Left and Middle: Vivien Taylor (Dartmouth College) and Saul Blocher (University of Vermont) collecting samples in Saint Albans Bay; Right: site locations in Lake Champlain. Photo Credit: Andrew Schroth (University of Vermont)

Mercury under Lake Ice

Scientists at Stony Brook University, the University of Vermont, and Dartmouth College are studying mercury uptake into the food chain during the winter, and how mercury uptake may change in the future, as winter climate conditions change.

We have had a stormy, cold winter. But that doesn't stop anglers from going ice fishing. Ice fishing is popular in the northern regions of the US, and other regions of the world where the surface of bays, and sometimes entire water bodies, freeze over to form a layer of ice on the surface that is thick enough to drive on, set up a hut, and drill through to get to the water where fish are active. Fish can be eager to bite in the winter as they search for food that can be scarce compared to other seasons.

This winter, scientists are working through the pandemic to find out what happens to mercury, a common contaminant found in fish, as the fish food chain continues to operate during the winter. They are collecting samples from Lake Champlain near the US-Canadian border. The goal is to find out whether mercury changes in chemical form and concentration in the water, lake sediments, and organisms that are in low in food chain, such as mussels. The information will indicate whether mercury is readily taken up into the food chain, including fish, during the winter compared to other seasons.

How will fish mercury levels change with climate?

The scientists will also use data from the field to predict how fish mercury levels will change with climate. Key to answering this question is the ice cover during the winter, which is expected to decrease in thickness and duration as the climate warms. These factors influence how mercury and lake food chains function, and whether future climate conditions will enhance, or diminish, mercury buildup in fish in the future. The results from this project will provide the information necessary to predict changes in fish mercury levels, overall health value for human consumption, and inform fish monitoring and advisory policies.

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Project Sponsors: