

Where river basin management meets the Marine Strategy

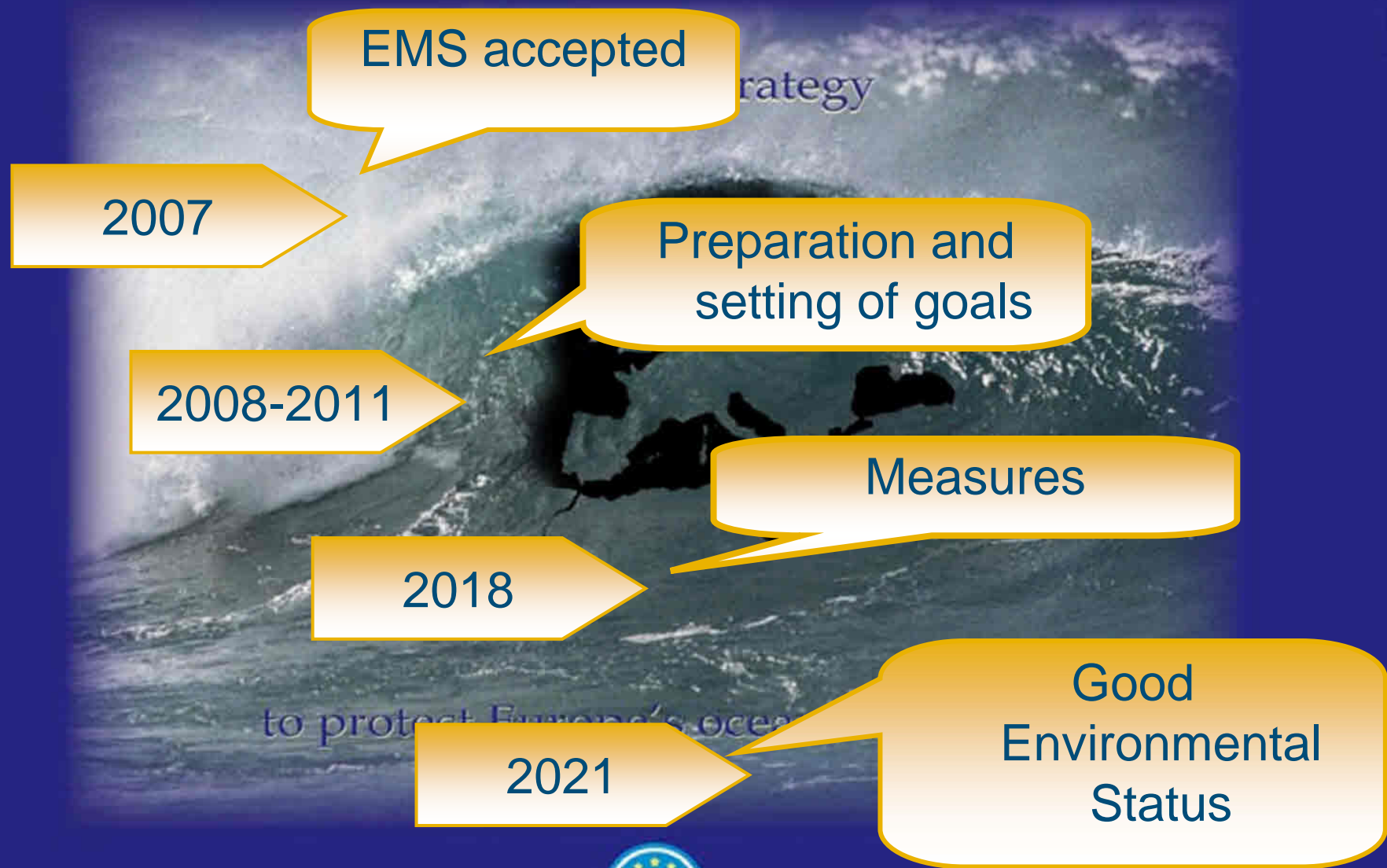
SedNet conference 2008

Diana Slijkerman & Chris Karman



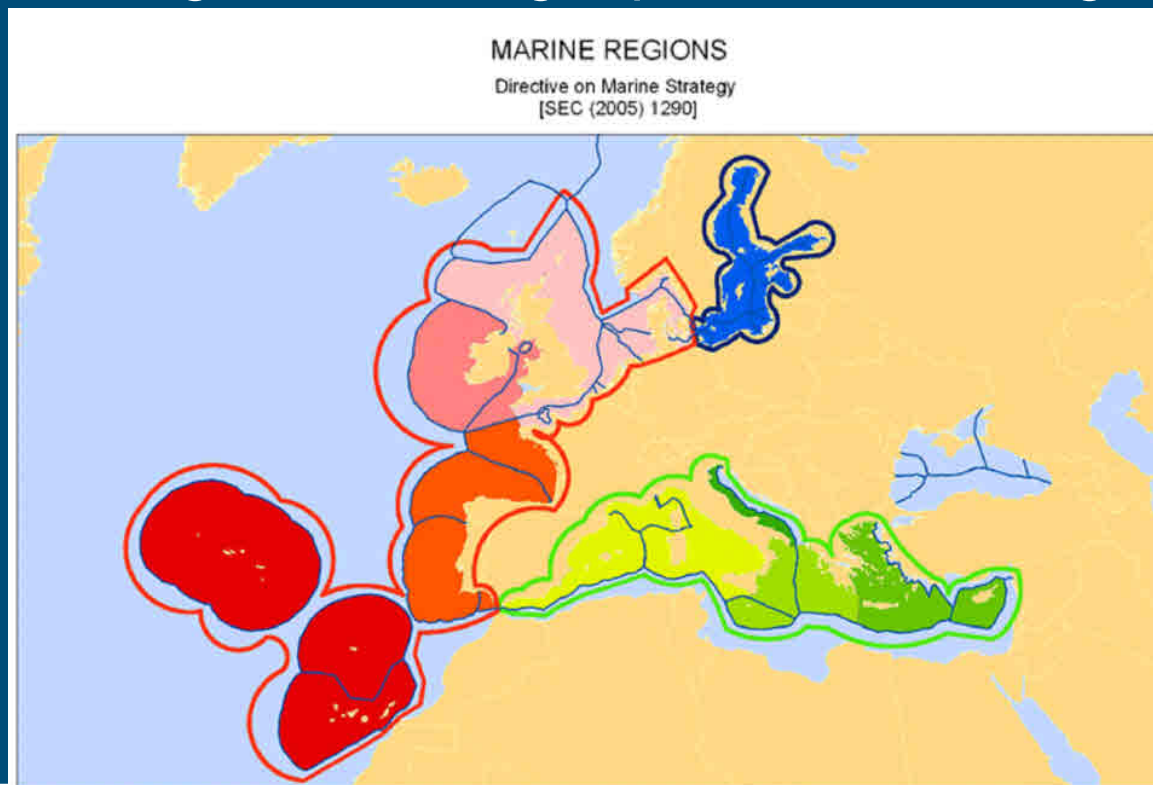
Outline

- Introduction to the European Marine Strategy
- River Basin Management related to the marine ecosystem
 - Via examples
- Discussion



Marine Strategy Regions

- Seaward side baseline till 200 nautical miles
(*WFD: 1 - 12 miles*)
- 4 marine regions and eight potential sub-regions



0 500 1.000 Km



Proyección: GCS_WGS_1984

Marine Regions

- BALTIC SEA
- MEDITERRANEAN SEA
- NORTH EAST ATLANTIC OCEAN
- EEZ BOUNDARIES (agreed and theoretical)

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Marine Sub-regions

- Atlantic Ocean
- Bay of Biscay and Italian Coast
