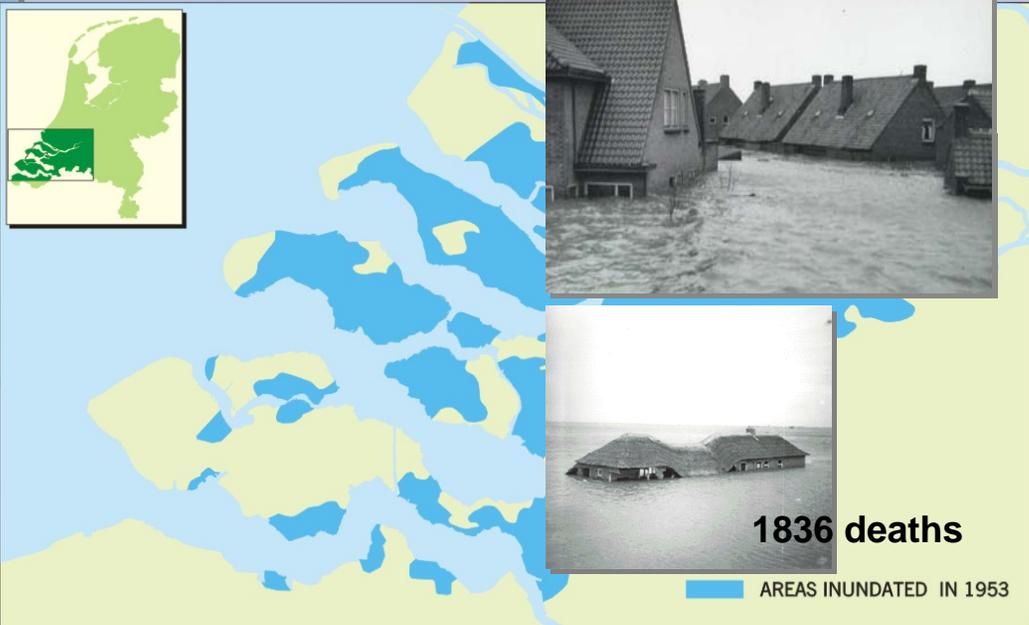
Delta now without dikes



Saeftinge



The force of the water



1836 deaths

More than 80 villages have been destroyed due to flooding in history

The flood in 1953 triggered the Delta Project

The Delta works



Safety and economic impuls

