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

On the Web at:
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Toxics Reduction

2004 Toxics Reduction Report Online

The 2004 Annual Report of the Canada-U.S. Great Lakes Binational Toxics Strategy (GLBTS), *"A beyond compliance Strategy to virtually eliminate persistent toxic substances from the Great Lakes"*, is now available on the web at www.epa.gov/greatlakes/bns/index.html.

Great Lakes Binational Toxics Strategy logo

2004 saw continuing reductions in the twelve Level 1 priority pollutants (including mercury, PCBs, dioxins/furans, hexachlorobenzene, Benzo(a)Pyrene, octachlorostyrene, alkyl lead and cancelled pesticides) on both sides of the border. Of seventeen reduction goals set forth in the Strategy, ten have been met, three will be met by 2006, and the rest are well advanced toward their respective targets.

The 2004 report presents the latest pollution prevention and toxics reduction activities taking place under the GLBTS across the basin. Some examples include:

- The work of the American Dental Asso-ciation, in partnership with the Naval In-

CD on best management practices for dental mercury amalgam being distributed to dentists by the American Dental Association under a GLNPO grant

stitute for Dental and Biomedical Research, to develop and disseminate best management practices for dental mercury amalgam to dentists across the Great Lakes Basin;

- Ford Motor Company achieving a 79% phase-out of their PCB transformers globally in 2004, and committing to 95% phase-out by the end of 2006; and
- Activities of the Scrap Tire Pile Mitigation Support Project, led by USEPA, which has developed a scrap tire pile inventory, along with GIS mapping, and a training and outreach program to mitigate tire piles across the basin.

(Contact: Ted Smith, 312-353-6571, smith.edwin@epa.gov)

Great Lakes Binational Toxics Strategy Stakeholder Forum - May 17-18, 2005

A Great Lakes Binational Toxics Strategy (GLBTS) Forum and Substance Workgroup Meetings were held May 17th in Toronto, Ontario, Canada. The keynote speaker was Jim Abraham, Acting Regional Director General for the Ontario Region of Environment Canada (EC), who presented "A Competitiveness and Environmental Sustainability Framework - Transforming the Way We do Business" about the reorganization currently underway at EC. Substance Workgroups presented outcomes of the draft Level 1 Reassessment Reports, with the following draft recommendations to management:

Mercury:
- Continue Level 1 Status
- Continue Information Sharing
- Influence International Activities

PCBs:
- Continue Level 1 Status
- Continue Existing Programs
- Seek additional information on Sources and Pathways

Dioxins/Furans:
- Continue Level 1 Status
- Consider Qualitative Challenge Goals and Changes to Workgroup Membership

HCB/B(a)P:
- Continue Level 1 Status
- Combine B(a)P with other PAHs
- Focus on Sector Subgroups
- Improve Release Inventories

A GLBTS Integration Workgroup Meeting was held the next day. Agenda items included updates from the Substance Workgroups, a panel discussion on U.S. and Canadian emissions inventories, and a panel discussion on pollution prevention in two Canadian municipalities (Thunder Bay, Ontario and Severen Sound, Ontario).

Forum presentations, Substance Workgroup presentations, and Integration Workgroup presentations are posted on the GLBTS web-

site at http://www.epa.gov/greatlakes/p2.html. Minutes will be posted shortly.

(Contact: Ted Smith, 312-353-6571, smith.edwin@epa.gov)

Voluntary Mercury Stewardship Program by U.S. Chlor-alkali Factories

On May 13th, the Chlorine Institue released its 8th progress report on reducing mercury emissions and consumptive use at factories in the United States that employ mercury during production of chlorine and sodium hydroxide or potassium hydroxide. (Chlorine Institute reports are available at: http://www.epa.gov/Region5/air/mercury/reducing.html).

When this program started in 1996, it included 14 factories; with subsequent closure of five, nine factories continue to participate. The latest report indicates consumptive use has declined over a nine-year period by 92 percent. (The cumulative reduction at nine participating factories is 88 percent.) Consumption during 2003 was 38 tons, sharply reduced during 2004 to 14 tons. (For historical perspective, during 1990-1995, 14 factories averaged 160 tons per year in mercury consumption.)