- Celtic Sea
- Greater North Sea
- Adriatic Sea
- Aegean-Levantine Sea
- Ionian Sea
- Western Mediterranean Sea

Define the "Good Environmental Status"

Habitats, biology,
physico-chemistry,
hydromorphology

■ "Other features" → general state of pollution, including sediment contamination (ANNEX II article 7, 8, 10)

Impact
assessment

■ Need for suitable indicators on quality across the boundaries of the WFD and EMS, "ecosystem based" that combine ecology and anthropogenic impact

Socio-
economic
analysis

GENS and Initial
assessment
(2011)

Link to WFD and River basin Management

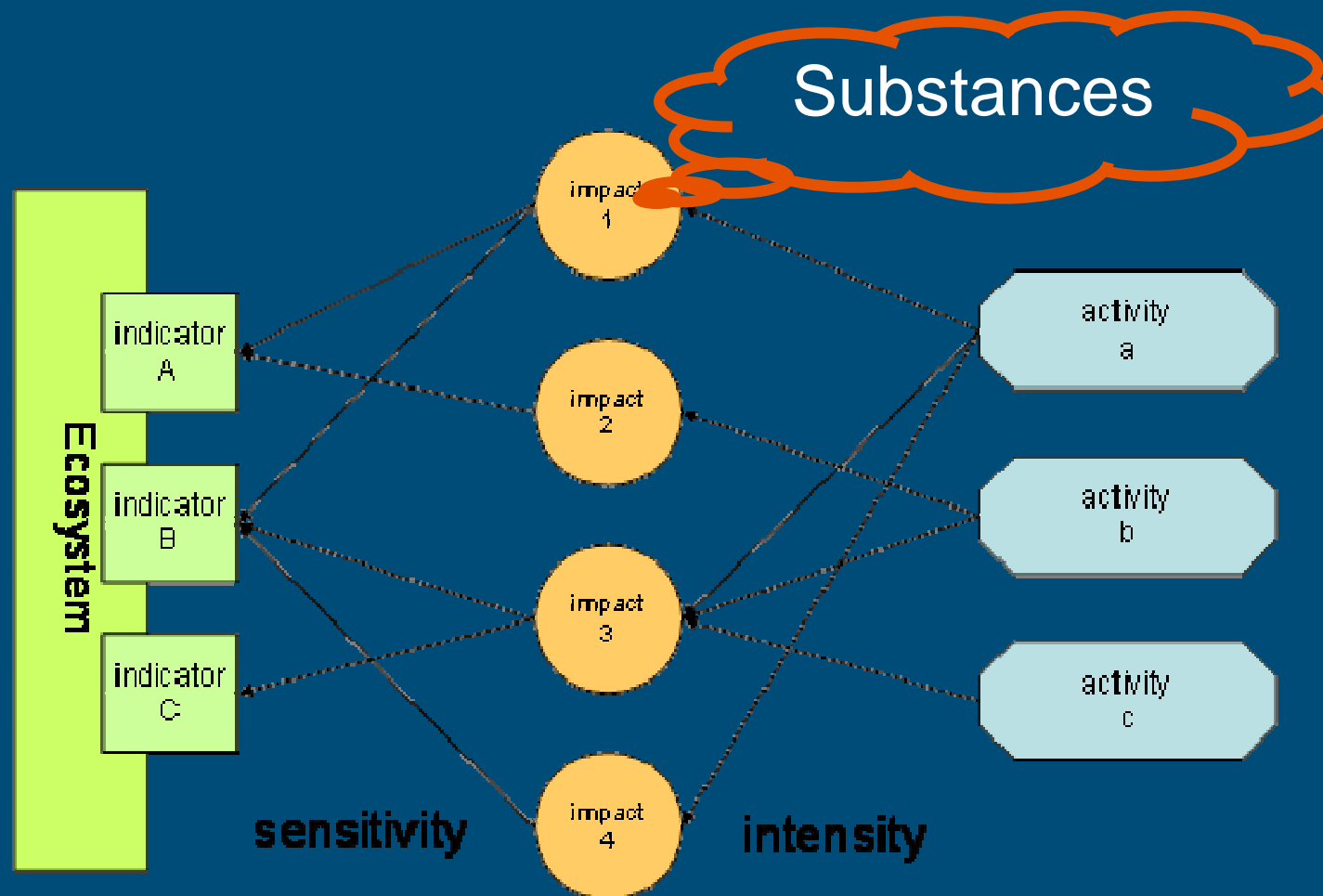
- WFD implies to eliminate pollution to the marine environment (art1).
 - Directly via river discharge
 - Indirectly via port maintenance



