

Multiple Stress Factors Affecting Sediments in the Estuaries of Elbe and Odra



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The Project: Blue Estuaries (“BluEs”)

Estuaries

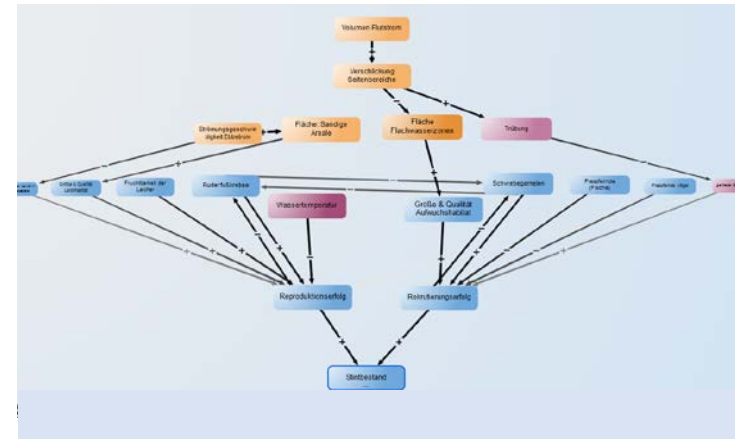
- are among the most productive ecosystems in the world
- provide diverse habitats for many species
- show strong gradients (temperature, nutrients, salinity)
- are under considerable stress from human activities



Profound system understanding is necessary in order to manage estuaries sustainably in the light of multiple stressors.

The BluEs Project intends to fill gaps in the understanding of relationships between abiotic and biotic parameters and build cause-effect models for the estuaries of two very different rivers in order to identify those parameters that have the greatest sustainable effect on the ecological system and which can be actively modified to reach an improvement.

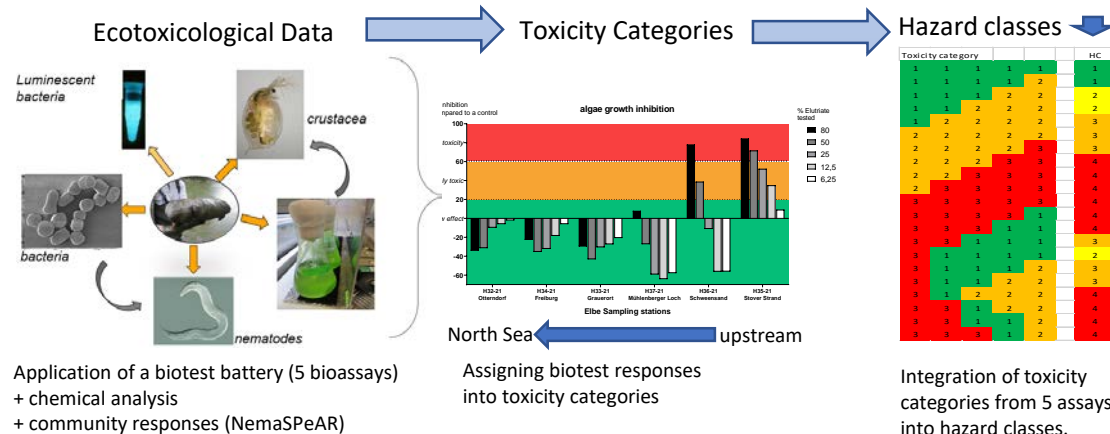
BluEs Objective: Facilitate estuary system understanding



Information will be compiled within the consortium on

- trophic dynamics
- eutrophication
- bioaccumulation (fish, birds)
- impact of multiple stressors (chemicals, O₂, SPM, salinity, temperature) on birds, fish, invertebrates, algae....
- A cause-effect model will help identifying „adjusting screws“ within the system

Impact of chemical stressors (methodological approach)



Preliminary results from ecotoxicological data



- Algae were strongly inhibited at upstream Elbe stations.
- Bacteria in direct sediment contact were most strongly inhibited at upstream Odra estuary
- Other tests (nematode still missing) did not show any effects.

Bioassays reflect the expected contaminant gradient decreasing from upstream to downstream across the estuaries
As different tests respond, the contaminant cocktail probably differs.
Chemical analysis and community data (NemaSPEAR) are still outstanding.