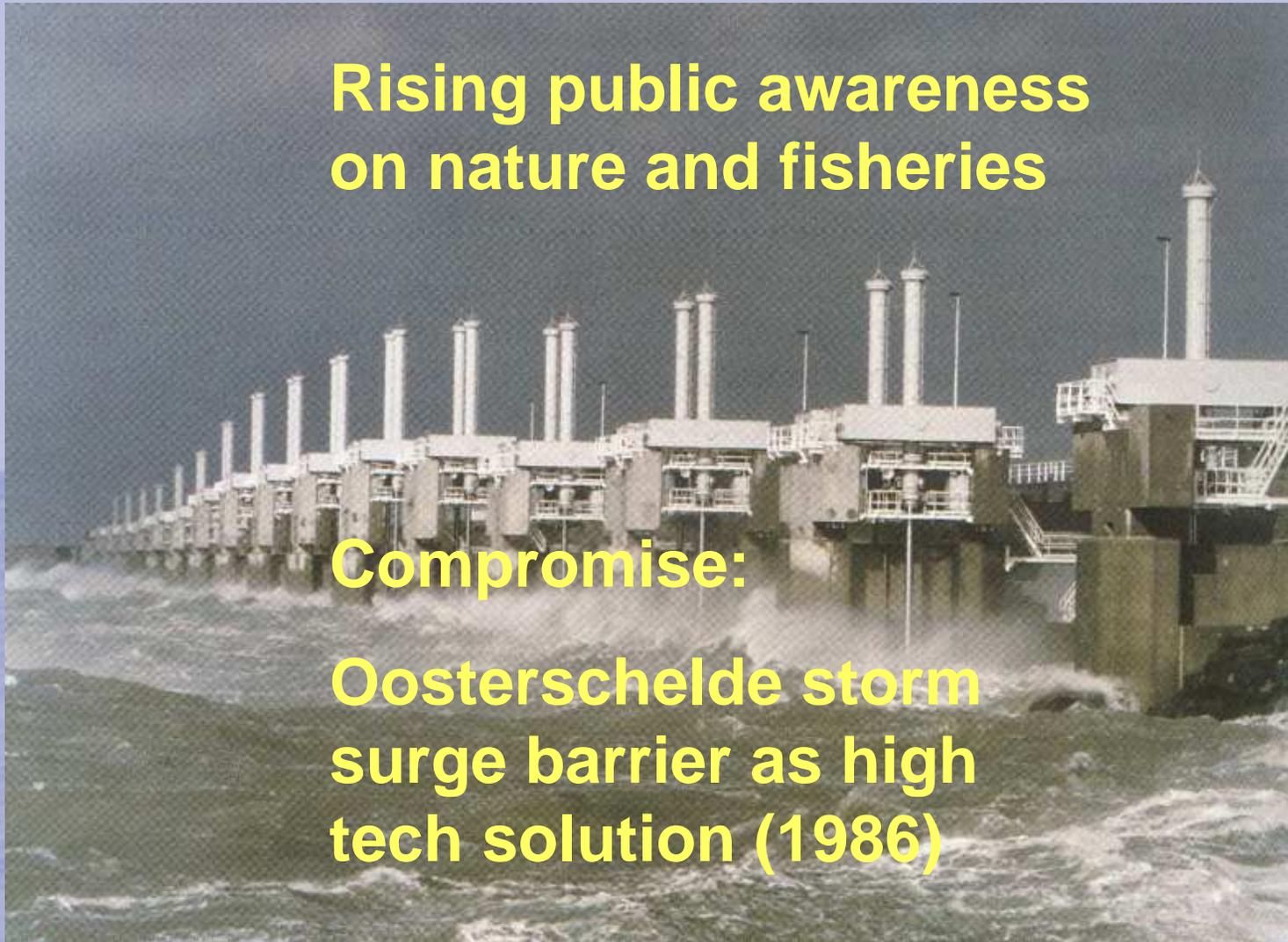


Changing attitudes

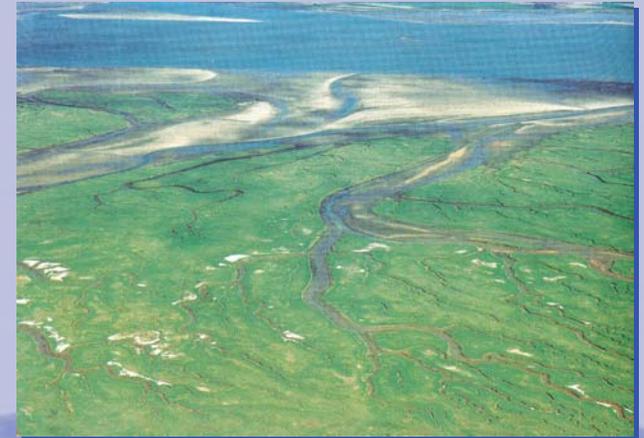
**Rising public awareness
on nature and fisheries**

Compromise:

**Oosterschelde storm
surge barrier as high
tech solution (1986)**



Water: enemy and friend





Maeslantbarrier (1997)





