U.S. Environmental Protection Agency
Great Lakes National Program Office
Significant Activities Report

On the Web at:
www.epa.gov/glnpo

October 2003

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GLNPO Navy Wraps Up 2003

GLNPO's 180-foot research vessel, the *R/V Lake Guardian* and 32-foot sediment sampling boat, *R/V Mudpuppy*, wrapped up a busy 2003 monitoring season with several surveys and several press events.

R/V Lake Guardian leaves Chicago on last voyage of 2003 sampling season

Fred Luckey, USEPA Region 2 scientist processes samples collected in Lake Ontario LOLA Study

Probing the Food Web

From September 18th to 26th, researchers from USEPA Region 2, Cornell University, Environment Canada, and the National Oceanic and Atmospheric Administration were aboard the Lake Guardian to study the impacts that exotic species have had on Lake Ontario's lower food web. The study is called "LOLA" which stands for Lake Ontario Lower Aquatic Foodweb Assessment. Samples were collected at approximately 35 stations on Lake Ontario along 6 transects selected to characterize the northern, southern, eastern, and western quadrants of the lake. The samples will be analyzed for total phosphorus, soluble reactive phosphorus, silica, chlorophyll-a, microbial loop, cyanobacteria, rotifers, phytoplankton, zooplankton, mysids and benthic organisms. LOLA is a cooperative binational project that will define the current status of native and exotic zooplankton and benthos in terms of biomass, distribution, and community structure.

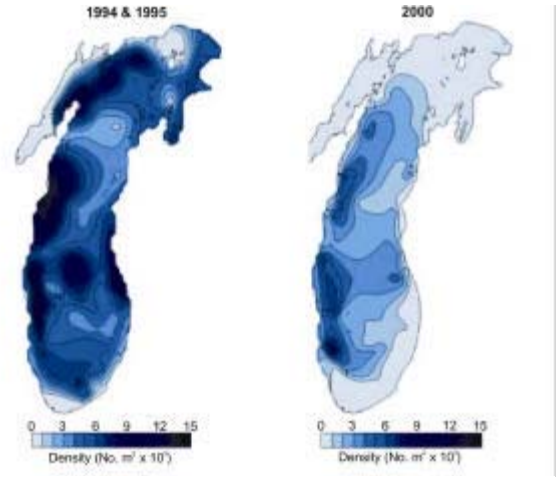
A press event was also held in Rochester, New York on September 24th. The event

was covered by the *Rochester Democrat and Chronicle* and all the major local television stations.
(Contact: Fred Luckey, 212-637-3853, luckey.frederick@epa.gov; or Todd Nettesheim, 312-353-9153, nettesheim.todd@epa.gov)

Hunting Diporeia

Dr. Thomas Nalepa, of the NOAA, Great Lakes Environmental Laboratory, sampled Lake Michigan from the *R/V Lake Guardian*, from September 29th through October 1st, looking for the small crustacean, *Diporeia hoyi*. This the fifth survey, using the *Lake Guardian*, and provides an annual snapshot of the populations in Lake Michigan.

Diporeia are tiny shrimp-like organisms that live in the bottom sediments of the Great Lakes. They require clean, cold, well-oxygenated water and have inhabited the Great Lakes since their formation over 5,000 years ago. They feed on plant material that settles out of the water column to the lake's bottom sediments. *Diporeia* are a key component of the food chain in the Great Lakes and are a key source of food to many of the prey fish (i.e.; smelt, sculpin, bloater) as well as the whitefish. They have a high fat content which makes them an excellent food source for the higher food-chain organisms. This GLNPO-supported study is documenting the disappearance of this important animal from Lake Michigan, where they have disappeared from the eastern half of Lake Michigan. The decline in *Diporeia* has also been documented in all the other Great Lakes except Lake Superior. *Diporeia* appear to have been completely eliminated from Lake Erie. The jury is still out on the reasons for the declines of Diporeia, but it's thought that proliferation of the non-native zebra mussels that have invaded the Great Lakes may be outcompeting them for food.
(Contact: Marc Tuchman, 312-353-1369, tuchman.marc@epa.gov)



