



Rijkswaterstaat
Ministerie van Infrastructuur en Milieu

Ministry Infrastructure & Environment

WFD and TRANSBOUNDARY Integrated Joint Approach

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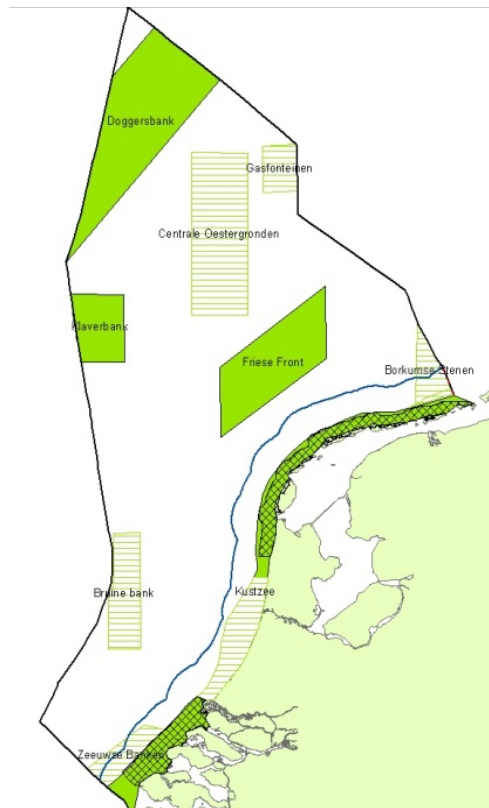
- 1. Transboundary aspects Dutch situation**
 - Fresh waters and North Sea
- 2. FORA and current shared problems**
- 3. Dutch pilot Rhine West (RW)**
 - Organization, joint efforts,
 - Integration of various scales, across borders
 - Sources, transport, inputs, fate, concentrations
- 4. Conclusions**
- 5. Questions and advice from YOU!**

Position of Dutch coastal waters (1/2)

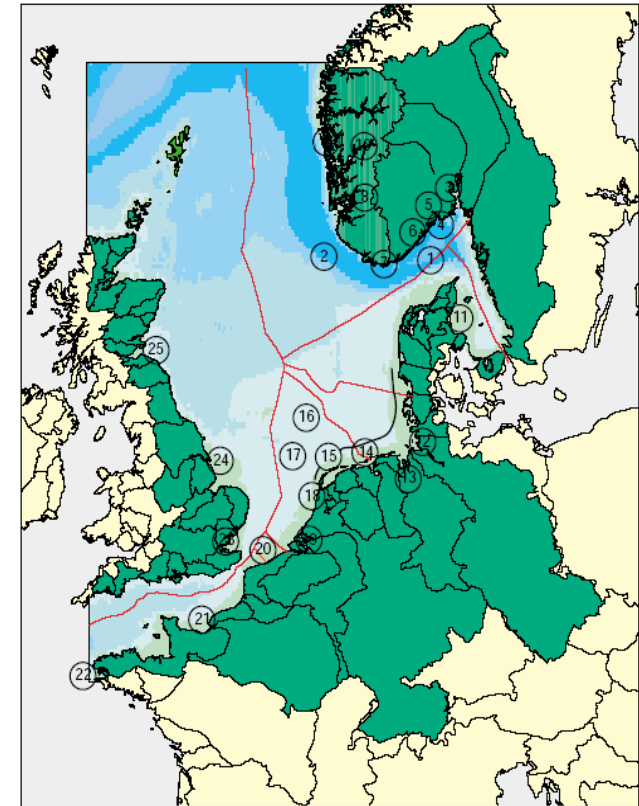
Features: NL below sea level, downstream: vulnerable!!