- However: substances across WFD and EMS not analysed in same matrix (sediment/biota)
- Which substances and effects do matter?



Cumulative effect assessment





North sea

Estuary

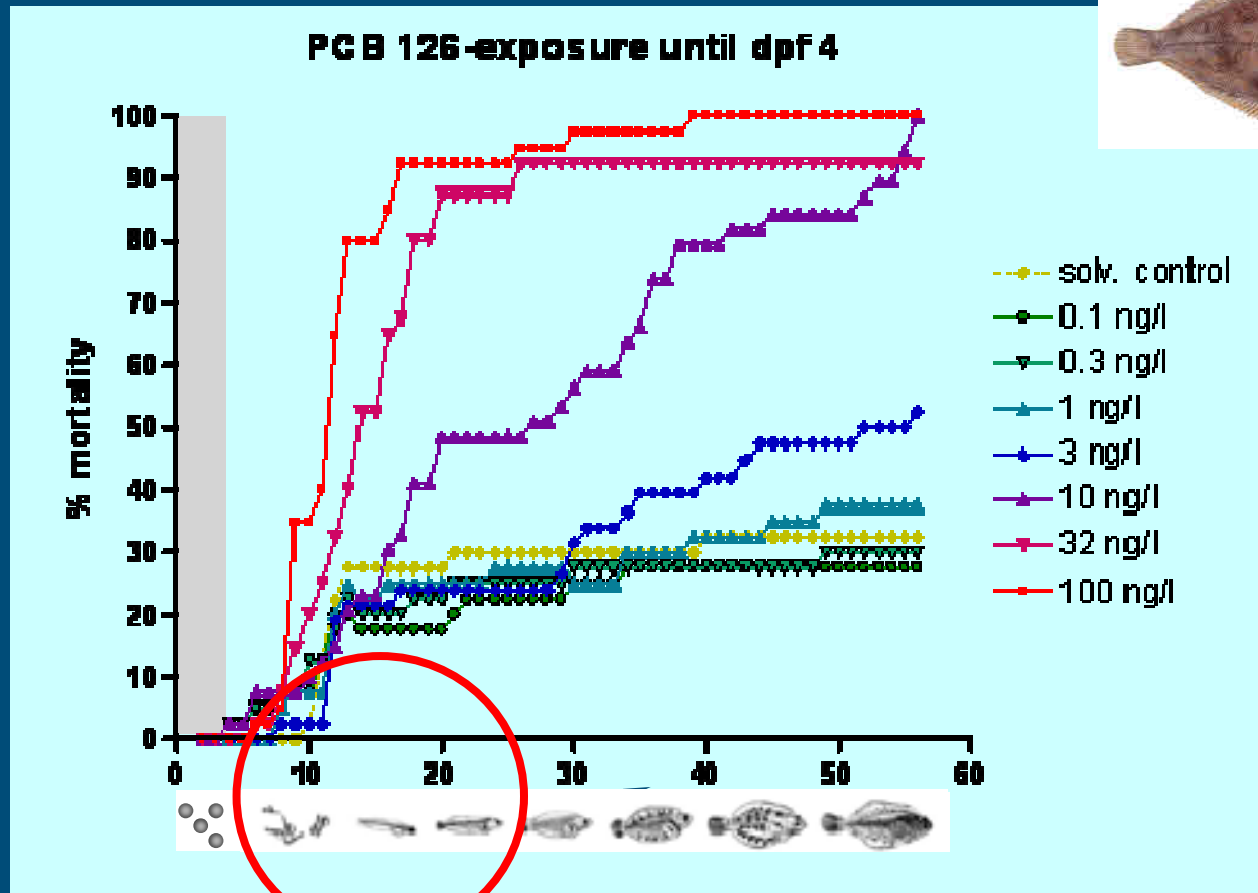


Pelagic food chain

Benthic food chain
(*sediment*)