Graphic showing dramatic decline in *diporeia* between 1994-95 (image on left) and 2000

A Needle in a Haystack

From October 3rd to 10th, GLNPO, in cooperation with Dr. Matt Simcik of the University of Minnesota, conducted a cruise to collect water samples for analysis of extremely low levels of persistent bioaccumulative toxic contaminants in the open waters of Lake Michigan. Some of these chemicals are likely to be found at levels of parts per trillion. This is equivalent to finding one drop of the contaminant in 17 million gallons of water – truly a needle in a haystack proposition. Samples with volumes of from 4 liters (about 1 gallon) up to 2000 liters were collected depending on the contaminant. The samples will be ana-


Dr. Matt Simcik, U. of Minnesota, describes difficulty of measuring ultra-low levels of contaminants in open waters of the Great Lakes

lyzed for polychlorinated biphenyls (PCBs), organochlorine pesticides, dioxins and furans, mercury (including methyl mercury), polybrominated diphenyl ethers (PBDEs), perfluorooctane sulfonate (PFOS), and perfluorooctanoic acid (PFOA). The last three are chemicals of emerging concern for which water data has not yet been collected for the Great Lakes. This project will provide baseline levels for these substances. For PCBs and other "legacy contaminants", data from this study will be compared to historical data in order to measure progress in reducing these pollutants in Lake Michigan. The water data, combined with GLNPO's fish contaminant data, will allow calculation of updated bioaccumulation factors for lake trout. Finally, when used together with air deposition data from the binational Integrated Atmospheric Deposition Network, it will also allow improved estimates of the exchange of these chemicals between the air and the water. This study is intended to be the beginning of a long-term PBT water monitoring program that will complement Canada's data collection efforts on the rest of the Great Lakes. (Contact: Melissa Hulting, 312-886-2265, hulting.melissa@epa.gov; or Glenn Warren, 312-886-2405, warren.glenn@epa.gov)

Chicago Media Event

A media event was held at Chicago's Navy Pier aboard the *R/V Lake Guardian* on October 9th. The event was part of the outreach effort for World Monitoring Day. Monitoring issues that were highlighted included the disappearance of the diporeia in Lake Michigan and the new early-warning monitoring program for new toxic pollutants that could become problematic in a similar manner to PCBs (see previous two articles for details).

Great Lakes National Program Manager Tom Skinner, Great Lakes National Program Office Directory Gary Gulezian, and GLNPO Monitoring and Indicators Branch Chief Paul Horvatin were onboard to answer reporters' general questions and GLNPO Scientists including Melissa Hulting, Marc Tuchman, Glenn Warren, as well as grantee Dr. Matt Simcik from the University of Minnesota provided more in-depth information.

Tom Skinner, USEPA Great Lakes National Program Manager speaks with television reporter at Lake Guardian Media Event in Chicago

Attendees were treated to a short cruised on Lake Michigan to demonstrate some of the sampling and laboratory techniques used onboard the Lake Guardian. Photographers took advantage of the many photo opportunities.

Coverage of the event appeared on a dozen press, television, and radio media outlets. (Contact: Karen Thompson, 312-353-8547, thompson.karen@epa.gov; or Tony Kizlauskas, 312-353-8773, kizlauskas.anthony@epa.gov)

Black Lagoon Preparations

On October 14th and 15th, the *R/V Muddpuppy* was in Trenton, Michigan to assist the Michigan Department of Environmental