WFD area
(12% of Dutch North Sea)



Dutch part North Sea
(1.5 * NL)



**Downstream
Greater North Sea**



Position of Dutch coastal waters (2/2)

Features: open system, busy Greater North Sea



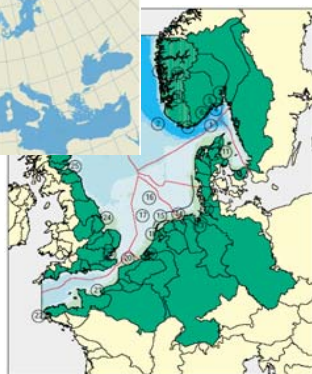
The North East Atlantic

- | | |
|------------|---------------------------------|
| Region I | Arctic Waters |
| Region II | Greater North Sea |
| Region III | Celtic Seas |
| Region IV | Bay of Biscay and Iberian Coast |
| Region V | Wider Atlantic |



North Sea, Fora, Areas

OSPAR Ministerial Conferences
MSFD (Marine Strategy Framework Directive)



Greater North Sea

Rhine Commission



Dutch part North Sea
(1.5 * NL)



WFD

WFD area's
(12% of Dutch North Sea)

Natura 2000



Problems: Eutrophication (OSPAR 2010) (1/3)

- **50% Reduction targets '85**
 - Reached for P, but not for N
 - Sources: Agriculture, shipping
- **Eutrophication problems remain in North Sea**
 - Excess nutrients, nuisance algae, oxygen deficiency, foam on beach
 - Impact on fisheries, recreation
 - This will last for longer time



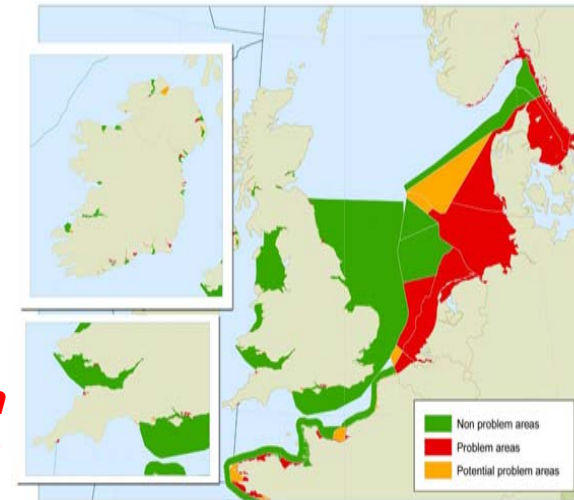
Algal bloom



Foam

Actions:

- WFD measures at source
- Link with MSFD through OSPAR



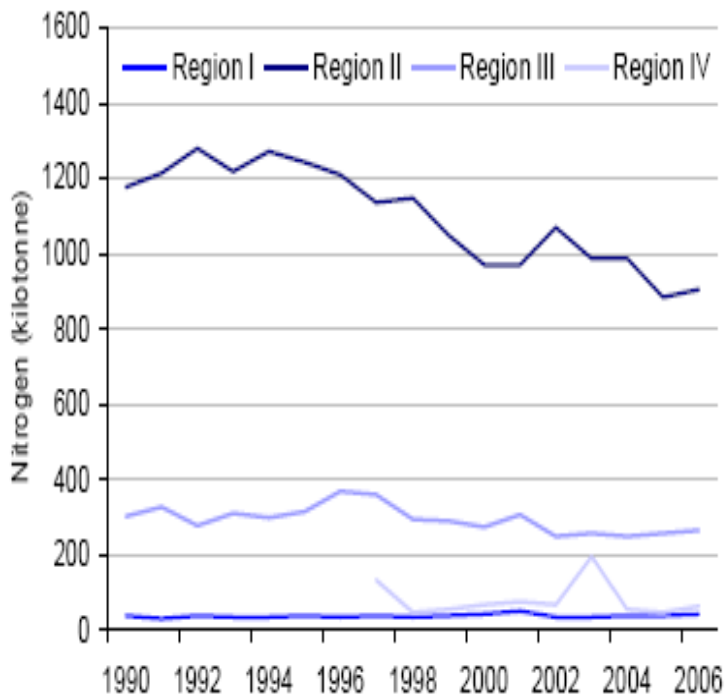
Eutrophication problem areas



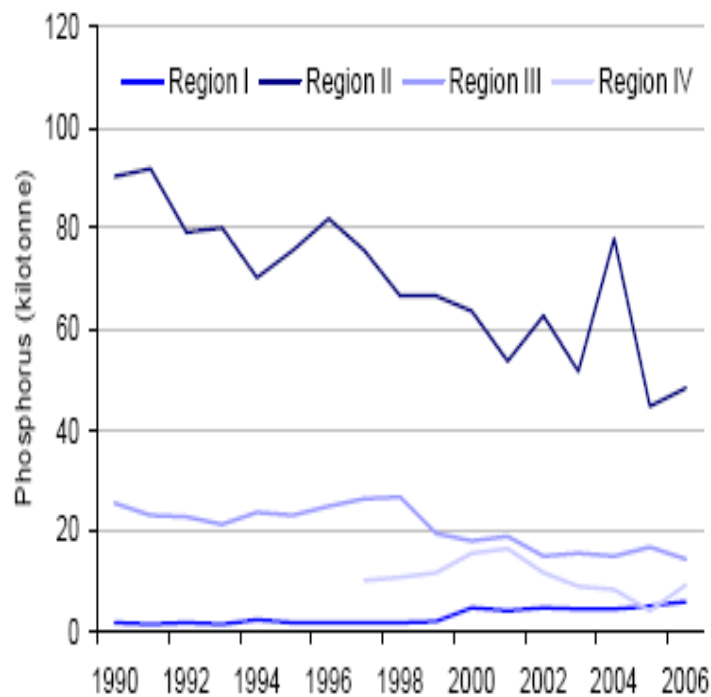
Riverine loads N and P in OSPAR regions (2/3)

Reductions slowing down from 2000 in Greater North Sea

Nitrogen [kt/y]



Phosphorus [kt/y]





Problems Hazardous Substances (OSPAR, 2010) (3/3)



- Some are reduced but
- Some are at unacceptable high levels in the sea,
- Leading to unacceptable effects (TBT imposex)
- Bioaccumulation in the foodchain (seamammals)