Advancements include: enlarging the size of "decomposers" so as to reduce the frequency of need to open these components; installing better electrical current distribution equipment; improving the reliability and design of equipments. The Chlorine Institute report mentions technology enhancements underway at six factories.

In addition, one factory recently installed an analyzer that is positioned to monitor, on a continuous basis, potential mercury vapor emissions arising from production equipment. A second factory is in the process of installing such technology, while three more

Measuring mercury levels within a chlor-alkali facility (Photo courtesy of Environmental Sciences Division of Oak Ridge National Laboratory, U.S. Department of Energy)

factories are in latter stages of selecting a technology appropriate for their site specific conditions. It is expected that at least some of these mercury vapor monitoring systems will become operational during 2005. (This real-time information technology enables not only better measurement of mercury emissions, but also enables factory staff to promptly locate and remedy emergent emissions.)

In its 8th report, Chlorine Institute members pledged to further reduce consumptive use of mercury during the manufacturing process; and develop methods at each factory to more accurately measure mercury air emissions; and further reduce air emissions from two stack systems by as much as 93 percent by fully complying with a recent USEPA air

regulation.

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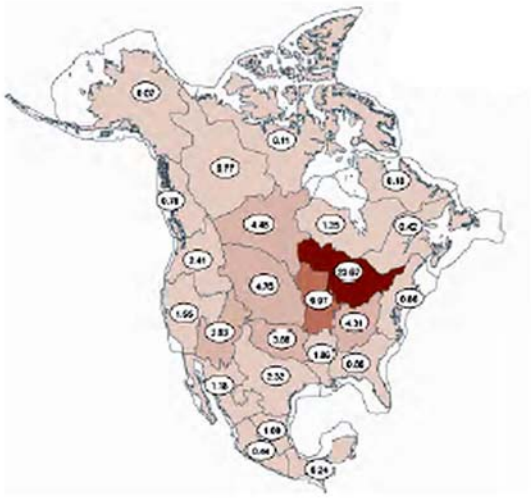
Outreach

GLNPO Scientists Speak at Scientific Meetings

GLNPO scientists gave two presentations related to the Great Lakes Binational Toxics Strategy at the Annual Meeting of the International Association for Great Lakes Research (IAGLR) on May 25th, in Ann Arbor, Michigan. Todd Nettesheim presented the outcomes of a modeling study undertaken by the Department of Energy Lawrence Berkeley National Laboratory under an interagency agreement with GLNPO. In this modeling study, two multimedia mass-balance models were applied based on the Berkeley-Trent (BETR) model framework to calculate the efficiency of atmospheric transport and deposition to the Lakes for emissions of the Level 1 substances in different regions of North America and globally. The modeled results allow the Level I substances to be categorized as local, continental or global-scale management problems. Where emission inventories were available, the model calculations were used to estimate the contribution of emissions in different locations to atmospheric deposition fluxes to the Lakes. Using individual PCB congeners as a case study, they found evidence that the contribution of global sources to the depositional flux of PCBs to the Lakes is increasing, but that local and continental sources still dominate total loadings to the Lakes.

(Contact: Todd Nettesheim, 312-353-9153, nettesheim.todd@epa.gov)

Ted Smith presented an overview of the draft mercury and PCB Great Lakes Binational Toxics Strategy reassessment reports (see earlier article in this issue), focusing on the environmental analysis, including sources, risk-based criteria, concentrations of the chemicals in Great Lakes biota and media, and overall trends. Both mercury and PCBs are widely measured and tracked in the Great Lakes. Conclusions for mercury include the following:



Sample output from model showing relative contributions to deposition of a Level 1 substance on the Great Lakes from near and distant sources

- There are exceedences for mercury in Great Lakes fish, open water, sediments, and blood levels in women.
- Levels of mercury in the environment have declined over the past 30 years in fish, gull eggs, and sediment cores.
- Most of the decline occurred early on, shorter term trends (i.e., 1990's to present) are less clear.
- While U.S. Inventories indicate 40% decline between 1990 and 2000, data show no decrease in deposition between 1995 and 2003 – possible offsets by global emissions.

