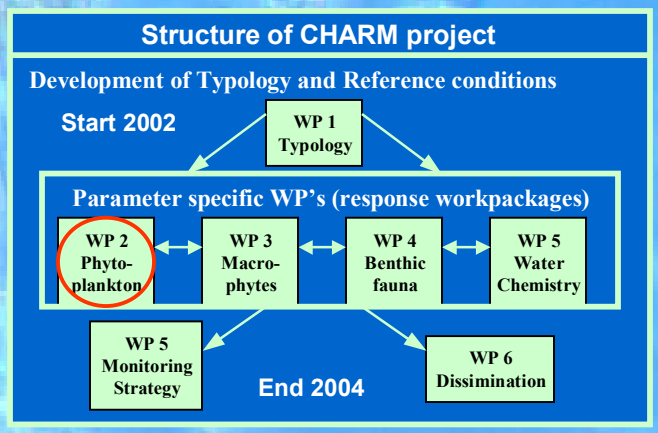
Developing an ecological quality classification scheme for the coastal Baltic Sea using Phytoplankton

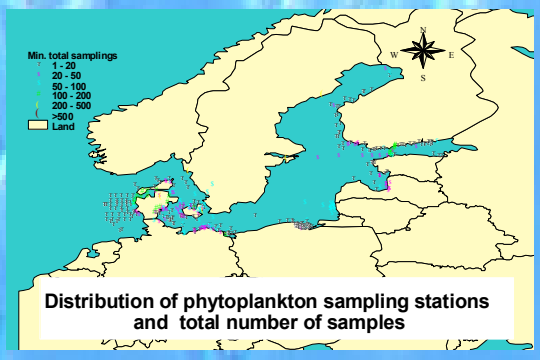
Characterization of the Baltic Sea Ecosystem: Dynamics and Function of Coastal Types

CHARM (EVK3-CT-2001-00065)

Objectives of Phytoplankton WP:

- Develop phytoplankton indices for classification of the ecological status of the Baltic Sea coastal types
- Develop reference conditions for these indices for coastal types
- Develop integrated indices (pooling all biological quality elements)
- Recommendations for phytoplankton monitoring (to assess ecological status)





Distribution of phytoplankton sampling stations and total number of samples

Completion of Task 1: Quality analysis and harmonization of data

- Metadata survey of all phytoplankton data available from different partners
- Initially large part of the data sets have been collected following HELCOM guidelines
- Agreement of harmonised taxonomic, size class, morphological and functional coding (totally ca. 1575 species)
- Consistent harmonized data files finished by the end of December 2002

Results of metadata analysis:

- 440 sampling stations.
- whole salinity range of the Baltic Sea is covered.
- Stations characterised by low (<100 µg N l^{-1}) winter-time DIN and eutrophied inner coastal waters (> 1 mg N l^{-1})
- Chlorophyll *a* data is available from ca. 30% and abiotic data from most of the stations (> 60%).

Next steps:

- Clustering analysis to establish groups determined by salinity; considering both average salinity and amplitude of salinity changes.
- Analysis for seasonality; to detect seasonal "events" / blooms
  a) spring bloom of diatoms
  b) summer maximum of cyanobacteria
  c) summer maximum of N-fixing species
  d) autumn bloom of diatoms
  e) winter maximum of cryptophytes
- Finally holistic, multivariate statistical approach to establish functional relationships btw phytoplankton parameters and abiotic factors;
- Results will be underpinned by further analysis with restricted numbers of variables

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http://www.dmu.dk/1_Viden/2_Miljoe-tilstand/3_vand/4_Charm/charm_main.htm