Situation after the Delta project





Problem no.1: The ecology

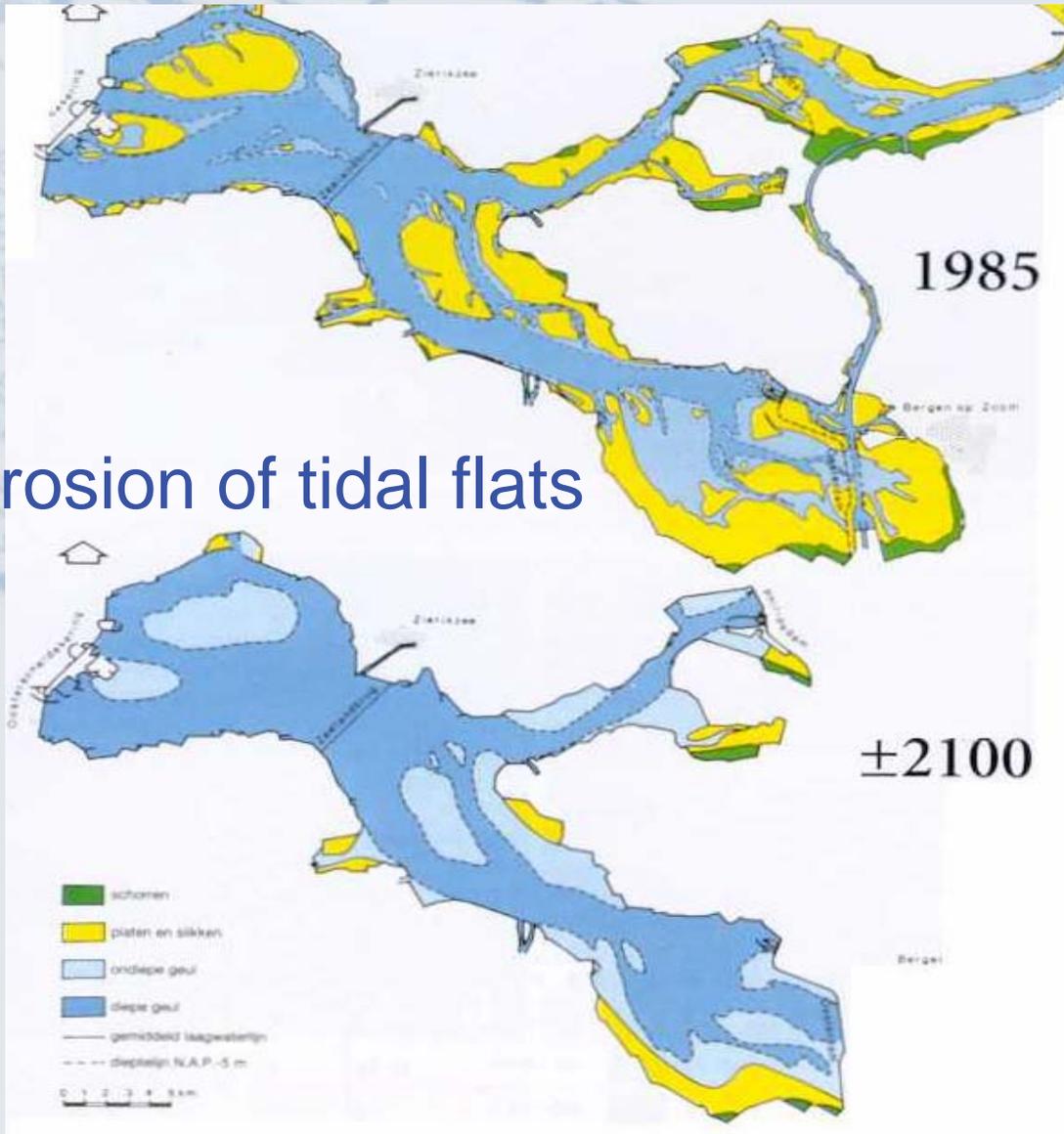


Blue-green Algae

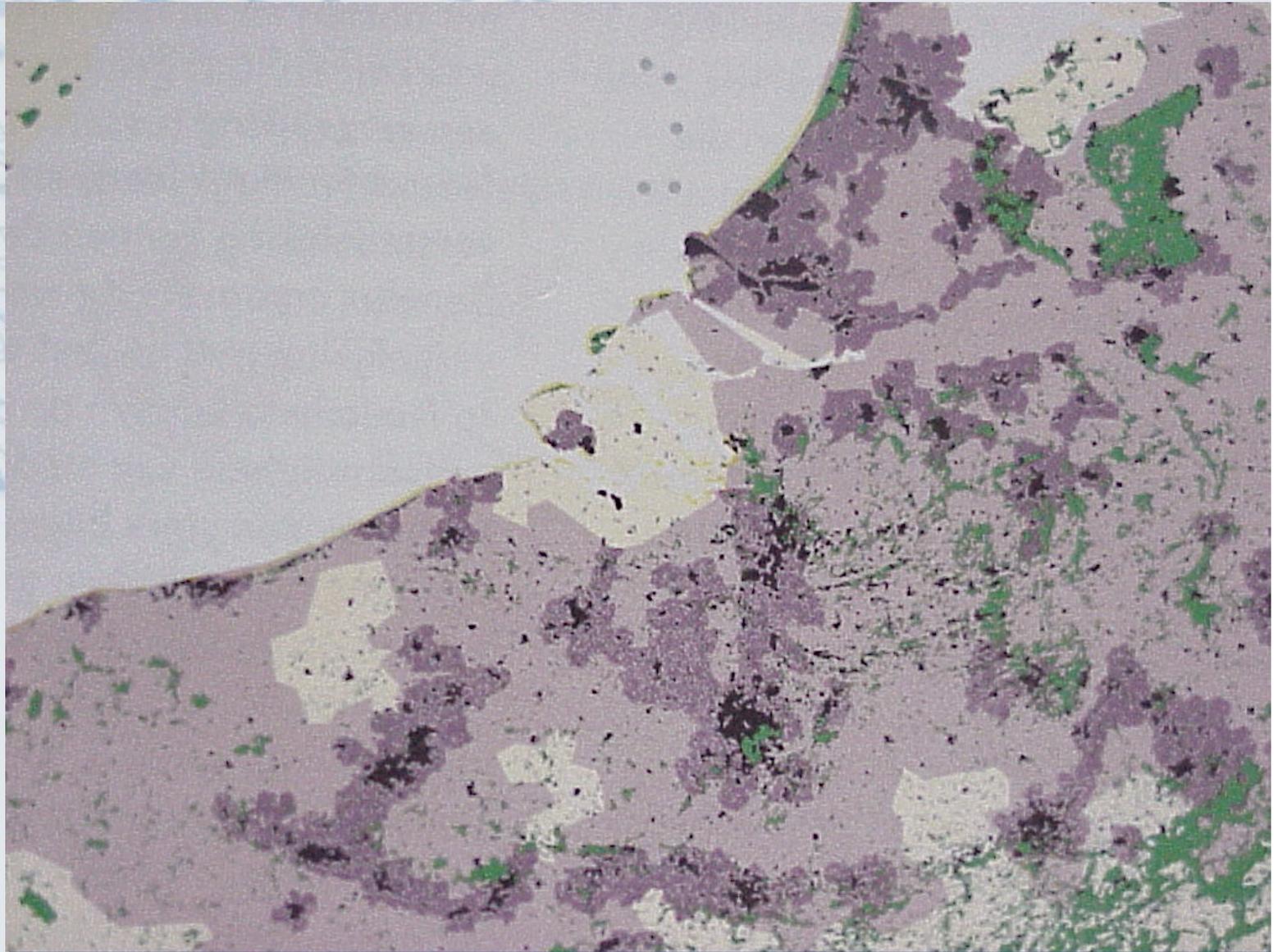


Channels that hunger for sand

causing erosion of tidal flats



Problem no. 2: Urbanization



CLIMATE CHANGE

Scenarios

	Low	Medium	High
Temperature	+1 ⁰ C	+2 ⁰ C	+4 ~ 6 ⁰ C
Sea level	+20 cm	+60 cm	+110 cm
River Rhine discharge	16800 m ³ /s	17600 m ³ /s	18000 m ³ /s



Problem no.3: Coastal defence



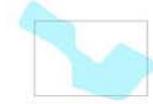
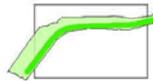
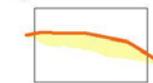