Inherited accumulation

Delayed effects of dioxin like toxicity



Foekema *et al*, submitted

North sea

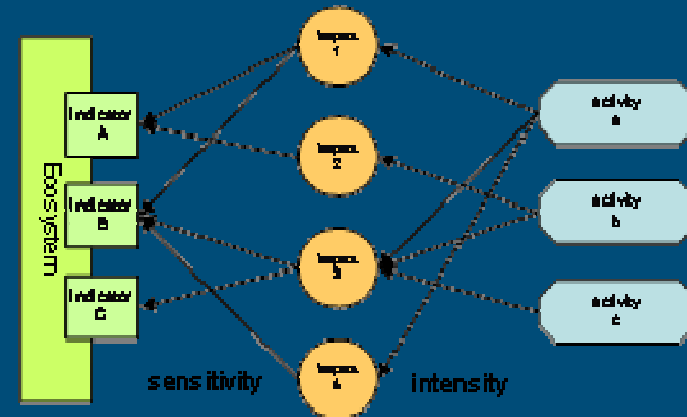
Westerschelde



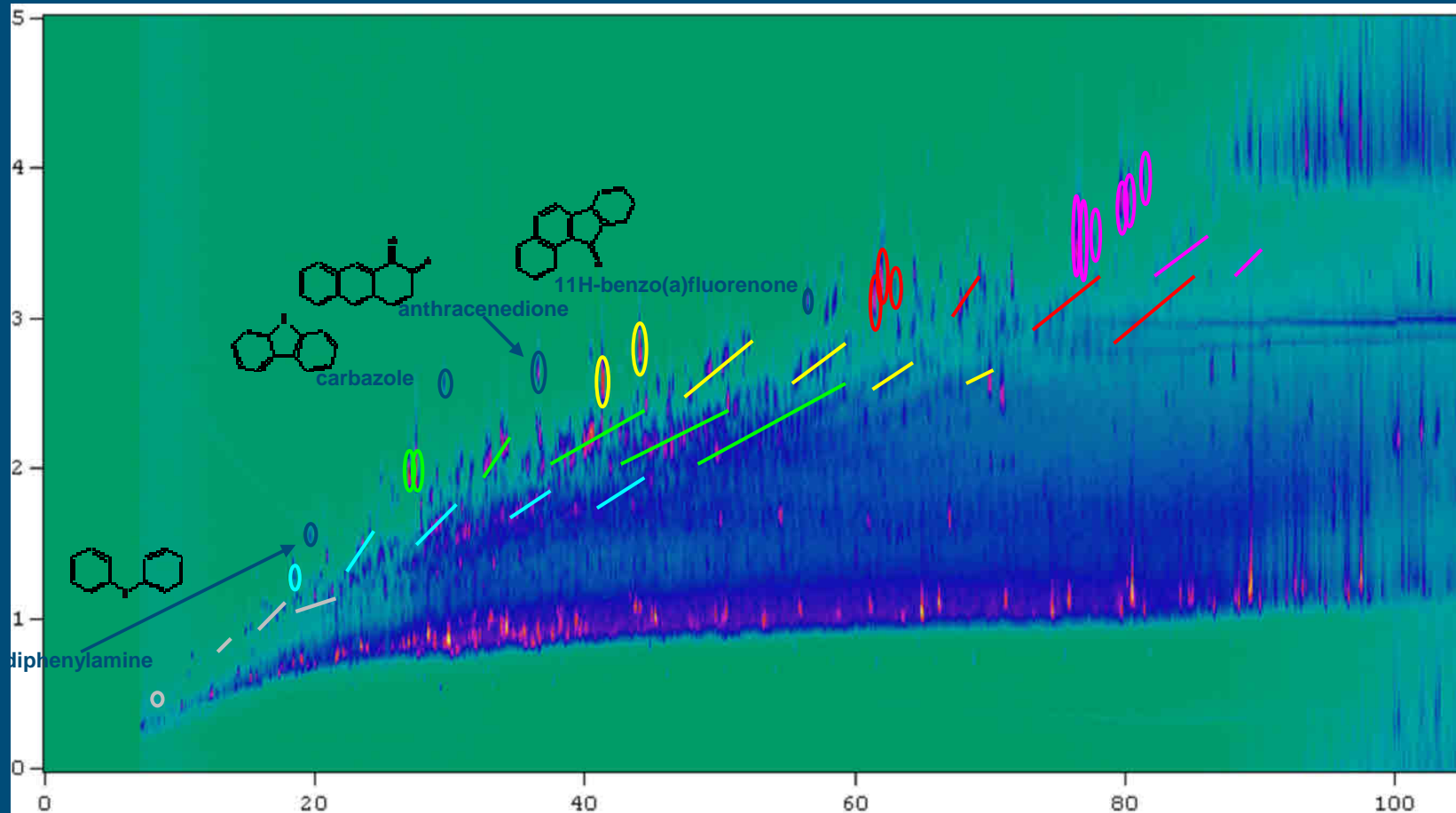
