

Defining river estuaries in low salinity brackish water environment

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BACKGROUND

River estuaries are one of the most important habitats for birds, fish and underwater vascular plants and charales. In mappings that were carried out in the SEAmBOTH-project (Seamless Mapping and Management of the Bothnian Bay) in 2017 and 2018, it was discovered that river estuaries have a remarkable range of vascular plants, and several endangered species populate these areas.

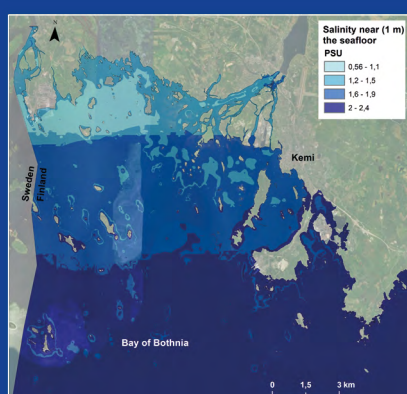
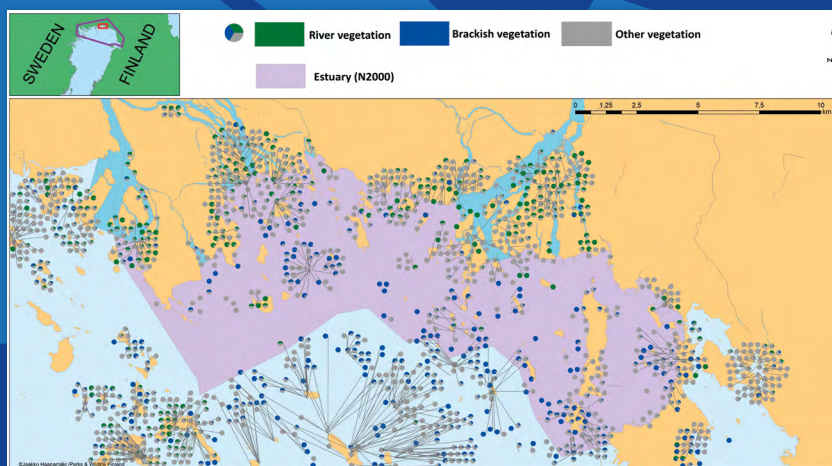
Drawing a border on river estuaries is very difficult in the brackish water environment, especially in the Northern Bothnian Bay area due to the extremely low salinity, which prevents us from using salinity as a straightforward indicator.

METHODS

Data collected in the field were from dive transects, underwater drop video sites, wading points, and salinity samples. Post-fieldwork, the collected biological samples were categorized into "river species", "brackish water species" and "other species" (which are found in both environments) based on literature and expert analysis, and the relation between river species, brackish water species and other species from all the inventory points was presented with a sector diagram on a map.

PRELIMINARY RESULTS

Overall the species categorization appears to work well for defining river estuaries in the extremely low salinity environment. The results of the species categorization were compared to a model based on physical factors and expert analysis, and the categorization provides similar results when presented on a map.



Bottom salinity of the Northern Bothnian Bay calculated from a 10 year average.

Results indicate that species categorization can be used for defining river estuaries in extremely low salinity environment.



Diver mapping vegetation from a shallow point.



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