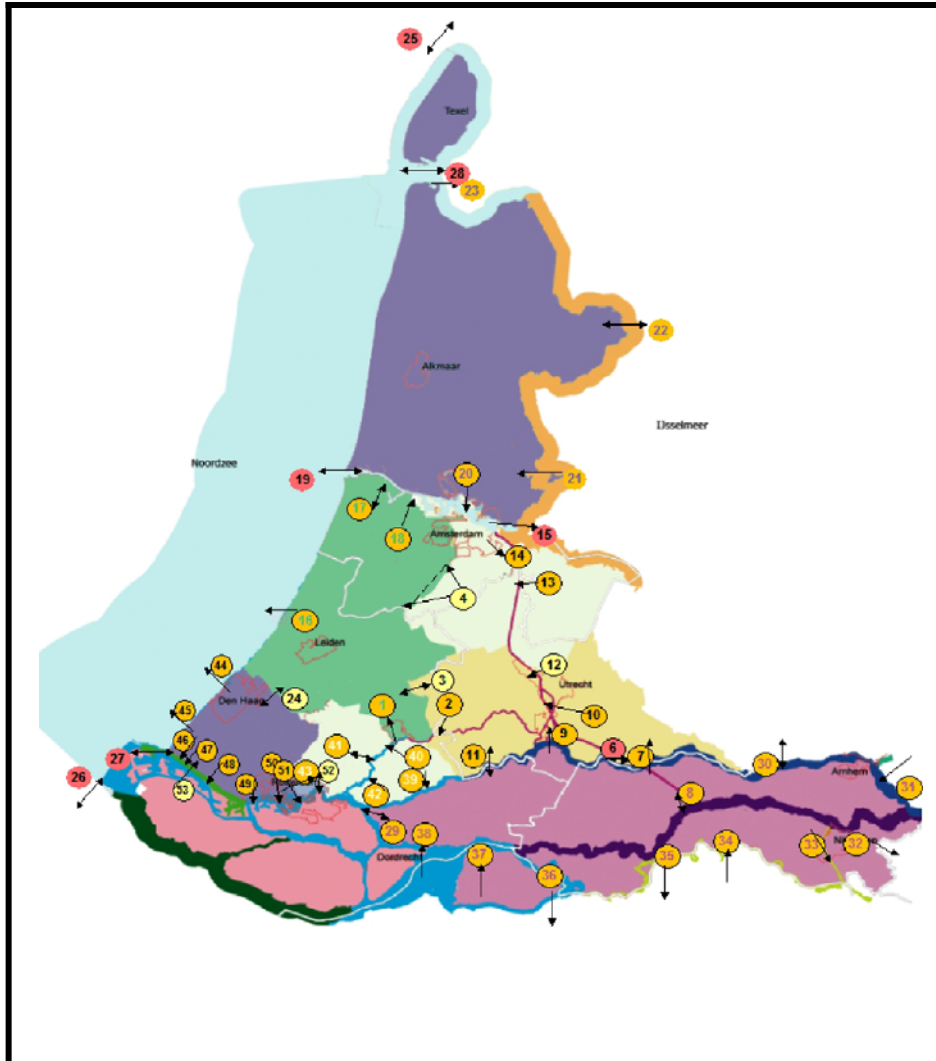
Action

- Combatting at source: WFD measures upstream and at sea
- Monitoring substances and effects in relevant matrix**

*problems for the sea: Hg, Cd, Cu, Pb, PCB, PAK, oil, TBT, dioxinen, ftalates, herbicides, new substances..



Pilot Rhine West (RW): Water authorities (1/5)



International

I&M en RWS

National

5 RWS offices:

ON, UT, NH, ZH, NZ

Regional

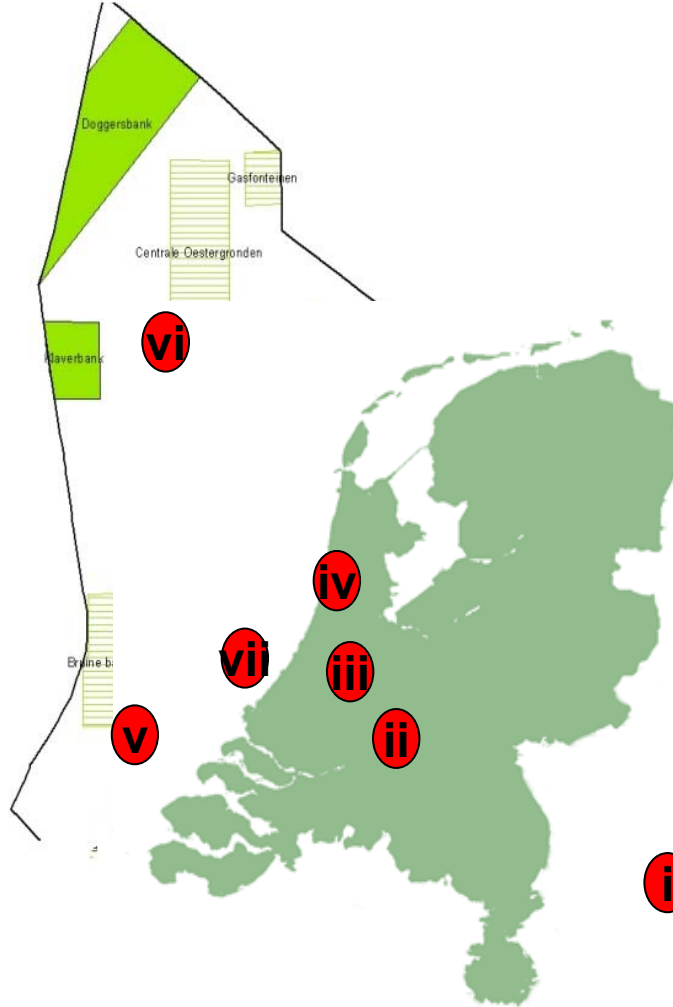
5 Provinces

8 Waterboards

180 Municipalities



PILOT RW: 7 transport routes (2/5)



vii = North Sea coast (OSPAR)

vi = Atmos. deposition (OSPAR)

v = Exchange estuaria / sink (OSPAR)

iv = Groundwater<-> surfacewater (RW)

iii = Exchange waterboards (WB) (RW)

ii = Exchange WB <-> RWS (RW)

i = Loads/inputs upstream international
(OSPAR, Rijn Com., Rijn West)