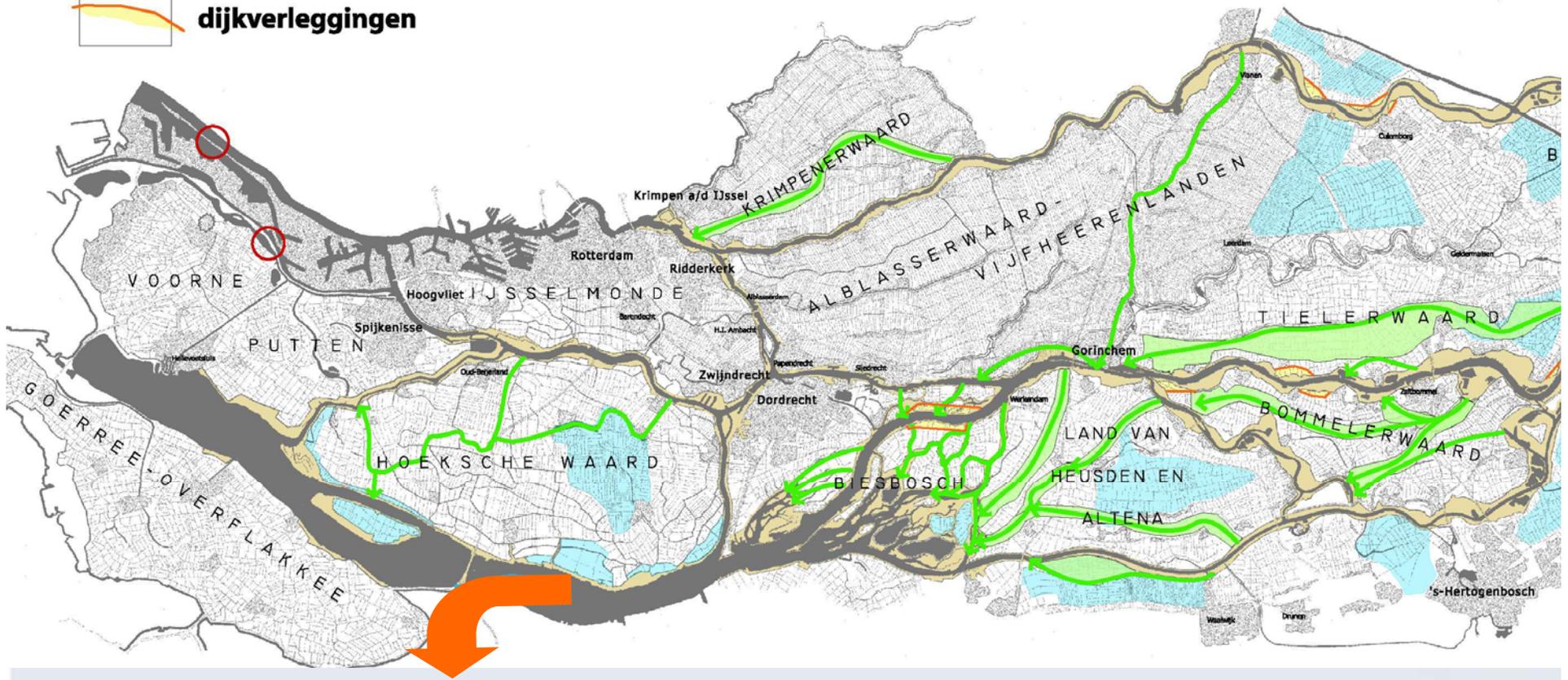
Problem no. 4: higher river-discharges





Problem no. 4: higher river-discharges

-  retentiegebieden/ kombergingsgebieden
-  benutting bergingscapaciteit Deltawateren
-  groene rivieren/ bypasses
-  dijkverleggingen





The vision making process



The interactive process

Some ingredients:

- Clear definition of the problems
- Research reports as building blocks for possible solutions
- Steering committee of stakeholders
- Meetings throughout the region
- Final debate



Debate



Debate





Factors for success

- Sense of urgency
- Changing threats into chances
- Taking disadvantages seriously

