Lots of carbon dioxide equivalents from aquatic environments

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Large amounts of carbon dioxide equivalents taken up by plants on land are returned to the atmosphere from aquatic environments. This is the conclusions from a study carried out by two students at Linköping University, Sweden.

As students at the Master program Science for Sustainable Development in Linköping, Bala Panneer Selvam and Sivakiruthika Natchimuthu, did a thorough investigation of greenhouse gas emissions from many types of inland waters in India under supervision by Dr Lakshmanan Arunachalam, Tamil Nadu Agricultural University, India, and Dr David Bastviken, Linköping University, Sweden.

The findings were that emissions of carbon dioxide equivalents (as methane and carbon dioxide) from lakes, running water, dams, ponds, and wells correspond to on an average 42 % of the expected natural carbon sink in India. This carbon sink may therefore be smaller than expected, illustrating that we do not have full knowledge on the natural greenhouse gas balance.

Hence, it may be better to try to reduce fossil carbon emissions rather than hoping that natural environments have a large capacity to take up emitted carbon. Methane accounted for 71% of the emitted aquatic CO2 equivalents and this opens a way to reduce these emissions by reducing the water pollution in terms of nutrients and organic material.

It is important to realize these findings are not specific for India – all

countries should consider aquatic emissions in their greenhouse gas balances. This also illustrates how student projects can contribute to science.

More information: The study was recently published in the scientific journal *Global Change Biology*, with the title: Methane and carbon dioxide emissions from inland waters in India - Implications for large scale greenhouse gas balances.

Provided by Linköping University