Conclusions for PCBs include the following:

- There are exceedences for PCBs in fish, sediments and water.

- PCBs in fish tissue, herring gull eggs, and bivalves have generally been decreasing, although some changes are lake-specific or species/community-specific.
- Water and sediment monitoring programs support a general trend of decreasing PCBs over time.
- PCBs in the air collected from rural areas near each of the Great Lakes have generally declined, but some localized hotspots (e.g., the Chicago plume) and unexplained increases have also been observed.

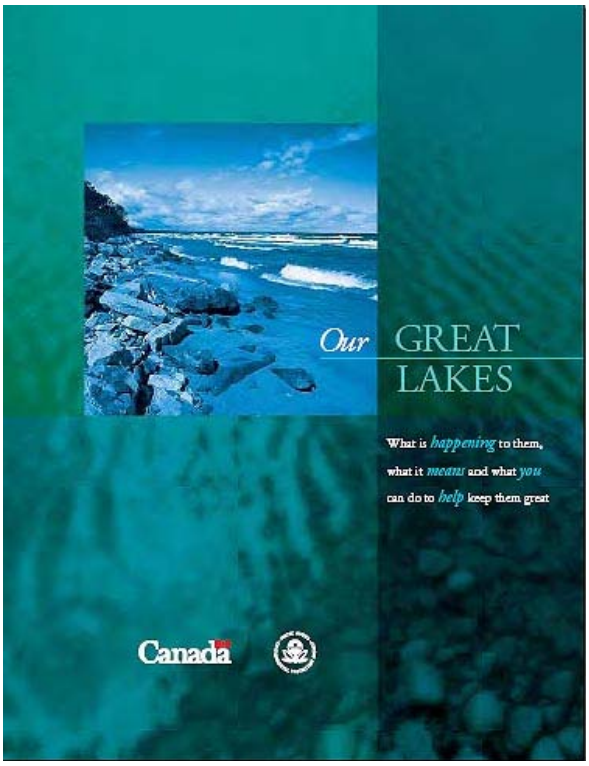
(Contact: Ted Smith, 312-353-6571, smith.edwin@epa.gov)

On May 13th, Marc Tuchman made a presentation on the Great Lakes Legacy Act to the Midwest Chapter of the Society of Toxicology. The presentation was part of a special session on Great Lakes Issues of Concern.

(Contact: Marc Tuchman, 312-353-1369, tuchman.marc@epa.gov)

U.S. and Canada Release Plain Language Version of Great Lakes Report

USEPA and Environment Canada released ***Our Great Lakes***, a 25-page booklet that addresses the state of the Great Lakes, what is being done to restore and protect them and practical ways in which everyone can help keep the lakes cleaner and healthier. It is a simplified version of the scientific ***2003 State of the Great Lakes*** report that summarized information presented at the 2002 State of the Lakes Ecosystem conference. ***Our Great Lakes*** debuted on May 26th at the International Association of Great Lakes and St. Lawrence Mayors' Conference in Quebec City, Canada.



Cover of ***Our Great Lakes*** a plain-language report on the condition of the Great Lakes

Our Great Lakes focuses on six key questions:

1. Can we drink the water?
2. Can we swim at the beach?
3. Can we eat the fish?
4. How are the fish doing?
5. How is the wildlife doing?
6. How are non-native species affecting the Great Lakes?

The report is available online at www.binational.net or a print version can be ordered by contacting Lawrence Brail at (312) 353-8547 or brail.lawrence@epa.gov.