Quality (MDEQ) in a sediment assessment on the Trenton Channel. The focus of the study was to collect sediment data to inform remediation design work at the Black Lagoon site. MDEQ is targeting calendar year 2004 for initiating a sediment remediation project at the site. MDEQ and GLNPO collected 8 sediment cores for chemical and physical analysis. MDEQ's state lab is conducting the analysis of the samples, and results should be available in November 2003. (Contact: Scott Cieniawski, 312-353-9184, cieniawski.scott@epa.gov)

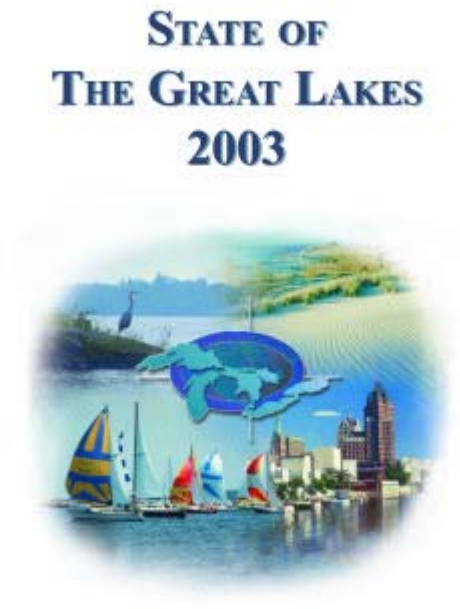
Buffalo River Probed

GLNPO's *R/V Mudpuppy*

On October 20th to 22nd, Mary Beth Ross, a new GLNPO employee and native of Buffalo, New York, led a sediment sampling survey on the *R/V Mudpuppy* on the Buffalo River. This work was conducted to assist University of Buffalo and SUNY College at Buffalo with the second sediment sampling event for this year on the Buffalo River. Approximately 15 sediment cores were taken as a follow-up to sampling conducted in July of this year. Core data will be used primarily to determine the extent of environmental dredging that might be necessary for habitat restoration projects, and to provide required data for development, testing and application of the sediment transport model. (Contact: Mary Beth G. Ross, 312-886-2253, giancarlo.marybeth@epa.gov)

How are the Lakes Doing?

Three reports have recently been prepared to assess conditions in and around the Great Lakes. The "standard" ***State of the Great Lakes 2003*** report summarizes 43 indicators of Great Lakes ecosystem components and presents an assessment of each of the lakes as well as the St. Clair River-Lake St. Clair-Detroit River ecosystem and the St. Lawrence River. A more in-depth version, ***Implementing Indicators - A Technical Report***, provides the full indicator reports updated from those presented at SOLEC 2002, along with full documentation of data sources, references and contact information for further information. Finally, indicators ***Fact Sheets*** provide a one-page easy to understand synopsis of indicators related to "fishability," "swimmability," and "drinkability." All three documents are (or will be) online at http://binational.net/



Cover of State of the Great Lakes 2003 Report

sogl2003/index.html.
(Contact: Paul Bertram, 312-353-0153, bertram.paul@epa.gov; or Kate Beardsley, (312-353-2151, beardsley.kate@epa.gov)

Examining Indicators

USEPA and Environment Canada are developing indicators to be used to assess the health of the Great Lakes ecosystem and to measure restoration progress. They are using the State of the Lakes Ecosystem Conference (SOLEC) to engage the collective expertise and cooperation of a wide spectrum of Great Lakes experts, partners, and stakeholders. In order to validate and improve the process, a formal peer review of the SOLEC process and products was held on October 7th and 8th in Toronto, Canada.

