

Supertrait size: suitable, easy-to-measure ecological indicators based on size

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Biodiversity is a key aspect of the good environmental status (GES) of an ecosystem. Higher diversity is assumed to be related to a number of ecosystem functions such as a higher stability of the system and a stronger resilience to external perturbations. Therefore the EU has implemented it as Descriptor 1 in its Marine Strategy Framework Directive (MSFD). But especially for lower trophic levels biodiversity is very time-consuming to measure and hardly of use for modelling. Instead of using biodiversity or abundance measures, we propose simpler indicators for pelagic habitats that use the trait size. Size can be linked to trophic level and energy flow through the ecosystem. Indicators like normalized biomass size spectrum are able to reflect seasonal trends and make the integration into numerical models easy. We also show that size diversity can be used as a proxy for biodiversity. Through the use of size it may be possible to detect changes that otherwise go unnoticed by taxonomic sampling only. While still defining what GES means for pelagic habitats we suggest by using size we are able to collect widespread data and develop simple indicators to groundtruth what we think is the GES for a particular pelagic habitat.

Keywords: Size diversity, Biodiversity, Zooplankton size, Normalized biomass size spectrum, English Channel

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