

Large and increasing methane emissions from northern lakes

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Post-glacial lakes in Stordalen, northern Sweden. Credit: Jo Uhlbäck.

Methane is increasing in the atmosphere, but many sources are poorly understood. Lakes at high northern latitudes are such a source. However, this may change with a new study published in *Nature Geoscience*. By

compiling previously reported measurements made at a total of 733 northern water bodies - from small ponds formed by beavers to large lakes formed by permafrost thaw or ice-sheets - researchers are able to more accurately estimate emissions over large scales.

"The release of methane from northern lakes and ponds needs to be taken seriously. These waters are significant, contemporary sources because they cover large parts of the landscape. They are also likely to emit even more methane in the future", says Martin Wik, PhD student at the Department of Geological Sciences and Bolin Centre for Climate Research, Stockholm University, who led the study.

With [climate warming](#), particularly at high northern latitudes, longer ice-free seasons in combination with [permafrost thaw](#) is likely to fuel [methane release](#) from lakes, potentially causing their emissions to increase 20-50 percent before the end of this century. Such a change would likely generate a positive feedback on future warming, causing emissions to increase even further.

"This means that efforts to reduce human induced warming are even more urgent in order to minimize this type of feedback of natural [greenhouse gas emissions](#). In a sense, every reduction in emissions from fossil fuels is a double victory", says David Bastviken, Professor at Tema Environmental Change, Linköping University.

More information: Climate-sensitive northern lakes and ponds are critical components of methane release, *Nature Geoscience*, [DOI: 10.1038/ngeo2578](#)

Provided by Stockholm University

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