Seven recognized experts on indicator and reporting systems accepted an invitation to participate. The organizations represented were: Genuine Progress Index for Atlantic Canada; the International Institute for Sustainable Development; the Commission for Environmental Cooperation; the H. John Heinz II Center for Science, Economics and the Environment; the University of British Columbia; the Knowledge Integration Directorate of Environment Canada; and the Netherlands Environmental Assessment Agency. Initial impressions by the SOLEC organizers is that the reviewers were favorably impressed with the SOLEC efficiency and apparent effectiveness, especially considering the few staff and surprisingly small budget that are directly allocated to the conference and the State of the Great Lakes reports. Several suggestions were also offered by the reviewers with respect to the organization of the SOLEC reports and the development of aggregations of indicators or indices. A formal report from the reviewers is due in early December 2003. A second SOLEC review workshop is planned for January 2004 to identify which of the current and newly-proposed Great Lakes indicators would provide information most useful to environmental managers and decision makers.
(Contact: Paul Bertram, 312-353-0153, bertram.paul@epa.gov; or Paul Horvatin, 312-353-3612, horvatin.paul@epa.gov)

Lake Michigan Conference

The State of Lake Michigan Conference was held on October 21st and 22nd in Muskegon, Michigan. The meeting was co-sponsored by the Lake Michigan Lakewide Management Plant (LaMP), the Lake Michigan Forum, and Grand Valley State University. The sessions drew 200 attendees. The opening session of the conference provided an overview of the restoration efforts underway. U.S. Representative Peter Hoekstra (R-MI-2nd) presented a major discussion of restoration activities on the second day.

Concurrent sessions were held during the two days on a variety of subjects including watersheds, lake and wetlands biology, and invertebrate information in relation to drowned river mouth wetlands, invasive species, Web-based decision tools for environmental management, contaminants, hydrology and geology, and data and information management. The Great Lakes Beach

Sleeping Bear Dunes in northern Lake Michigan

Association also held their 3rd Annual Meeting at the conference, discussing beach monitoring and reporting issues.

During the conference, several exciting projects were presented, including the Muskegon Lake and Estuary Emergent Vegetation Restoration Demonstration Project. The project is a feasibility demonstration of reintroducing wild rice and native emergent plants to degraded bottomlands. Well over 100 volunteers, including local Native Americans, other minority students and the local community are involved in the stewardship of the demonstration. Within the eleven acre project area, five areas have been planted and will be re-planted as needed over the next two years with wild rice and emergent vegetation. Each site will be a demonstration area on private or State bottom lands in Muskegon Lake, which has lost over 75 percent of its historic aquatic habitat due to development and industrial fill.

After months of planning and preparation, the Muskegon River Watershed Assembly held a unique "kickoff" ceremony last November that included a blessing by the Little River Band of Odawa Indian Nation and viewing of Peace Art by Bunker Jr. High Students before local volunteers casted over 500 pounds of seed and planted over 5,000 native aquatic plants in the chilly waters over two days. By this Spring, four of the five sites had sprouted wild rice, some reaching the "floating leaf" stage, and all five areas eventually came up. Great hopes for seed heads and wild rice stands remain for the remainder of the demonstration. This project received the 2003 Muskegon Area Environmental Excellence Award. Lessons learned from the project will be highly transferable to similar areas of the Lake Michigan basin and the Great Lakes.

(Contact: Judy Beck, 312-353-3849, beck.judy@epa.gov)

Calumet Bioblitz 2002

Purple Loosestrife, an aquatic invasive plant found in the Lake Calumet area

The Chicago Department of Environment conducted a Biodiversity Blitz (a 24-hour inventory of species) in the Calumet area near the Illinois-Indiana border on August 23rd and 24th, 2002. A Bioblitz is a 24-hour inventory of species, with the goal of identifying as many species as possible during this period. The effort in Calumet involved more than 130 scientists and also provided environmental educational activities for the general public. A total of 2,257 species were found in the Wolf Lake/Powderhorn Marsh/Eggers Woods sites during the Bioblitz. The Field Museum of Natural History is compiling the list and making it available on their website at www.fieldmuseum.org/bioblitz.

