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Development and use of HELCOM COMBINE phytoplankton dataset in SeaDataNet compliant format for the Baltic Sea

Marine environmental management as well as scientific demands of the development in marine ecology needs a biological data system to store, archive, integrate and update marine biological, especially taxonomical information. Our aim is to construct phytoplankton data in ODV format into EMODNET Biology database using a set of Finnish national marine phytoplankton monitoring data collected from the northern Baltic Sea as part of the Baltic Sea –wide HELCOM COMBINE monitoring program (HELCOM 2015). HELCOM Phytoplankton Expert Group (PEG) has compiled a list of taxa and biovolume for the Baltic Sea phytoplankton. The PEG list follows taxonomy of the World Register of Marine Species (WoRMS) with taxon-specific AphiaID codes. Collaboration between projects such as SeaDataNet, EMODnet Biology and JERICO-Next is desired and ODV format is a candidate for a common data standard in marine biological data storage.
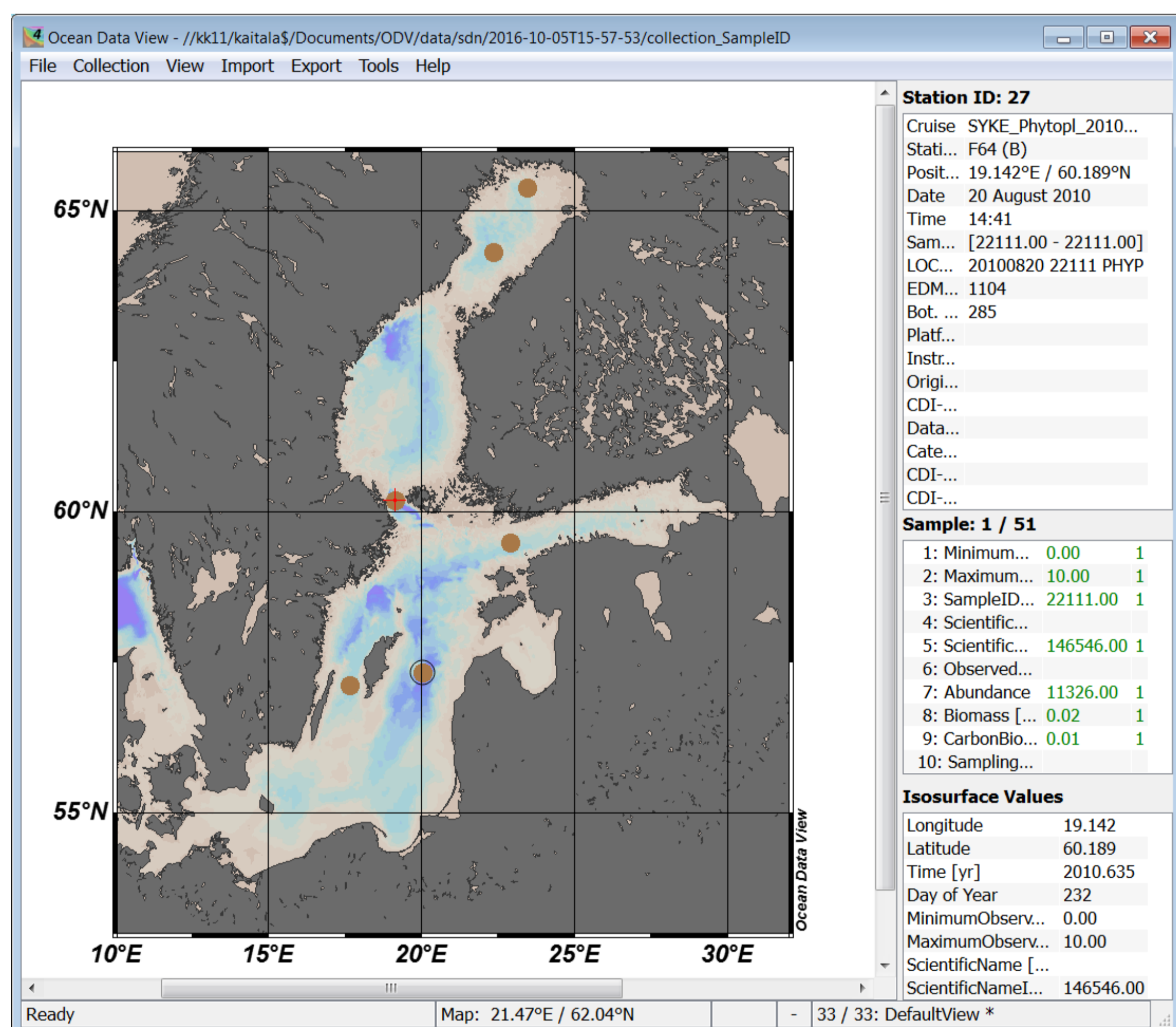
Phytoplankton data of 33 station visits during the years 2009-2015 was compiled into ODV fortmat with R-code according to Seadatanet Format Documentation 2016 and imported to ODV soft-ware. Currently in our format i.a. Species name, Species ID, Abundance, Biomass, and Carbon content are included.

