

# **Aquatic Methane Research: A Complicated and Exciting Puzzle**

**TONYA DELSONTRO**

University of Waterloo

Presenting Author: [tonya.delsontro@uwaterloo.ca](mailto:tonya.delsontro@uwaterloo.ca)

Methane research has become an exciting endeavor because of the increasing complexities surrounding it. Studying methane emissions has taken on a new importance with the recent rapid increase of atmospheric methane concentration and its shifting stable carbon isotopic signature, both of which have yet to be explained. Methane emissions from aquatic systems, particularly from inland waters, have been reported as potentially high emitters, but large discrepancies between estimates need to be resolved. To further complicate upscaling efforts, evidence suggests that methane emissions may be directly impacted by ongoing and future global changes, some of which we may not even be aware of yet. At the process level, methanogenesis and methane oxidation are no longer simply processes that take place in anoxic and oxic environments, respectively. Understanding process drivers is necessary for making accurate emission estimates as well as predicting how emissions will be altered by our changing world. In this talk, I will discuss the ever-evolving estimates of inland water methane emissions, the new and/or controversial aspects of emission pathways and biogeochemical processes impacting methane, and some of the important pieces to the aquatic methane puzzle that we should have in our sights.