

Currents

Does winter productivity bring summer hypoxia?

When you think about summertime fisheries on Lake Erie, an image of frigid weather and ice does not come immediately to mind. Yet it's wintertime microbial activity under the ice that influences the development of the summertime hypoxia which has an important impact on the lake's fisheries. Preliminary field studies in 2007 and 2008 documented presence of diatoms and estimated their biomass and production. The importance of this phenomenon relates to the expected degradation of this biomass during the summer months contributing to the low-oxygen condition known as hypoxia.

With NYSG funding for a two-year project, **Dr. Michael R. Twiss** of Clarkson University and **Dr. Steven Wilhelm** of the University of Tennessee-Knoxville set about to further assess winter microbial biomass and metabolism and to test the importance of winter productivity to summer hypoxia in Lake Erie.

With the help of collaborators from Environment Canada and Bowling Green State University, the research team sampled the frigid February waters of Lake Erie in both 2009 and again in 2010. Sampling, experiments and analysis are underway to measure concentrations of plankton, photosyn-

thetic efficiency, rate of photosynthesis, plus bacterial production, growth, grazing, and the balance of production versus consumption of organic carbon during the period of ice cover in Lake Erie to provide much greater detail of microbial activity in the lake in winter. Early findings so far indicate an actively growing cold-loving phytoplankton community is present in the lake in the winter.

—Lane Smith and Barbara A. Branca

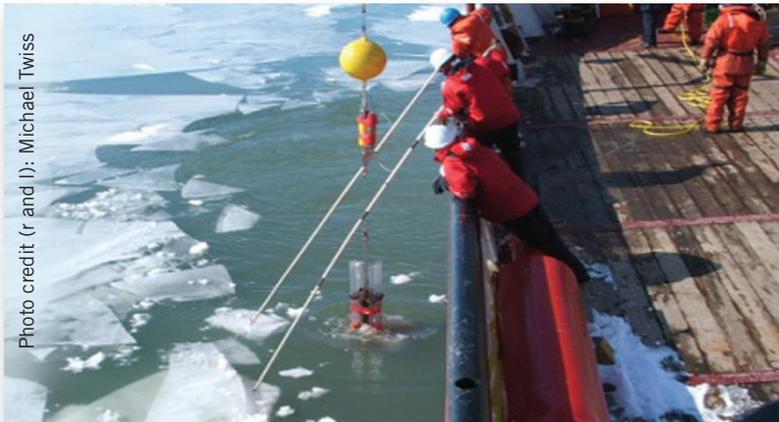


Photo credit (r and l): Michael Twiss



Environment Canada technicians recovering sediment traps through ice on Lake Erie in winter.