Great Lakes National Program Office

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

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IN THIS ISSUE:

Wetlands Efforts On Track

The goal of the Great Lakes Coastal Wetlands Consortium is to develop indicators and a long-term coastal wetland monitoring program. The Consortium is funded through a cooperative agreement between GLNPO and the Great Lakes Commission, in partnership with a binational group of agencies and organizations. On May 12th to 14th, the Consortium's Program Management Team met in Port Rowan, Ontario on the North Shore of Lake Erie to discuss the results from Year One Consortium-sponsored field studies.

Presentations included:

- Examinations of indicators across several wetland types by Cornell University in the Lake Ontario basin, Kent State University and the Cleveland Museum of Natural History in the Lake Erie basin, and Environment Canada and the Canadian Wildlife Service on the Canadian side of the Lake Ontario basin.
- Bird Studies Canada coordinated the collection of bird and amphibian data for all the teams in the study and conducted a basin-wide analysis of the data.
- The possibility of developing indices of biotic integrity for birds and amphibians was examined.
- Site-specific analyses of the full range of

Wetlands Scientist at Work in the Field

Wetland Area on Saginaw Bay, Lake Huron

indicators at a wetland site in the Lake Erie basin was also conducted.

- A team of Grand Valley State and Michigan State University researchers evaluated a broad range of indicators at numerous sites in the Lake Michigan and Lake Huron basins. They built upon previous work and refined the development of indices of biotic integrity for plants and invertebrates.
- Finally, a U.S. Geological Survey team conducted a thorough examination of all Consortium indicators at a protected embayment of Arcadia Lake on Lake Michigan.

Year Two Consortium activities were also discussed. Several sub-grants and contracts are funding landscape-level indicator work this summer. Information about this meeting, the full final reports of the six Year One studies, and other information about Great Lakes Coastal Wetlands Consortium activities can be found at http://www.glc.org/wetlands.

Then on May 14th and 15th, wetland experts from the United States and Canada met in Ann Arbor, Michigan to finalize a Great Lakes coastal wetland classification scheme that will be applicable to all of the coastal wetlands in the Great Lakes basin. This classification will be used to design an international monitoring plan for Great Lakes coastal wetlands and is one of the products of the Great Lakes Coastal Wetlands Consortium.
(Contacts: Dr. John Schneider, 312-886-0880, schneider.john@epa.gov; or Karen Rodriguez, 312-353-2690, rodriguez.karen@epa.gov; or)

Know Your Wetlands

Following up on the May meeting of Great Lakes coastal wetlands classification experts (see previous article), the Great Lakes Coastal Wetlands Consortium refined the coastal wetlands classification system as follows:

Lacustrine: Controlled directly by waters of the Great Lakes and strongly affected by lake-level fluctuations, nearshore currents, seiches, and ice scour.

- Open lacustrine: directly exposed to nearshore processes with little or no physical protection by geomorphic features. This exposure results in little accumulation of organic sediment, limiting vegetation development to relatively narrow nearshore bands. Exposure to nearshore processes results in variable bathymetry, ranging from relatively steep profiles to more shallow sloping beaches.
- Protected lacustrine: Characterized by increased protection by bay or sand-spit for-

Open Lacustrine: Search Bay, Lake Huron

Drowned River Mouth: Salmon River, Lake Ontario

mation. This protection results in increased organic sediment accumulation, a shallower off-shore profile, and more extensive emergent vegetation development than an Open Lacustrine form.

Riverine Wetlands : Occur in rivers or creeks that flow into or between the Great Lakes. The water quality, flow rate and sediment input in the wetland is controlled in large part by its drainage. Water level and fluvial processes in the wetland are also influenced by the Great Lakes because lake waters flood back into the lower portions of the drainage system.

- Drowned river mouth: Water chemistry of drowned river mouths can be affected by both the Great Lakes and river water, depending on Great Lakes water levels, season, and amount of precipitation. Typically have deep organic soils accumulated due to deposition of watershed-based silt loads and protection from coastal processes.
- Connecting channel: Located within a large connecting river between the Great Lakes; the St. Marys, St. Clair, Detroit, Niagara, and St. Lawrence Rivers. The wetlands are distinctive from the other riverine wetland types (drowned river mouth) because of their general lack of deep organic soils and their often strong currents.
- Delta: Formed of alluvial materials, both fine and coarse, and extend out into the Great Lake or connecting river. These wetlands are extensive, typically with 30 to 100 cm of organic soils associated with the wet meadow zone, and often with deep organics occupying abandoned distributary channels and inter-distributary bays.

