

# UNDERSTANDING PHYTOPLANKTON COMMUNITY ASSEMBLAGE PROCESSES OF TURKISH SHALLOW LAKES USING DIFFERENT FUNCTIONAL DIVERSITY COMPONENTS



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In 2001, Tilman defined functional diversity as “the value and distribution of species and their organismal traits that influence the ecosystem functioning”. Since then, scientists have realized that functional diversity may work better than species diversity in explaining and predicting ecosystem level processes. Thus, many have used different functional diversity measurements to explain ecosystem functionality and ecosystem level processes. In our study, by using different functional diversity indices measured by commonly used and relevant functional traits, we try to understand whether dispersal or filtering through the abiotic and biotic factors are the main force driving phytoplankton community assemblages of Turkey’s shallow lakes. For this purpose, data from a total of 48 shallow lakes differing in their climate, latitudinal and altitudinal positions, nutrients concentrations, and community compositions at different trophic levels were used. Our study follows the steps: 1) Scoring phytoplankton functional traits for identified taxa in order to calculate at least three different functional diversity indices at local scale for each lake, 2) Quantifying local biotic and abiotic variables to see if they influence functional diversity of communities 3) Relating functional and taxonomic similarity/dissimilarity with the geographic distances between lakes to understand the role of dispersal and environmental factors in the community assembly. 4) Simulating null distributions for the functional diversity measures to reveal the dominant processes in the community assembly at the local scale. We expect to see a decrease in taxonomic similarity between the lakes with increasing geographic distances if dispersal is a limiting factor in the community assembly. If dispersal is not a limiting factor and local environmental conditions are driving the community assembly, then we expect functional similarity to decrease with increasing environmental distance between the lakes.

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