Pelagic food chain

Benthic food chain

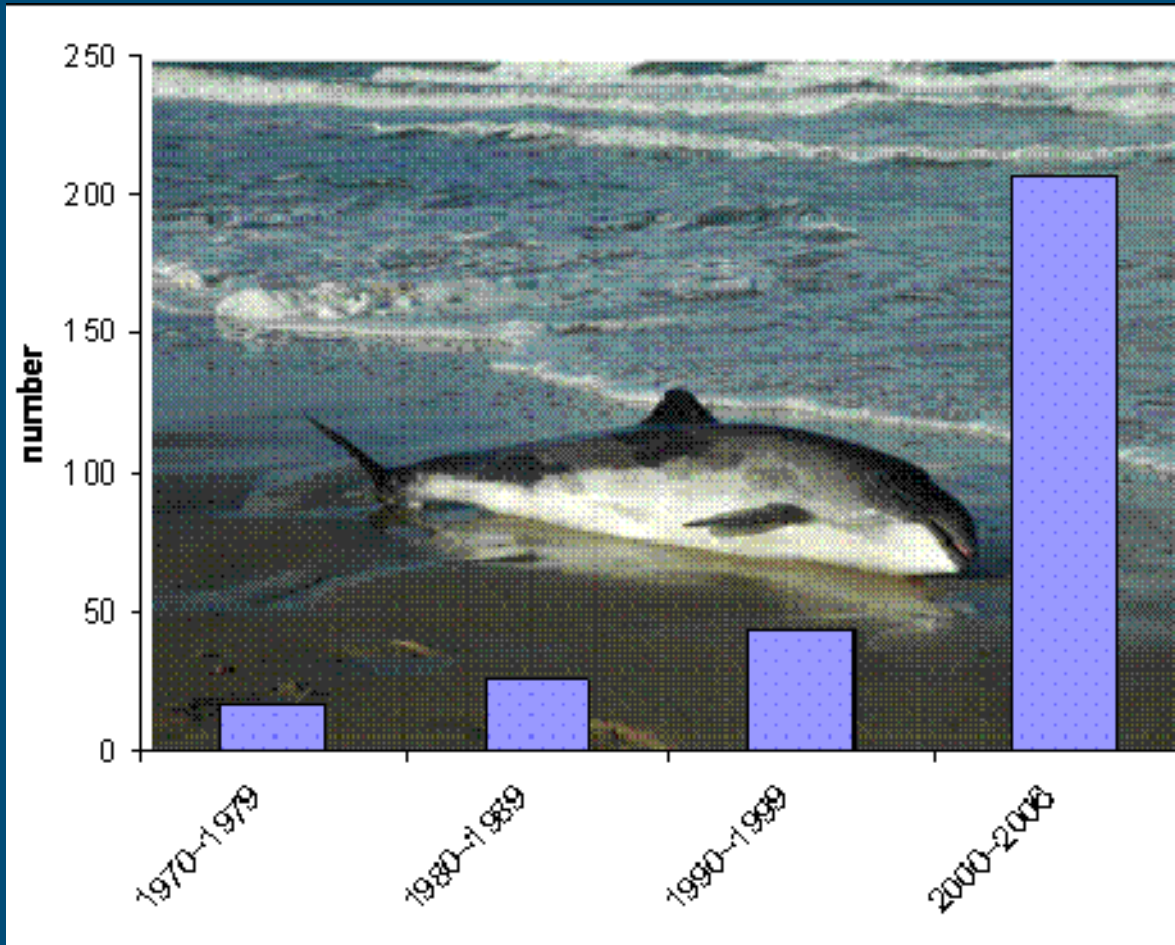
Inherited accumulation



Always mixture of compounds



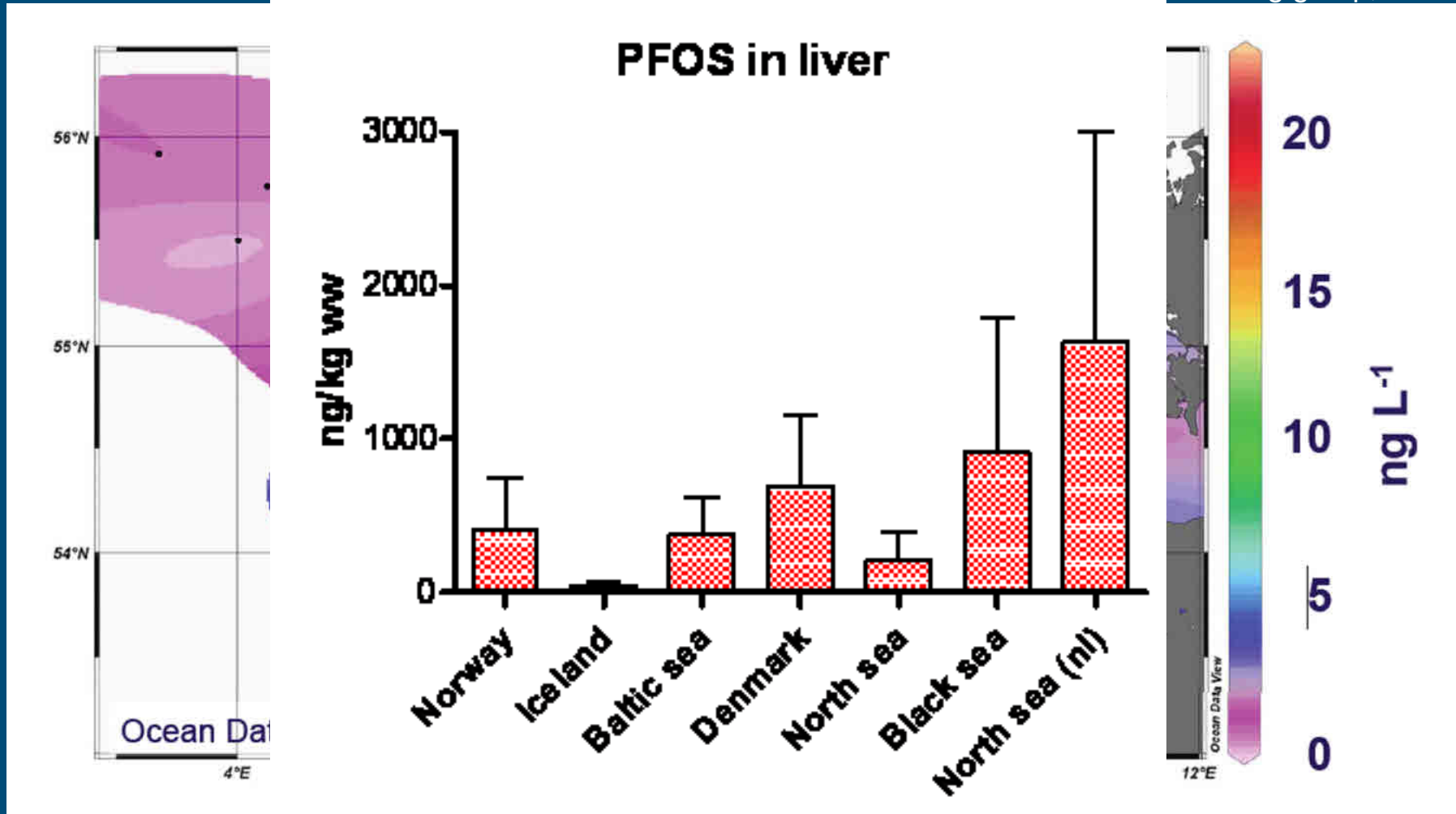
Contaminants in stranded Harbour porpoise