This was a kickoff event for the Calumet Stewardship Initiative. GLNPO funding helped to promote the event to the general public, community groups, and school groups. Full-color fliers announced the event, data sheets and species list sheets were provided to the scientists, and banners and posters advertised the event.
(Contact: Karen Rodriguez, 312-353-2690, rodriguez.karen@epa.gov)

Reducing Global Mercury

GLNPO's Frank Anscombe (left) with other participants of international chlor-alkali conference in Sao Paulo

In September, GLNPO's Frank Anscombe addressed a meeting of ChloroSur, the Latin American Association of Chlor-alkali Companies. Held in Sao Paulo, Brazil, the meeting included a trip to a nearby factory that is world-class in terms of ultra-low consumption of mercury. The session was attended by 100 people from academia, government, and the chemical industry, including members of the Chlorine Institute, EuroChlor, and the Indian Chlor-alkali Association. Anscombe spoke about opportunities for communicating mercury management lessons among factories and across borders.

During the past six years, U.S. factories have reduced their consumption of mercury by 75 percent (on a capacity-adjusted basis). They have achieved this by pooling factory management ideas, allowing individual factories the flexibility to choose solutions best tailored to the unique business circumstance and equipment of each. This voluntary program is equivalent to a cap-and-trade reduction scheme, under which factories each choose the most economical ways to tighten their production process and prevent mercury losses. Increasingly, professional associations of chlor-alkali firms around the world are collaborating through the World Chlorine Council to promote the spread of best management practices within the industry on a global basis. Mercury is a global issue since it can be carried great distances by air and deposited far from the original source.

(Contact: Frank Anscombe, 312-353-0201, anscombe.frank@epa.gov)

New Great Lakes CD

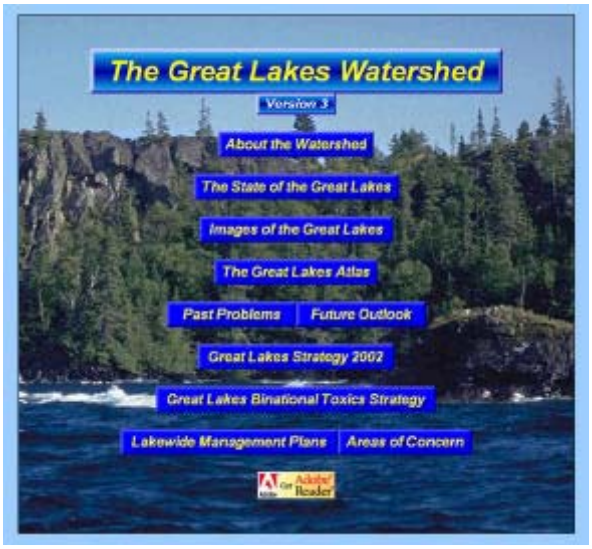
Version 3 of the very popular ***Great Lakes Watershed*** CD is now available. The Watershed CD is an all-purpose outreach tool for virtually anything one wants to know about the Great Lakes.

New content in Version 3 includes:

- all the State of the Great Lakes Reports and SOLEC 2002,
- the Great Lakes Binational Toxics Strategy and all Annual Progress Reports, and
- all the Lakewide Management Plans updates.

Continuing content includes:

- U.S. Areas of Concern Status,



Great Lakes Watershed CD table of contents

- Great Lakes Strategy 2002,
- Great Lakes Atlas,
- Great Lakes Photo Collection,
- Great Lakes Past/Future Slide Shows,
- Great Lakes Water Quality Agreement, and
- Great Lakes Watershed Facts and Links.

Copies of the CD are available by leaving a message on our Web Site at: http://www.epa.gov/glnpo/feedpp.html or by emailing Larry Brail at: brail.lawrence@epa.gov. (Contact: Tony Kizlauskas, 312-353-8773, kizlauskas.anthony@epa.gov)

We welcome your questions, comments or suggestions about this month's Significant Activities Report. To be added to or removed from the Email distribution of the Significant Activities Report, please contact Tony Kizlauskas, 312-353-8773, kizlauskas.anthony@epa.gov.