Phytoplankton samples we collected onboard R/V Aranda (SYKE)
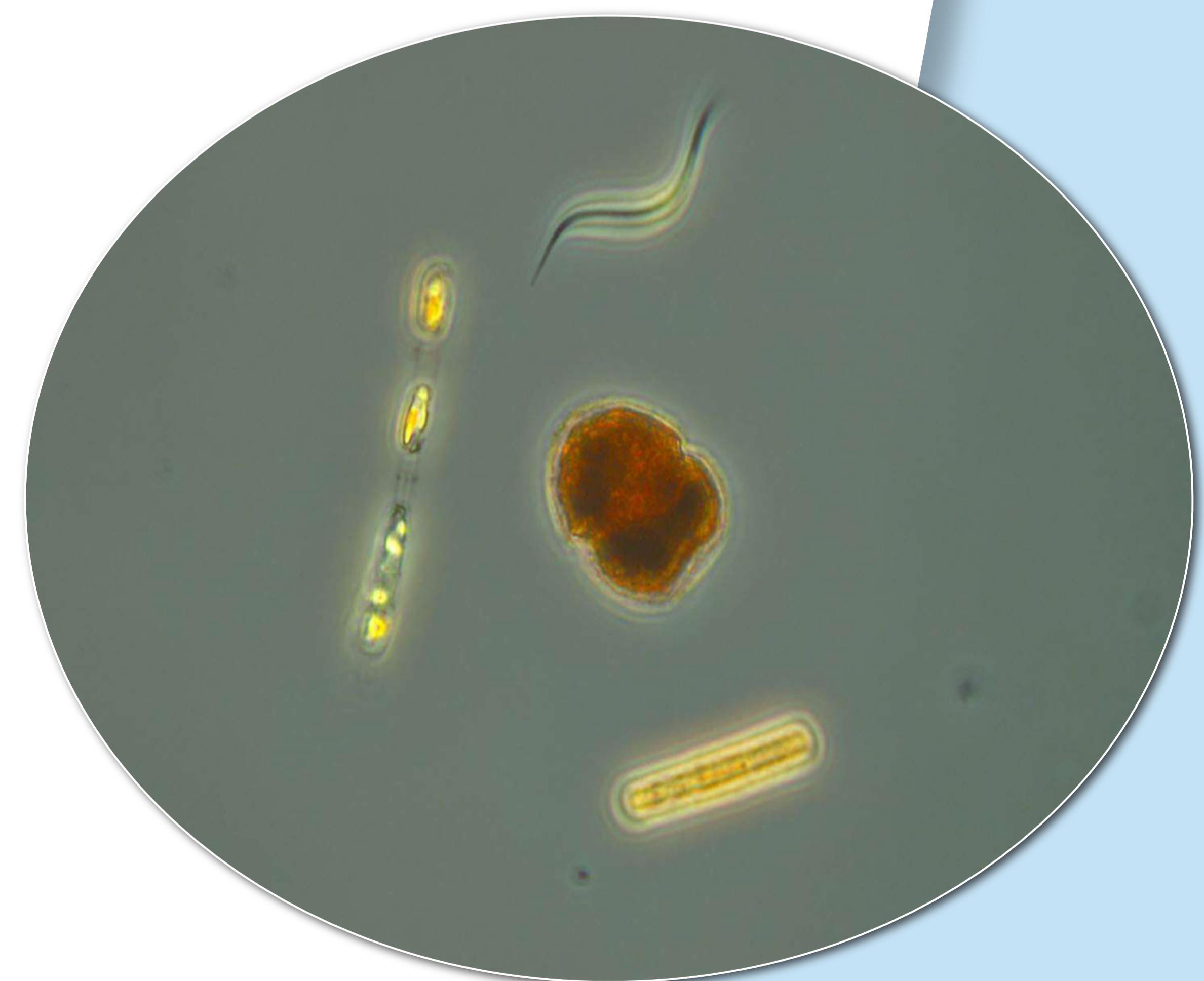

HELCOM Phytoplankton Expert Group (HELCOM PEG, established 1991)

The main target of the PEG is to ensure and maintain high quality standard of the international Baltic regional phytoplankton monitoring within the HELCOM COMBINE monitoring programme. This is achieved by:

- Organizing annual training courses (workshop)
- Maintaining the PEG phytoplankton taxa and biovolume list
- Intercalibrations

The use of a standardized species list with fixed size-classes and biovolumes is a decisive measure to improve the quality and the comparability of data.

What needs to be specifically considered when storing biological data

- To be able to select comparable data for the analyses from a biological database, detailed information on procedures should be available, since harmonization of methods may not be possible due to wide range of purposes of biological data collection (Zingone et al 2015).
- Phytoplankton biomass (wet weight per volume) data is usually more relevant from the ecological perspective than abundance (counting units per volume), since the size of different phytoplankton species varies considerably, which is not evident when using abundance data. Biomass data are conveniently converted into carbon biomass data (Menden-Deuer sird Lessard 2000), which are usually utilized in ecological models (e.g. Lignell et al. 2013).

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