- PCBs
- Brominated flame retardants
- Perfluorinated compounds (PFOS)
- Organotins (e.g. TBT)
- (Fat, protein, dry weight..., ...)

PFC sum in water

Figure from Lutz Ahrens, as presented in ICES Marine chemistry working group, March 20



Not only PFOS, aswell emerging substances like PFBA

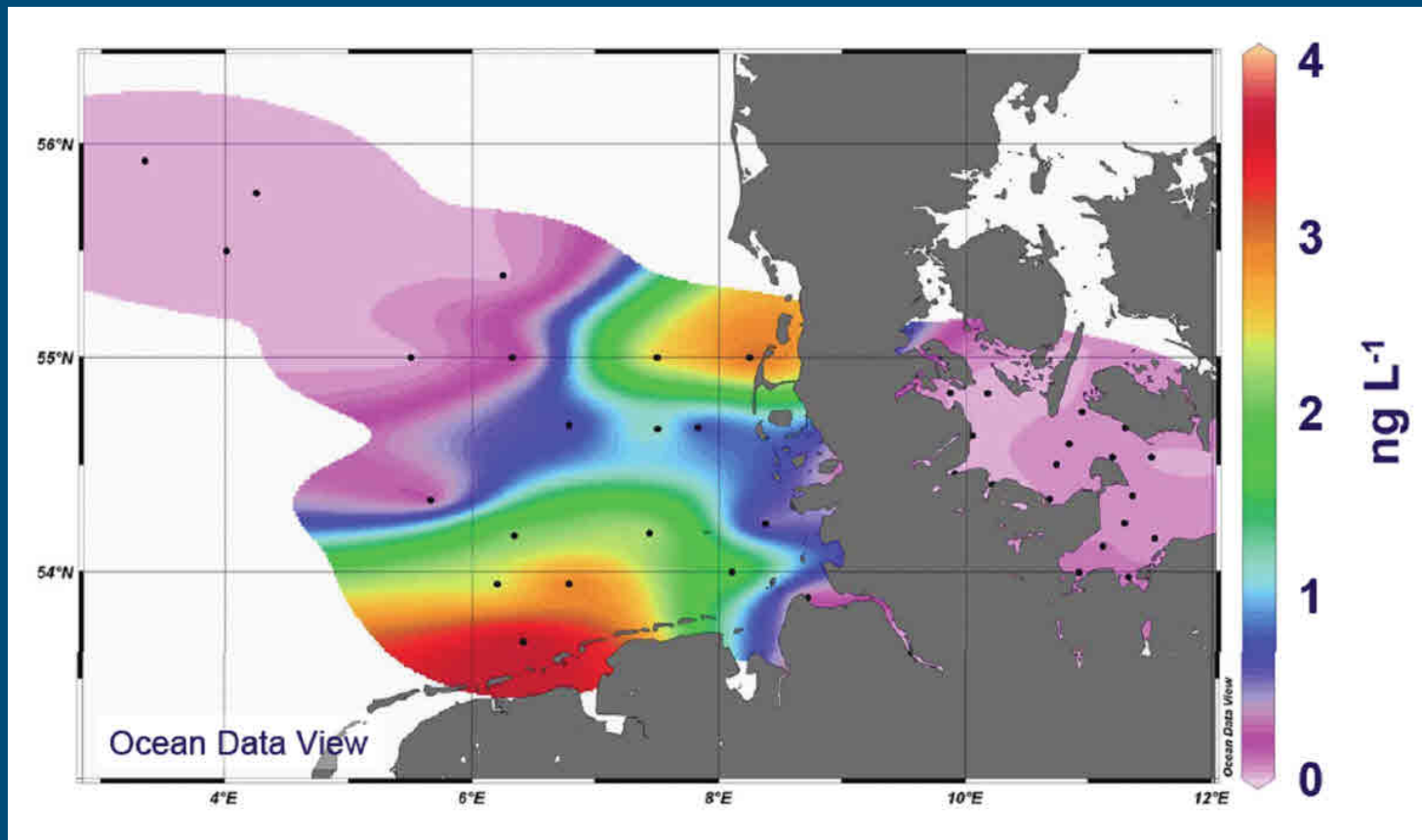
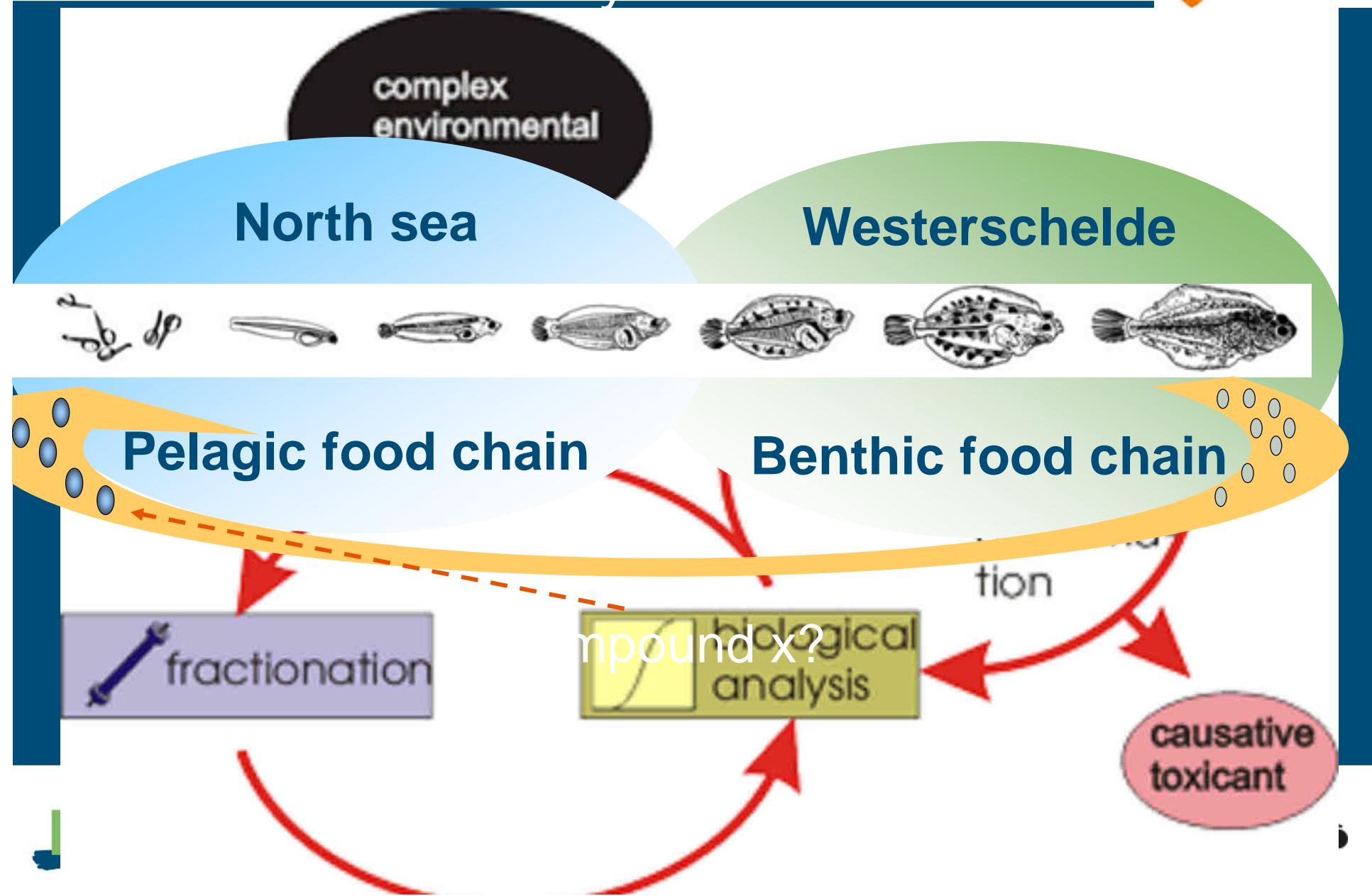
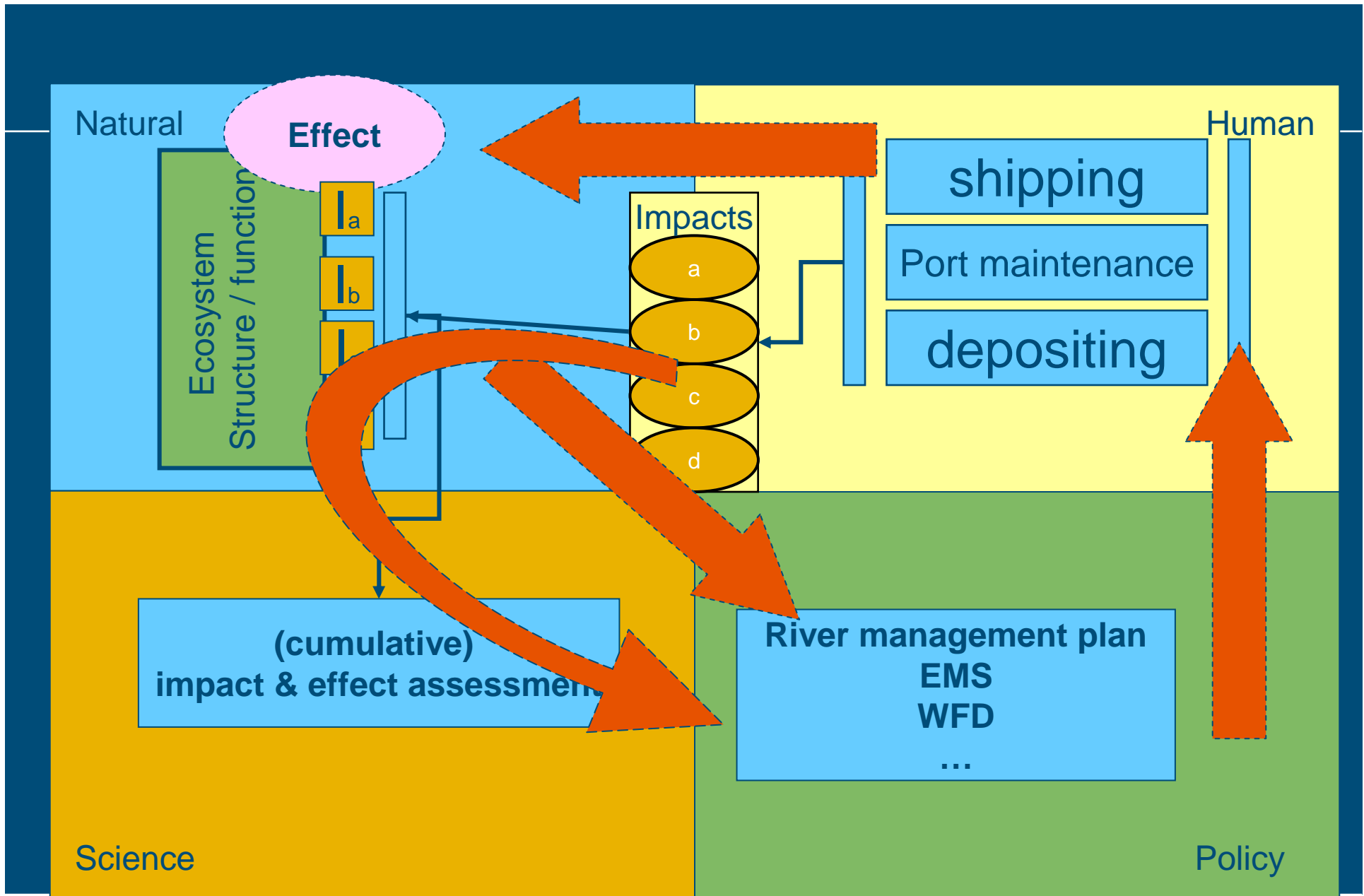


