

Calculating Essential Biodiversity Variables (EBV) for species population abundance – a case study from plankton monitoring data in the Baltic Sea

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Abstract

Essential Biodiversity Variables (EBVs) are a basic requirement for the study and management of ecosystem change at various scales, from local to global. However, the practical implementation of EBVs remains still unclear. In this study we investigated the potential of large and aggregated marine datasets for calculations of EBVs. We analysed a planktonic dataset with abundance records that was aggregated by various monitoring programs in the Baltic Sea between 1979 and 2013 and made available by the Swedish LifeWatch initiative in 2014. The purpose of the study was to identify generic problems and obstacles when processing marine data into trend lines for species population abundance. Our results suggest that in principle it is possible to produce EBVs from aggregated marine datasets, but only for a few abundant and typical indicator species. However, the data are neither sufficient nor consistent enough to produce trend lines for rare species, species with taxonomic uncertainties, and for species requiring specialists for identification. This underscores the need to increase the amount of species-level measurements in marine monitoring programs through e.g. the establishment of biological sensor approaches in marine monitoring.