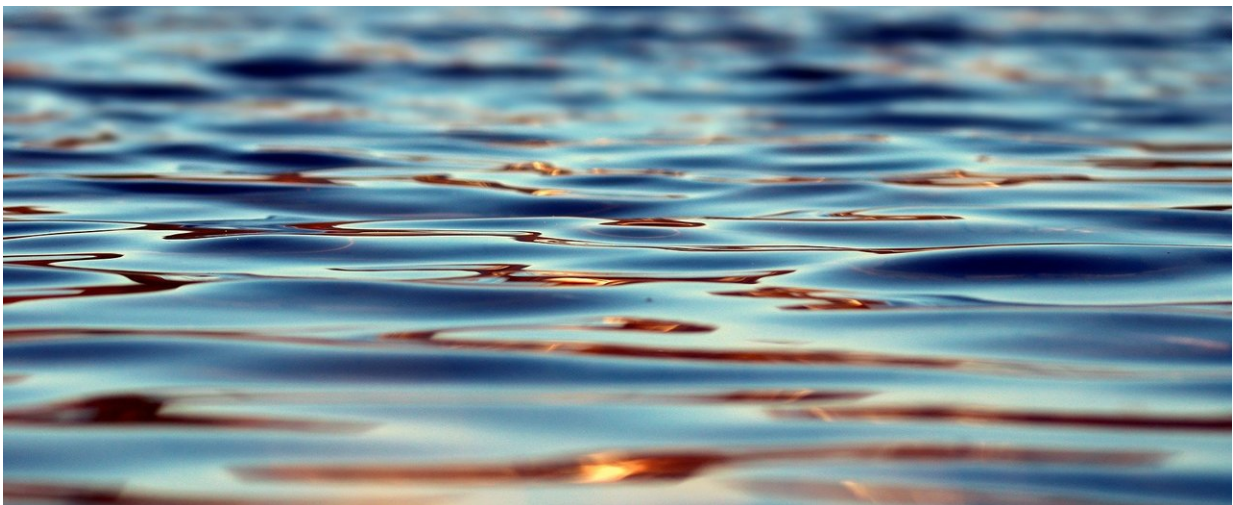


Abundance and composition of periphyton show noticeable seasonality under different warming scenario

June 9 2020, by Zhang Nannan



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Periphyton plays an important functional role in lake nutrient cycles and food webs, especially at low and intermediate nutrient levels. Knowledge of how periphyton responds to key drivers such as climate change and nutrient enrichment is, therefore, crucial.

A research group led by Prof. LI Wei from Key Laboratory of Aquatic Botany and Watershed Ecology at Wuhan Botanical Garden and Erik Jeppesen from Aarhus University of Denmark studied variations in the

biomass development and composition of periphyton during four seasons in an existing mesocosm facility in Denmark with two nutrient levels (low and high) crossed with three temperatures (ambient, IPCC A2 scenario and A2 + 50%), and with four plant types supplemented.

They found a noticeable seasonality in the abundance and composition of periphyton. In spring and summer, periphyton abundances were significantly higher in the turbid-high-nutrient state than in the clear-low-nutrient state, and in summer, they were notably higher at [ambient temperature](#) than in the two climate scenarios.

In contrast, in autumn and winter, periphyton abundances were not influenced by nutrient and temperature, but they were notably higher on [plants](#) with a more complex morphological structure than simple ones.

The community composition of periphyton was significantly affected by the interactions between nutrient and temperature and independent of seasonality.

"The effect of warming on periphyton abundance and [composition](#) in the different seasons varies with nutrient state and host plant type in these mesocosms, and similar results are likely to occur in natural lakes," said Prof. LI.

This research, titled "Warming Effects on Periphyton Community and Abundance in Different Seasons Are Influenced by Nutrient State and Plant Type: A Shallow Lake Mesocosm Study," was published in *Frontiers in Plant Science*.

More information: Beibei Hao et al. Warming Effects on Periphyton Community and Abundance in Different Seasons Are Influenced by Nutrient State and Plant Type: A Shallow Lake Mesocosm Study, *Frontiers in Plant Science* (2020). [DOI: 10.3389/fpls.2020.00404](https://doi.org/10.3389/fpls.2020.00404)

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