(Contact: Tony Kizlauskas, 312-353-8773, kizlauskas.anthony@epa.gov)

Educators' Workshop Aboard *R/V Lake Guardian*

An educators' workshop was held in Lake Michigan offshore of Chicago, Illinois on-board GLNPO's 180-foot research ship *R/V Lake Guardian* on May 6th. Staff from GLNPO, partnered with the Illinois EPA and the Illinois Department of Natural Resources ENTICE (Environment and Nature Training Institute for Conservation Education) program to conduct the workshop. During the workshop, twenty educators of grades 4 to 6 learned about the ecology of Lake Michigan. The instructors conducted hands-on water and sediment sampling activities, demonstrated invasive species laboratory and classroom activities, and gave presentations. Participants received supplemental educational materials including the ***Great Lakes Environmental Atlas and Resource Book*** and ***Great Minds, Great Lakes***.

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Legacy Act/Areas of Concern

St. Louis River AOC Legacy Act Project Planning Meeting

On May 25th and 26th, GLNPO's Scott Cieniawski traveled to Duluth, Minnesota to meet with representatives from the U.S. Army Corps of Engineers, the Minnesota Pollution Control Agency (MPCA) and the Minnesota Department of Natural Resources (MDNR) to coordinate efforts on sediment remediation in the St. Louis River Area of Concern (AOC). The agencies are attempting to leverage remedial work being performed at the St. Louis River Interlake/Dultuh Tar Superfund site to complete other sediment remediation and sediment assessment projects within the AOC. The projects identified included: sediment remediation of Minnesota Slip; sediment assessment and remedial planning at Slip C, 21st Avenue West Channel, Dakota Pier, and Riverside Marina. MPCA also agreed to talk with the Wisconsin Department of Natural Resources to determine if there are additional sites in Wisconsin requiring assessment and remediation support. Finally, the agencies made progress regarding the potential use of the Erie Pier confined disposal facility for receipt of dredged sediments from Minnesota Slip.

Grassy Point wetland on the St. Louis River, Mn
(Photo courtesy of P. Collins)

(Contact: Scott Cieniawski, 312-353-9184, cieniawski.scott@epa.gov)

***R/V Mudpuppy* Sampling on the Ottawa River, Ohio**

From May 2nd to 17th, GLNPO's dedicated sediment sampling boat, the *R/V Mudpuppy* was in Toledo, Ohio to collect sediment core samples on the Ottawa River in the Maumee River Area of Concern. The *Mudpuppy* crew collected 136 sediment cores in the "Lagrange Reach" (between Stickney and Lagrange Avenues) of the Ottawa River. The cores were transferred to shore for processing by Ohio EPA, Tetra Tech, and Hull & Associates representatives using the Ohio EPA field trailer. Approximately 330 samples will be analyzed by Severn Trent Laboratories for PCBs, PAHs, and lead. Results of the laboratory analysis are expected by the end of June. The data will be used to refine remedial

boundaries and to generate mass and volume of contaminated sediments for potential remediation under the Great Lakes Legacy Act.

(Contact: Mary Beth G. Ross, 312-886-2253, ross.marybeth@epa.gov).

Press Event on the Ottawa River, Ohio
On May 6th, GLNPO's David Cowgill attended a press event coordinated by the Toledo Metropolitan Area Council of Governments (TMACOG) to celebrate the continuing progress being made to make the Ottawa River cleaner and safer. The event was held on the shore of the Ottawa River, at the site of the 1997 Unnamed Tributary sediment remediation project. Anthony Reams, TMACOG President, and Kenneth Fallows, TMACOG Chair, invited Congresswoman Marcy Kaptur and Toledo Mayor Jack Ford to speak at the event. Representatives of Senator Voinovich's office, the Ohio EPA, the City of Toledo, U.S. EPA, TMACOG, Hull & Associates, an Ohio State Representative, and a City Councilman also attended and answered questions. All participants voiced strong support for finding a remedial solution for the Ottawa River and thanked USEPA for bringing the *R/V Mudpuppy* out to help.

