

Arctic lakes and rivers can lose the diversity of freshwater species

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Person fishing in a mountain lake. Credit: PhotoMostphotos/Helge Rubin

Climate change and its impacts threaten the health of Arctic freshwater ecosystems, with continued warming pushing cold-water species unique to the Arctic—such as the Arctic char—to the brink of regional loss. In addition, there is an increasing likelihood of toxic cyanobacteria blooms, according to the State of the Arctic Freshwater Biodiversity Report published in early May.

"The findings of the report are alarming. Global warming is reducing the area of the region that can be considered as Arctic. The consequence is that southern species move northwards and cold tolerant species face possible local extinction when they cannot adapt or compete for resources," says Danny Chun Pong Lau, research assistant at the Department of Ecology and Environmental Sciences and Climate Impact Research Centre (CIRC) at Umeå University.

The report has been published by international research experts from the Conservation of Arctic Flora and Fauna's Circumpolar Biodiversity Monitoring Program (CBMP), with Danny Chun Pong Lau as one of the co-authors.

The report provides a circumpolar synthesis of the state of knowledge about biodiversity in Arctic lakes, rivers, and associated wetlands. It identifies changes and [knowledge gaps](#) in fish, benthic macroinvertebrates, zooplankton, algae, and macrophytes, and can provide insights into the overall health of [freshwater ecosystems](#) and their ability to provide essential services on which people rely.

For the first time, experts have compiled a circumpolar database on freshwater biodiversity to keep knowledge easily updated and available.

"The aim is to make knowledge more accessible and easy to update," says Danny Chun Pong Lau. "All data will be available in the Arctic Biodiversity Data Service online database."

The report also identifies Arctic countries' efforts and gaps in monitoring key elements of Arctic ecosystems, highlighting what countries can do to improve the ability to detect and report on significant changes in the Arctic.

"Specifically, the report calls for better coordination, standardisation of

methods and increased use of emerging technologies such as remote sensing and DNA barcoding," says Danny Chun Pong Lau. "We also need to balance our research findings with consideration of traditional knowledge and local knowledge, better engagement with local and Indigenous communities in the Arctic region, and a stronger commitment to support continued development and maintenance of the CBMP.

More information: The report is available online:
www.arcticbiodiversity.is/freshwater

Provided by Umea University

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