

Global patterns of seaweeds species diversity

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Knowledge of global patterns of species richness is fundamental for contemporary studies in ecology, evolution and conservation. Surprisingly, recent studies on global patterns of species diversity were primarily conducted across heterotroph taxa (e.g. foraminifera, fishes, mammals, corals; Tittensor et al. 2010), but did not consider the major oceanic and coastal primary producers, namely phytoplankton (e.g. cyanobacteria, diatoms, dinoflagellates, green algae, coccolithophore) and seaweeds (brown, green and red macroalgae). The biodiversity in some of these autotroph groups far surpasses most of the macro-heterotroph taxa and adding these data could possibly alter the current picture of global patterns of marine species richness. Nevertheless, we are lacking such data for marine primary producers including seaweeds. Kerswell (2006) and Keith et al. (2014) provided a genus-level richness global distribution for the seaweeds. Genus richness, however, does not necessarily reflect species richness as recently shown in a prominent group of brown seaweed (Dictyotales; Steen et al. in prep.).

In this year VLIZ Marine Science Day we would present the preliminary results of our project, started in January 2019. In this project, we will specifically aim at examining global patterns of species richness across the three seaweed clades (Chlorophyta, Rhodophyta, Phaeophyceae) through the assemblages of a dataset of geographical distribution of the marine seaweeds based on online databases (e.g. OBIS, GBIF) and available seaweed checklists for specific regions (Polynesia, Caribbean, Macaronesia). Global spatial distribution maps of species richness will be derived from this dataset for all seaweeds, and for separated clades (e.g. phylum, family, order) to define specific richness distribution patterns. Then, we will assess the extent to which environmental conditions can predict species richness in seaweeds, following Keith et al. (2014) methodology.

Keywords: Seaweed; Modeling; Distribution Maps; Distribution Patterns