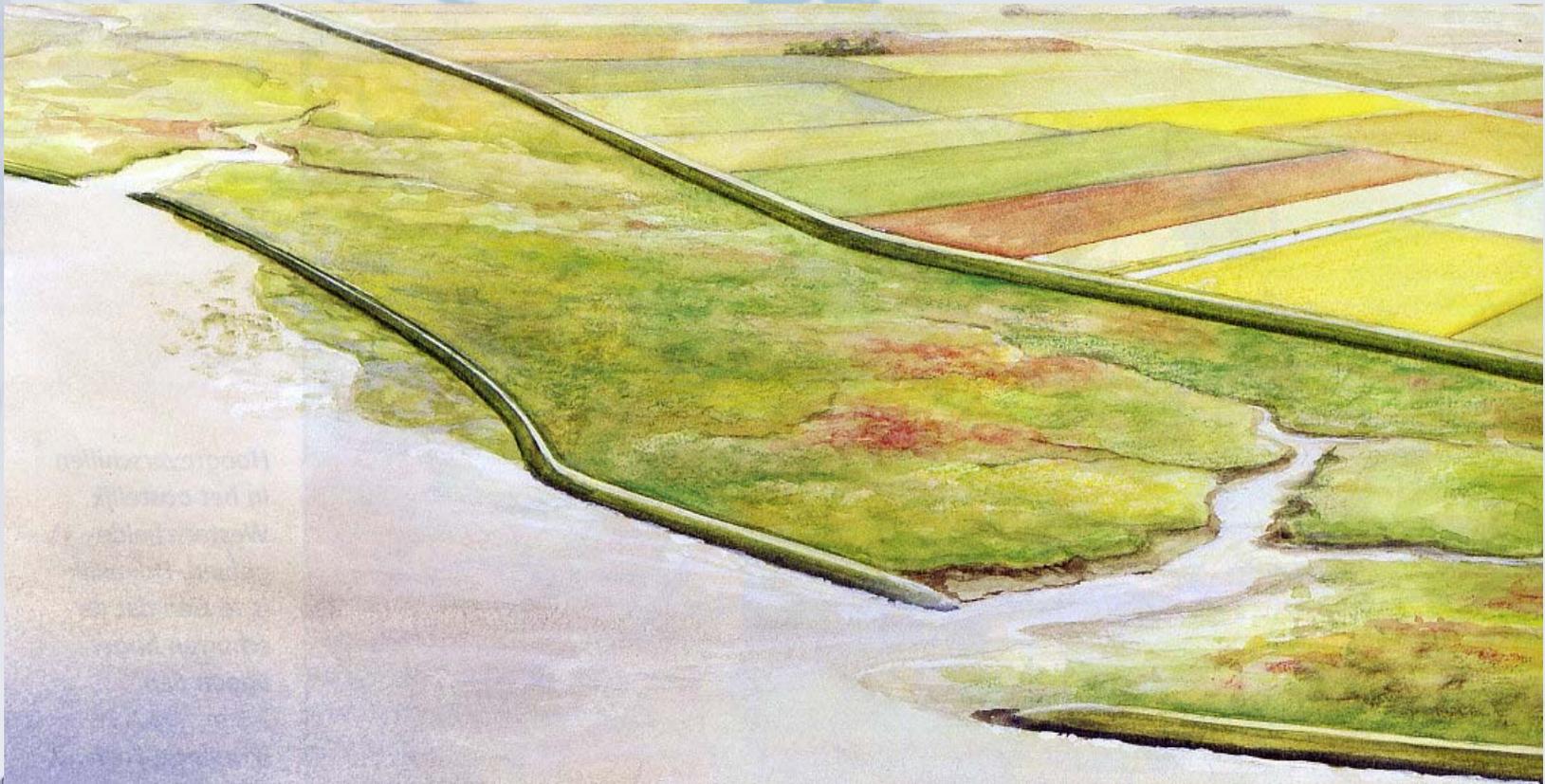


Restoring estuarine dynamics





From line defence to coastal zone





Estuarine dynamics: the benefits





Benefit no.1: Safety for the cities





Benefit no. 2: Estuarine nature





Benefit no. 3: Sustainable fisheries





Benefit no.4: Recreation for urban citizens




Provincie Zeeland



Ministry of Transport, Public Works and Water Management



Benefit no.5: New ways of living with water



Benefit no. 6: Faster shipping



The result

- Vision adapted by the three provinces
- Installation of the Delta-council
- Vision adapted by the national government
- Preparing the Deltaprogramme