Barrier Protected: Originated from either coastal or fluvial processes. Due to coastal processes, these wetlands have become separated from the Great Lakes by barrier beaches or beach ridges. They are protected from wave action but may be connected directly to the lake by a channel crossing the barrier. When connected to the lake, the water level in the wetland is determined by lake levels, but tempered by the rate of flow through the inlet. During isolation from the lake, groundwater and surface drainage to the basin of the individual wetland provides the dominant source of water input, although lake level may influence groundwater flow and, hence, wetland water level. Inlets to protected wetlands may be permanent or ephemeral due to nearshore processes that can close off the inlet from the lake.

- Barrier beach lagoon: Form behind sand barriers. There is reduced mixing of Great Lakes waters and the exclusion of coastal processes within the wetlands due to the barrier. Multiple lagoons can form, and water discharge from upland areas and incoming drainages may also contribute significantly to the water supply. The wetland

Swale Complex: Stockton Island, Lake Superior

typically contains thick organic soils.

- Swale complex: System wetland that occurs between swale complexes formed between recurved fingers of sand spits or relict beach ridges. Ridge and swale complexes are composed of a series of barrier beaches separated by narrow swales. Typically only the first couple of swales are directly connected to the lake and groundwater supplies water to swales further from the lake. Organic soil depths are quite variable, as is the vegetation, which can range from herbaceous to swamp forest.

(Contact: Karen Rodriguez, 312-353-2690, rodriguez.karen@epa.gov)

Lake Erie Oxygen Studies

Lake Erie Dissolved Oxygen studies continued this Summer. Surveys of the Central Basin of Lake Erie were undertaken on June 5th and 6th, on June 27th and 28th, and on July 18th and 19th to measure dissolved oxygen levels there. The broad, shallow Central Basin is where the so called "Dead Zone" develops in Lake Erie. This is the part of the Lake where dissolved oxygen levels in the bottom waters decrease through the Summer to near zero.

Measurements were made at ten sampling sites during each survey. As in 2002, Lake Erie stratified late in the Spring (the water column was not stratified at approximately one-half the stations during the early June survey). By mid-July, significant decreases in dissolved oxygen concentrations were observed throughout the Central Basin, similar to that seen in recent years. Additional surveys will be conducted during August and September to track the rate of oxygen depletion.

During this year's dissolved oxygen surveys, scientists who studied the situation in

GLNPO Intern, Christyanne Melendez, Prepares Water Sampler for Deployment in Lake Erie Dissolved Oxygen Survey

Lake Erie during 2002 have an opportunity to conduct additional studies. In early July, Dr. Hunter Carrick, a professor at Pennsylvania State University, and his students collected water and plankton samples to help evaluate the contribution of algal communities to the observed oxygen concentrations.

To learn more about Lake Erie's dissolved oxygen problems, go to: http://www.epa.gov/glnpo/lakeerie/eriedeadzone.html. (Contact: Paul Bertram, 312-353-0153, bertram.paul@epa.gov)

LOADS: Year 2

USEPA Region 2 and GLNPO scientists joined researchers from USEPA's Office of Research and Development, Clarkson Uni-

Scientist Puts Out Sampling Plates at the Bow of the *R/V Lake Guardian* to Collect Dry Atmospheric Deposition (Dust Particles)

versity, and the State University of New York's Oswego and Fredonia campuses to study air pollution levels over Lake Ontario aboard GLNPO's 180-foot research ship, the *R/V Lake Guardian*. The team collected air deposition and concentration samples over 16- to 24-hour periods as well as water samples to study how toxic materials such as PCBs, dioxins, pesticides and mercury find their way into the lake through the air. The Lake Ontario Air Deposition Study began in 2002 with two cruises (Spring and Fall). Canada has contributed scientific expertise and equipment to the study. Findings from the binational LOADS study will help USEPA and its partners on both sides of the border further reduce toxic pollutants in the Great Lakes, which are already cleaner than they have been in decades.
(Contact: Bob Kelly, 212-637-3709, kelly.bob@epamail.epa.gov; or Todd Nettesheim, 312-353-9153, nettesheim.todd@epa.gov)

2002 Sediment Cleanup Tally

In 2002, over 180,000 cubic yards of contaminated sediments were remediated from five U.S. sites in the Great Lakes Basin. These sites were:

- U.S.S. Lead Refinery, Inc. in East Chicago, Indiana;
- Ten Mile Storm Drainage System PCB Spill Site in St. Clair Shores, Michigan;
- U.S. Steel – Gary Works in Gary, Indiana;
- Moss-American Site in Milwaukee, Wisconsin;
- Pine River in St. Louis, Michigan; and
- Tannery Bay in White Lake, Michigan.

