Patterns in macrozoobenthic assemblages of the changing Rhine-Meuse estuary

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Background:

- Open estuary closed during the 60's
- Partial restoration by regulated salt water inlet planned

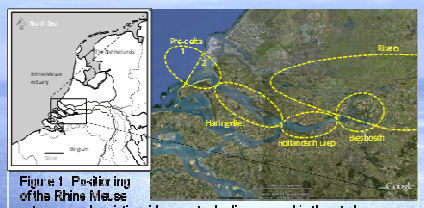

Figure 1. Positioning of the Rhine Meuse estuary and the distinguished water bodies as used in the study.

Questions:

- What macrozoobenthic communities can be expected in the future (in terms of structure and diversity)?
- What constitution of the region is favorable (from a macrozoobenthic point of view)?

Methodology:

- Compared the present communities with those of the 60s as a reference (taking abiotic changes into account)
- Analysing -total densities and species diversity
  -functional feeding group distributions
  -presence of typical sensitive species
  -community similarity and variety

Results:

Comparing: -present situation with -historic (and potential future) situation
-rather stable -highly dynamic
-fresh water region -full salinity gradient
+ front delta

At present:

- The pollutant and nutrient levels are lower, but their impact is larger (differences in system vulnerability)
- The local macrozoobenthos densities and diversity is higher, but the total diversity of the system much lower

However:

- Partial restoration, as planned, does not favor the communities
- Complete restoration will not lead to return of the reference communities
  -as there will be physical barriers
  -and biological barriers (communities including exotic species already present)

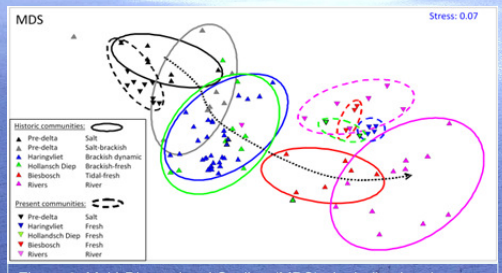

Figure 2: Multi-Dimensional Scaling (MDS) plot indicating the similarities between historic and present communities.