Disadvantages

Less freshwater for agriculture

In the mean time



Connection between Lake Veere and Eastern Scheldt

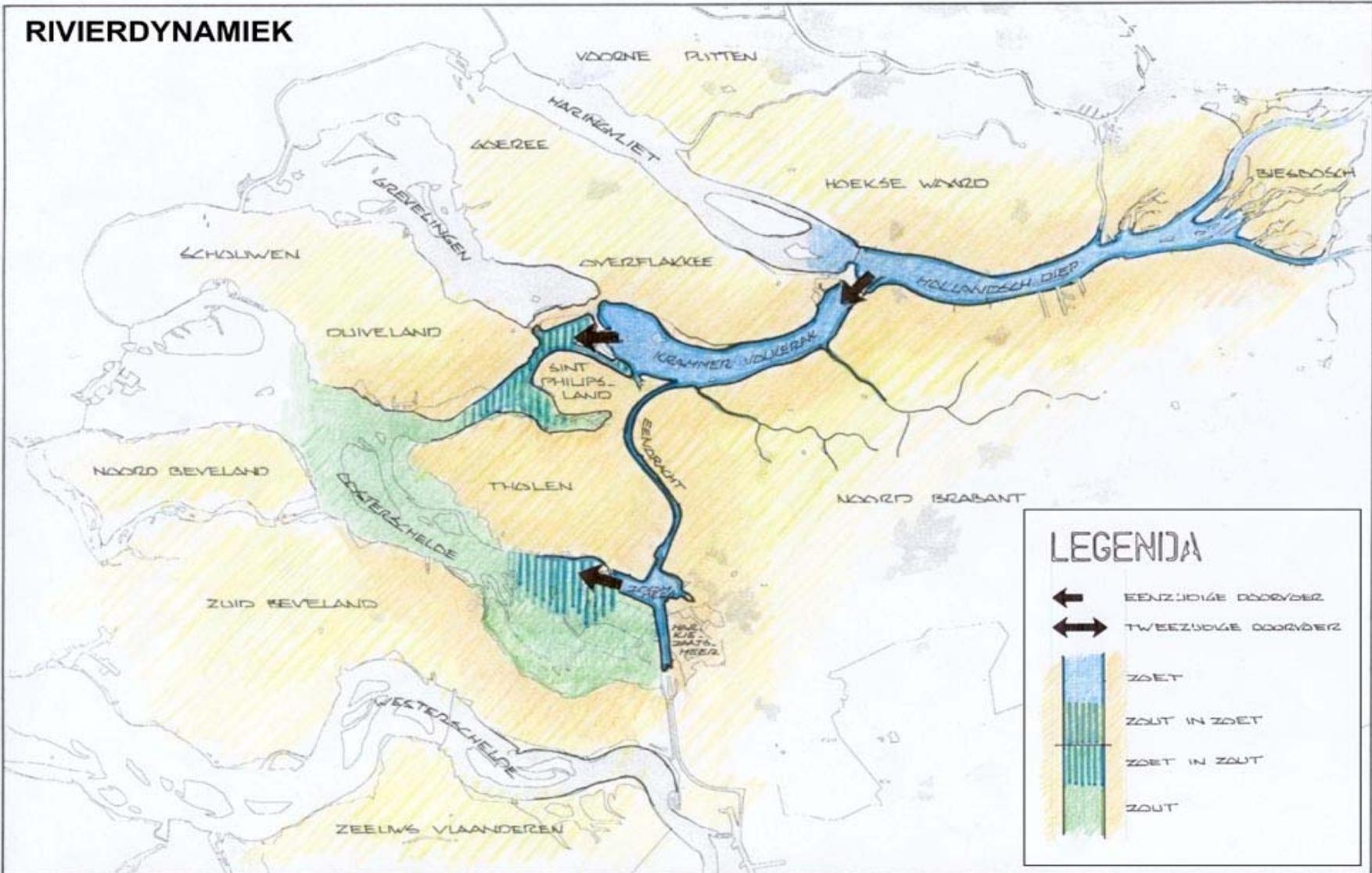


Haringvlietsluices



Lake Volkerak-Zoom

RIVIERDYNAMIEK





From line defence to coastal defence zones



Lessons we learned

- **Sustainable flood defences ask for harmonisation with nature and the goods and services of water**
- **Separation of watersystems and reduced natural water exchange diminishes resilience for safety and ecology**
- **The best solution would be an open system with large barriers and culverts not disturbing daily natural dynamics**
- **In fact: integrated solutions in stead of sectoral solutions are needed**
- **It is wise to anticipate and innovate in order to prevent floods in future**



Provincie Zeeland



Thank you