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Adapting to a Changing World

2-7 June 2024

Madison, Wisconsin USA



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DO ZOOPLANKTON DIVERSITY-ENVIRONMENT RELATIONSHIPS DERIVED FROM SPACE-FOR-TIME-SUBSTITUTION SURVEYS ACTUALLY REPRESENT ANY LAKES?

Space-For-Time-Substitution (SFTS) surveys are used to describe zooplankton community structure, assess lake health, and forecast lake responses to environmental change. SFTS surveys combine single-point sampling from many lakes to evaluate zooplankton community structure and dynamics (e.g., abundance, diversity) and their responses to ecogeographical gradients in key environmental drivers (e.g., temperature, salinity), instead of tracking such responses in individual lakes. However, the reliability and reproducibility of estimating temporal dynamics from models of SFTS survey data have yet to be tested against observed community dynamics within lakes distributed worldwide. We use a recently compiled global dataset (292 lakes, 38 countries, 6 continents) of lake zooplankton time series to estimate the relationship between zooplankton diversity and potential environmental drivers using simulated SFTS surveys. We then apply the results to lakes with long-term time series to compare relationships derived from SFTS surveys with the historical dynamics of individual lakes. We expect that zooplankton dynamics in lakes from less variable thermal regions (i.e., low and high latitudes) will not be well represented by temperature relationships derived from SFTS surveys. Testing biodiversity-ecosystem function relationships and their drivers requires adequate temporally and spatially resolved data. We provide a global perspective on the design of monitoring programs that include zooplankton and examine the reliability of zooplankton biodiversity patterns observed in SFTS surveys.

DO ZOOPLANKTON DIVERSITY-ENVIRONMENT RELATIONSHIPS DERIVED FROM SPACE-FOR-TIME-SUBSTITUTION SURVEYS ACTUALLY REPRESENT ANY LAKES?

Scientific Sessions > SS17 - Data-Intensive Research Builds Understanding of Aquatic Ecosystem Responses to Change at Regional to Global Scales

Time: 04:30 PM

Date: 4/6/2024

Room: Hall of Ideas I

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