

Canada's subarctic lakes could face widespread desiccation

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In Canada's subarctic—the boreal ecosystem that spans most of mainland Canada—the temperature is climbing and the snowpack is thinning. Previous research has shown that snow is disappearing even faster than sea ice.

Researchers are concerned that the decline in [snow cover](#) will spell the end of many of the country's abundant subarctic lakes, and the unique ecosystems they support. These worries are supported by recent observations that show subarctic lakes drying out. To assess the susceptibility of subarctic lakes to widespread desiccation, Bouchard et al. spent multiple years monitoring changes in subarctic lakes. They find that many subarctic lakes are sensitive to changes in snowmelt, and that recent bouts of drying may be unprecedented in the past 200 years.

The Old Crow Flats and the Hudson Bay Lowlands, the sites of the authors' investigation, are two of the largest subarctic lake-rich ecosystems in North America. Permafrost in the ground, and silt- and clay-rich soils prevent water from seeping through the ground, creating landscapes covered with thousands of shallow thermokarst lakes.

With little water moving through the ecosystem other than that which flows overland, the authors find that the stability of these subarctic lakes depends crucially on winter snowfall and spring snowmelt. They find that lakes in regions with flat terrain and sparse vegetation are most susceptible to evaporative lake-level drawdown at times when snowmelt runoff is low. If current trends continue, the researchers say, many of

these small snow-fed tundra lakes could disappear within the next few years to decades.

More information: Vulnerability of shallow subarctic lakes to evaporate and desiccate when snowmelt runoff is low, *Geophysical Research Letters*, [DOI: 10.1002/2013GL058635](https://doi.org/10.1002/2013GL058635) , 2013
<http://onlinelibrary.wiley.com/doi/10.1002/2013GL058635/abstract>

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