



March 15, 2007

To our Lake Ontario science & monitoring partners:

The Lake Ontario Lakewide Management Plan (LaMP) and the Great Lakes Fishery Commission's Lake Ontario Committee (LOC) have begun planning for the **2008 U.S. – Canadian Lake Ontario Intensive Monitoring Year** to address critical research and monitoring needs vital to the effective management and restoration of the Lake Ontario Ecosystem. The recent discovery of the invasive Bloody Red Shrimp (*Hemimysis anomala*) near Oswego illustrates the continued need for ecosystem-based research and monitoring programs. The attached findings of a LaMP/LOC October 2006 workshop, generously supported by the International Joint Commission's Council of Great Lakes Research Managers, were considered in selecting the following biological research and monitoring priorities for 2008:

Understanding Nearshore-Offshore Nutrient Transport Mechanisms – The incidence of nearshore eutrophication problems appears to be increasing. Invasive dreissenid mussels may have set in motion a series of changes that now limit the transport of nutrients from the coastal zone to offshore waters. Emphasis should be given to coordinating agency, academic and local government monitoring efforts to provide a lakewide assessment of biological changes in the nearshore zone.

Status of Offshore Lower Food Web - Given continued concerns regarding invasive species' impacts on the food web, an assessment of offshore nutrients, phytoplankton, benthos and zooplankton, similar in scope to the 2003 LaMP/LOC effort, is needed to document on-going changes in the aquatic food web. The LaMP/LOC will work to secure the large vessel support needed to support offshore sample collection efforts.

Lakewide Fishery Assessment – Routine prey and sport fish assessments should be expanded lakewide with a special emphasis on lake trout, a key LaMP indicator species. The distribution, natural reproduction, reproductive health and genetic diversity of lake trout are of particular interest. Nearshore embayments and coastal areas where dreissenid mussels, round goby, and now *Hemimysis anomala*, are suspected to have altered energy pathways should also be included. These assessments will help guide the implementation of fishery management plans. The LaMP and the LOC will work to secure the resources needed to expand planned government fishery assessment efforts to include these additional activities.

Understanding Food Web Changes Using Biomarkers - The flow of energy through Lake Ontario's aquatic food web needs to be reconsidered now that exotic mussels and

zooplankton have become established. The analysis of stable isotopes and fatty acids in food web organisms can help understand the relative importance of benthic and pelagic prey items to higher-level organisms such as lake trout and colonial water birds. Collection of stable isotopes and fatty acids samples can be coordinated as part of nearshore, offshore and fishery assessment efforts.

Monitoring and research approaches for each of these categories should be designed to address LaMP and LOC agency priorities such as the protection of water quality near drinking water intakes, aquatic species at risk, invasive species, monitoring to protect and restore native species, fish diseases, and beneficial use impairments in Areas of Concern. New monitoring technologies such as towed remote sensing instrumentation and satellite imagery should be incorporated into monitoring approaches where possible.

The successful implementation of these efforts will depend on our ability to develop cooperative partnerships, leverage resources and actively pursue creative funding sources. Please contact Fred Luckey, U.S. EPA (212-637-3853 / luckey.frederick@epa.gov) or Rimi Kalinauskas, Environment Canada (416-739- 5836 / rimi.kalinauskas@ec.gc.ca) for more information.

Sincerely,

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