(Contacts: David Cowgill, 312-353-3576, cowgill.david@epa.gov; Mary Beth G. Ross, 312-886-2253, ross.marybeth@epa.gov)

Presque Isle Bay Delisting Target Workshop
On May 10th to 12th, Scott Ireland attended a workshop at Gannon University in Erie, Pennsylvania to support the establishment of delisting targets for the Presque Isle Bay Area of Concern (PIB AOC). Workshop attendees included members of PIB AOC Sediment Sub-committee and representatives of the national Science Advisory Group on

A November storm roils the waters of Lake Erie at Presque Isle State Park, Pennsylvania
(Photo courtesy of NOAA Great Lakes Sea Grant)

Sediment Quality Assessment. The purpose of the workshop was to assess the status and trends of sediment quality conditions in PIB AOC, and identify delisting targets that can be used to determine when sediment quality conditions have improved sufficiently to justify petitioning for delisting of PIB as a Great Lakes AOC. The delisting targets will also provide a basis for designing a long-term monitoring program that will provide the data required to assess trends in sediment quality conditions and to support future sediment management decisions in Presque Isle Bay.

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Monitoring

International Field Years on Lake Erie Project Begins
Great Lakes scientists from the United States and Canada are using 90 days of shiptime aboard USEPA GLNPO's *R/V Lake Guardian* for a survey of harmful algae and dissolved oxygen in Lake Erie as part of the International Field Years on Lake Erie (IFYLE) project. The first survey got underway on May 11th, when the *Lake Guardian*

departed from Monroe, Michigan.

A full basin survey will be undertaken during this two-year project. The overall goals of the IFYLE 2005 sampling program are to:

1. Examine the causes and consequences of low-oxygen events,
2. Evaluate how lake physics and food webs affect fish production, and
3. Examine the distribution and timing of harmful algal blooms in Lake Erie.

The ultimate application of this research is to develop forecasts of anoxia, harmful algal blooms and fish production that can aid decision-makers. Sampling will continue through mid-October. The IFYLE project is led by the National Oceanic and Atmospheric Administration's Great Lakes Environmental Research Laboratory (GLERL). Two major partners in the effort are the USEPA's GLNPO and the National Sea Grant College Program. More than 15 universities from seven states and Canada are involved, as well as other Great Lakes programs and partners. This program builds upon an intensive, international study funded by GLNPO and the Canadian Centre for Inland Waters conducted from 2002- 2004 to determine the cause of the oxygen depletion in the central basin of Lake Erie and the impacts of zebra mussels on Lake Erie.

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Lake Ontario Air Deposition Study Data Workshop

GLNPO staff participated in a Lake Ontario Air Deposition Study (LOADS) data workshop held in Oswego, New York on May 12th and 13th along with representatives from USEPA Region 2, Clarkson University, State University of New York (SUNY) Oswego,

Lake Erie on May 11, 2005 from the TERRA Satellite
(Photo courtesy of NASA)

SUNY Fredonia, SUNY Buffalo, and the New England Interstate Water Pollution Control Commission. The study's Principal Investigators presented the preliminary results of field work performed in 2002 through 2004 aboard USEPA GLNPO's research ship *R/V Lake Guardian* and at land-based monitoring stations in Sterling and Rochester, New York. The data collected in this study will be used to provide atmospheric load estimates of mercury, PCBs, dioxins/furans, mirex, DDE and HCB to Lake Ontario that will be used in the Lake Ontario Mass Balance Model. The data will also be used to identify suspected source regions that may be adversely impacting Lake Ontario. The Principal Investigators expect to deliver the study's final report by the end of 2005.

(Contact: Todd Nettesheim, 312-353-9153, nettesheim.todd@epa.gov)

Upcoming Events

2005	
July 7th	Great Lakes Regional Collaboration Summit I, Duluth, Minnesota
September 15th	Great Lakes Binational Toxics Strategy Integration Workgroup, Chicago, Illinois
November 2nd-4th	State of Lake Michigan Conference, Green Bay, Wisconsin
December 6th-7th	Great Lakes Binational Toxics Strategy Stakeholder Forum and Integration Workgroup, Chicago, Illinois
December 12th	Great Lakes Regional Collaboration Summit II, Chicago, Illinois

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.