



Interannual dynamics and phenology of bacterial communities in a eutrophic lake

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ABSTRACT: We investigated patterns of intra- and interannual change in pelagic bacterial community composition (BCC, assessed using automated ribosomal intergenic spacer analysis) over six years in eutrophic Lake Mendota, Wisconsin. A regular phenology was repeated across years, implying that freshwater bacterial communities are more predictable in their dynamics than previously thought. Seasonal events, such as water column mixing and trends in water temperature, were most strongly related to BCC variation. Communities became progressively less similar across years between the months of May and September, when the lake was thermally stratified. Dissolved oxygen and nitrate + nitrite concentrations were highly correlated to BCC change within and across seasons. The relationship between BCC and seasonal drivers suggests that trajectories of community change observed over long time series will reflect large-scale climate variation.

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