

The Sea Grant Files  
Fresh News About Fresh Water

### **A Year of Intensive Monitoring: "CSMI" on Lake Superior**

For Oct 11, 2016

JESSE: Hi I'm Jesse Schomberg and you're listening to the Sea Grant Files. I'm here in the studio with Dr. Michael Sierszen, Research Ecologist with the U.S. Environmental Protection Agency's Mid-Continent Ecology Division located here in Duluth, Minnesota. Mike spent a large part of September aboard the EPA's research vessel Lake Guardian. We've brought him to the studio today so we can ask... "What on Earth were you doing out there?!"

MIKE: Yea we spent about 3 weeks all through the lake, taking samples and measurements to assess its condition. It's part of CSMI, the Cooperative Science and Monitoring Initiative, a program that came out of the mutual interest that the US and Canada have in keeping the Great Lakes healthy. Under the Great Lakes Water Quality Agreement between the two countries, each of the Great Lakes has a checkup every 5 years - so the program is active every year and revolves among the lakes - and that happens through the CSMI. The monitoring is the responsibility of EPA's Great Lakes National Program Office in Chicago, but there's also research being done to improve the ways that we measure the condition of the lakes. That is done through partnerships (i.e., the "cooperative" part) with other federal agencies (e.g., USGS keeps tabs on fish), also universities, and us in the EPA's Office of Research and Development (ORD). We have found that by collaborating with the CSMI effort, we can perform our research aimed at improving the ways we do monitoring and we can also support our EPA colleagues at the Great Lakes National Program Office. This year was Lake Superior's turn for intensive monitoring, and I was chief scientist on the research cruises aboard EPA's 190 ft R/V Lake Guardian.

JESSE: So when you're out there what sort of things do you measuring and tracking to try and assess the health of the Great Lakes?

MIKE: Well things we keep track of include the condition of the food web, water quality, fish of conservation concern such as lake sturgeon and coaster brook trout, levels of contaminants, and habitat quality. We were sampling water quality - levels of nutrients such as phosphorus and nitrogen - and the lower food web (algae, planktonic, and epibenthic invertebrates). Our collaborators with the U.S. Geological Survey in Ashland were out at the same time in their research vessel, the Kiyi, to survey fish populations.

JESSE: So you said this happens every 5 years in Lake Superior. How many times has the EPA assessed a lake like this?

MIKE: This is the third time. So 2006 was actually the first one. 2011, and now in 2016.

JESSE: What can you tell us about the EPA's previous assessments of Lake Superior? What did it find? Are things going well? Poorly?

MIKE: The greatest of the Great Lakes is in good condition. It has a stable food web based mostly on native species that perform important functions that make the ecosystem work. The fisheries, also based on native species (whitefish, cisco, lake trout), are excellent and self-sustaining. Nutrient levels in most of the lake are low, about where they should be for Lake Superior, although there are spots near cities that could be improved. Levels of chemical contaminants have been decreasing for decades, although there are new contaminants such as flame retardants that are showing up and are a cause for concern.

JESSE: When you were living on the Lake Guardian this September, what were some of the highlights? Just actually being out on the boat for this long.

MIKE: The scenery. When you have the opportunity to really get out everywhere on Lake Superior you can see how spectacular it is, from the islands to the deep blue water to the sun and moon on the water to northern lights; just beautiful. Also working with the crew of the Lake Guardian was a pleasure – they are very knowledgeable, professional, and fun.

JESSE: So those are the best parts. What was the worst parts of being stuck on the boat?

MIKE: We worked 12 h shifts, and most of us took turns at both the noon-midnight and midnight to noon shifts. So eventually getting enough sleep could be a problem. Weather kept us on our toes. And we were well really fed, so for me, keeping from putting on too much weight was a challenge!

JESSE: What is the best part about being a Research Ecologist for the US Environmental Protection Agency? It's not all about just being on a boat I assume.

MIKE: I wish. The best part I think is having a career doing the most interesting work I can think of, to try to understand and protect aquatic ecosystems. And showing up to work every day on the shore of Lake Superior is pretty good too.

JESSE: Before we let you go, Mike, can you tell us why these years of intensive monitoring on the Great Lakes are important ... what your long days and longer nights add up to in the end?

MIKE: They add up to taking care of a treasure that we have been given. Not just because our livelihoods and our quality of life depend on the environment, but because I think we have a moral obligation to do that.

This episode of the Sea Grant Files was produced by Sharon Moen, Mariah Schumacher, Maija Jenson, KUMD, and me, Jesse Schomberg. To listen to more episodes of The Sea Grant Files and to subscribe to our podcast, visit the Minnesota Sea Grant website at [www.seagrants.org](http://www.seagrants.org).

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