

## Media Relations

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### UNH Researcher Part of Team that finds Northern Lakes are Major Contributors of Greenhouse Gas



DURHAM, N.H. – Naturally occurring emissions of a greenhouse gas from far northern bodies of water may be larger than previously thought. New research shows that freshwater lakes and ponds at high northern latitudes are one of the largest natural sources of methane, a more effective, or potent, greenhouse gas.

A team comprised of researchers from universities in Sweden and the United States, including the University of New Hampshire, compiled data from previously reported measurements of emissions and found that the boreal and arctic lakes and ponds were a dominant source of methane. They

estimated that annual emissions from the over 700 northern bodies of water included in the study will increase by 20 to 54 percent before the end of the century if ice-free seasons are extended by 20 days. The study was published in *Nature Geoscience* and can be viewed here:

<http://www.nature.com/ngeo/journal/vaop/ncurrent/full/ngeo2578.html>

“Much of the focus of methane emissions in these regions has been on the wetlands but this review puts the spotlight on the lakes and ponds,” says Ruth Varner, associate professor in the Institute for the Study of Earth, Oceans, and Space (EOS), and the department of Earth sciences at UNH. “The naturally occurring methane being released from these northern lakes and ponds is significant and should be taken into account when talking about understanding climate change.”

The statistical analysis was made with data from 41 individual studies that reported methane fluxes based on measurements from a total of 733 lakes and ponds north of the 50th parallel including small ponds formed by beavers to large lakes formed by permafrost thaw or ice-sheets. Through their analysis the researchers were able to more accurately estimate emissions on a larger scale.

Researchers point to the 2015 United Nations Climate Change Conference held in Paris, emphasizing that as we move forward with plans to reduce manmade emissions that it’s vital to also be aware of how natural resources contribute to the overall warming effect, allowing for more informed policy

decisions. They point out that the length of the ice-free season across the Arctic has continued to increase since the 1850s. The release of the methane from the lakes and ponds creates a cyclical effect; Arctic warming triggers permafrost thaw which leads to the formation of new lakes and ponds and therefore creating more sources for naturally occurring methane emissions.

The research was a joint effort by members of the Permafrost Carbon Network including Martin Wik (Stockholm University), Ruth Varner (UNH), David Bastviken, Katey Walter Anthony (University of Alaska Fairbanks), and Sally MacIntyre (University of California, Santa Barbara).

The study was funded by the National Science Foundation and the Swedish Research Council.

The [University of New Hampshire](#), founded in 1866, is a world-class public research university with the feel of a New England liberal arts college. A land, sea, and space-grant university, UNH is the state's flagship public institution, enrolling 13,000 undergraduate and 2,500 graduate students.

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