PILOT RW: 4 national River Basins (3/5)

KRW-Waterlichamen in de kustzee



Rhine (O, West, M, N)

Loads in: x kton N, P

Loads out: y kton N, P

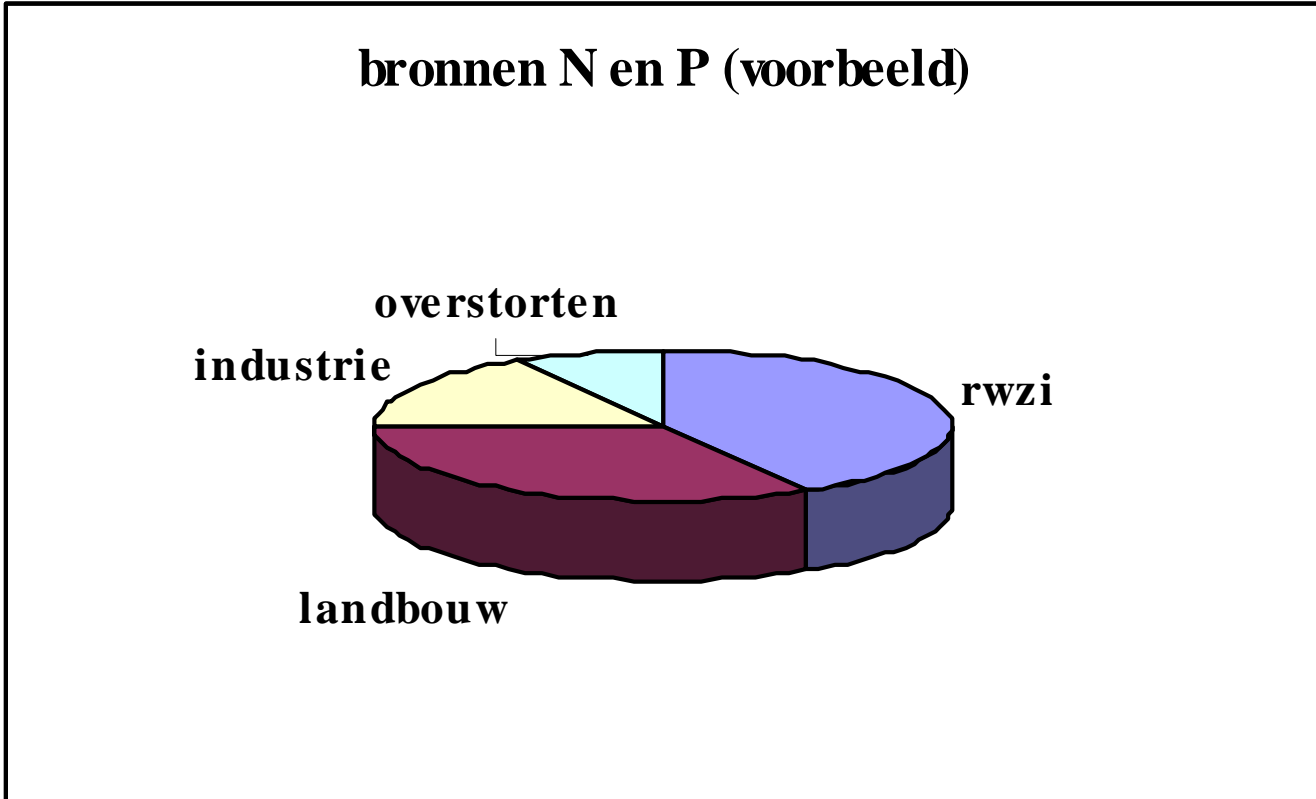
Sources (pies): N and P

Maas

Schelde



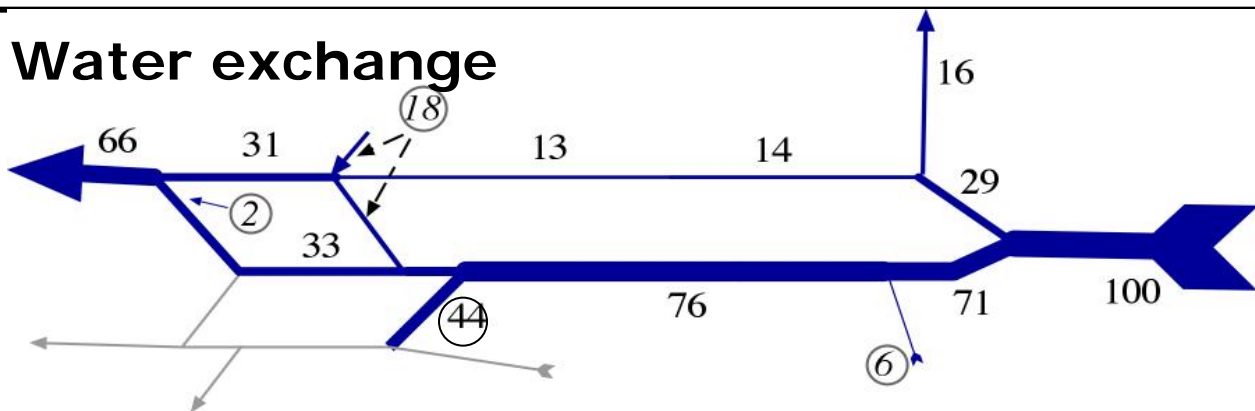
PILOT RW: example sources of Nitrogen (4/5)



Pilot RW: schematic Water- and N transport

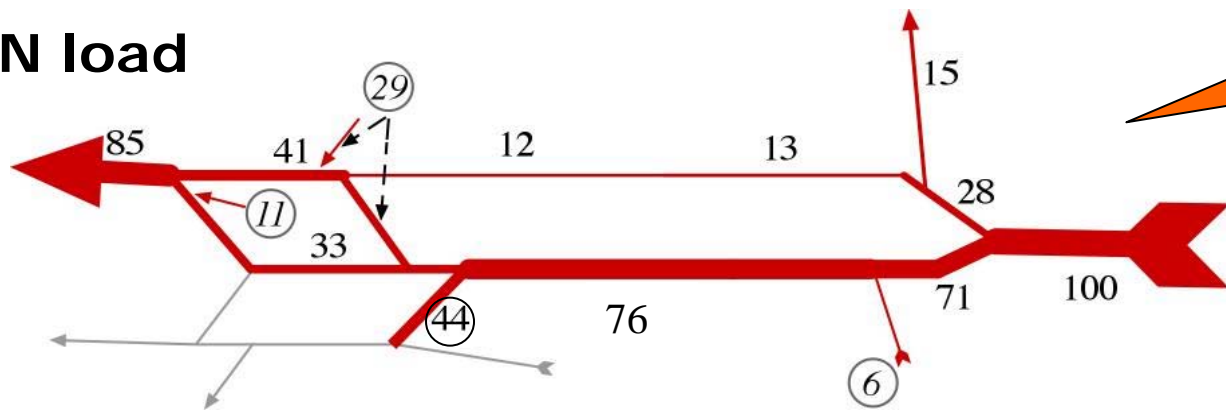
Maassluis Lobith

Water exchange



69230 $10^6 m^3$
gem. 2006-2008

N load



183 kton N
gem. 2006-2008

Preliminary results!

---→Extra N load



Dutch freshwater watersystems and North Sea are vulnerable

- intensively used, downstream (transboundary) and below sea level
- Some improvements in waterquality, but:
- Still eutrophication problems and
- Some hazardous substances at unacceptable level





Common joint integrated riverbasin approach, focus on :

- Shared problems, sources, transport, conc.
- Joint fact finding, communication, commitment from the start
- Early signals to Brussels and neighbors
- WFD measures important for reaching downstream targets North Sea (OSPAR / MSFD)
- KISS (Keep it Simple and Smart)..



Questions, Advice?