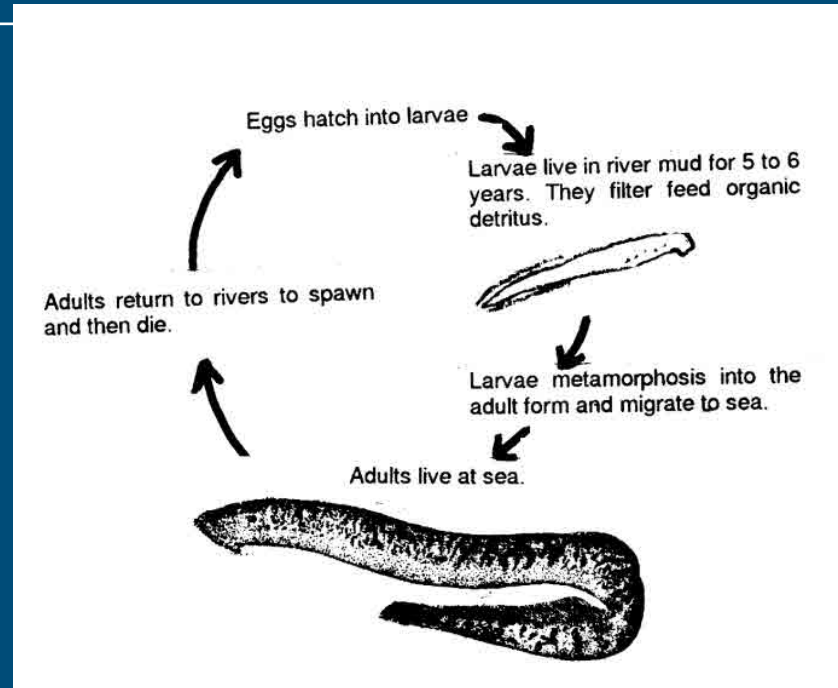
Figure from Lutz Ahrens, as presented in ICES Marine chemistry working group, March 2008

Effect directed analysis





Effect on marine indicator via river management



- River-sea continuum of indicator species
- Damming, effluents
- Measures in river basins recovered population
- What about the eel?

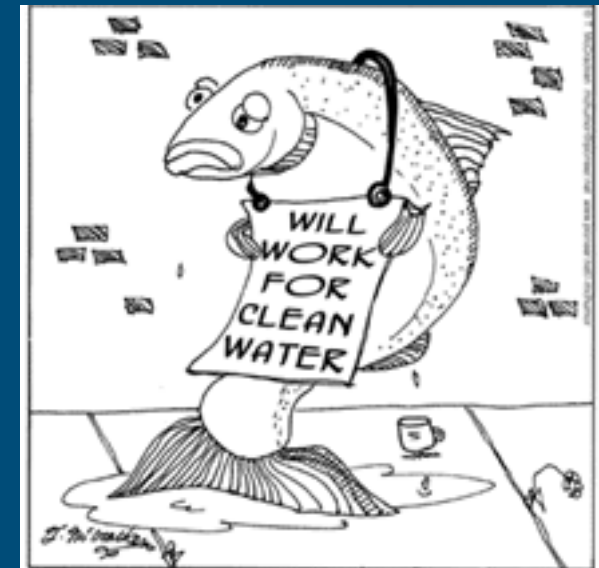


Does an ambitious EMS lead to consequences for RBM?

- Aims downstream are leading (WFD)
- *E.g.* Shifting measures upstream?
 - Not yet clear as EMS leads to obligations to make an **effort**, but NOT yet on **measures** or **results**
 - WFD policy till 12 mile

Where does River Basin Management meet the EMS?

- Review river basin management plans in 2021 correlates with EMS
- Therefore recognize what is important
 - Matrix, impact-effect assessment
- Besides science, WFD + EMS policy, and management should have an intrinsic drive to do what is needed



Takk

- Spørring / Questions?
- Takk/ thanks to
 - Peter Korytar
 - Edwin Foekema
 - Michiel Kotterman
 - Christiaan Kwadijk
 - John Schobben