The Pine River cleanup was in its fourth year of operation. Remediation projects at the rest of the sites were begun in 2002. Several of these projects are expected to continue into 2003.
(Contact: Marc Tuchman, 312-353-1369, tuchman.marc@epa.gov)

Ten Mile Drain PCB Spill Cleanup Underway in St. Clair Shores, Michigan

Sediment Results Reported

GLNPO recently completed a summary report on the results of sediment sampling on the **Chicago River**, Chicago, Illinois. The sediment sampling took place in October 2000 and August 2002. The report shows elevated concentrations of PAHs, PCBs, and heavy metals throughout the Chicago River and recommends additional, follow-up sampling in several areas of the river, including the North Avenue turning basin. One of the conclusions of the report is that, while still contaminated, the surficial (more recent) sediments are significantly less contaminated than the deeper (older) sediments. This indicates that the highest levels of con-

GLNPO's *R/V Mudpuppy* Travels to Next Sediment Sampling Location on Chicago River, Illinois

tamination may be from past sources. An electronic copy of the report is available by contacting Scott Cieniawski by phone at: 312-353-9184, or by Email at: cieniawski.scott@epa.gov.

On June 26th, GLNPO's Scott Cieniawski traveled to Monroe, Michigan to give a presentation to the Raisin River Remedial Action Plan (RAP) Committee on the results of an October 2001 sediment sampling survey in the **Raisin River** Area of Concern (AOC). That study found continued, widespread PCB contamination of the sediments, including sediments in the area remediated under a 1997 Superfund emergency removal action. Bioaccumulation tests and caged fish testing indicate the potential for bioaccumulation of PCBs. Representatives from the Michigan Department of Environmental Quality (MDEQ) also attended the meeting to present the State's proposal for cleaning up contaminated sediments in the Raisin River AOC. The MDEQ proposal is available in the report entitled "Remedial Alternatives Evaluation, Raisin River 307 Site, Monroe, Michigan."

On July 17th, Mr. Cieniawski spoke to the Waukegan Harbor Citizens Action Group on the status of efforts to remediate PCB contaminated sediments in the **Waukegan Harbor AOC**. The presentation focused on summarizing the extent of contamination in the harbor, as well as discussing the efforts by USEPA and the U.S. Army Corps of Engineers to address the contaminated sediments. The federal agencies are coordinating with state and local groups to address the contamination through a variety of funding authorities, including the Corps' Water Resources Development Act authority and GLNPO's new Great Lakes Legacy Act authority (for more information on the Legacy Act, see the February 2003 Significant Activities Report). The meeting also gave USEPA an opportunity to discuss current work activities at the site. GLNPO and Region 5 Superfund have retained a consultant, CH2M Hill, to develop a Remedial Alternatives Evaluation/Data Gaps Analysis report. This report will perform a preliminary evaluation of potential alternatives for cleaning up the sediments, as well as identify gaps in the current data that need to be addressed prior to making a final remedial decision. A draft report is expected in September 2003.
(Contact: Scott Cieniawski, 312-353-9184, cieniawski.scott@epa.gov).

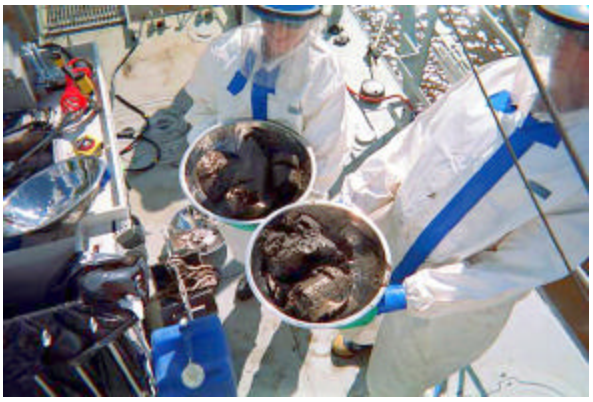
Buffalo River Probed

From July 7th to 10th, GLNPO's specially-outfitted sediment sampling boat, the *R/V Mudpuppy* collected sediment samples from the Buffalo River in Buffalo, New York. The sampling was conducted as part of a collaborative effort between GLNPO, USEPA Region 2, and the State University of New York at Buffalo as part of a GLNPO grant (GL975074-01) awarded to the University in FY2002. The *Mudpuppy* was used to collect approximately 15 cores that will be analyzed for PCBs, PAHs, and metals. The data obtained will be used to prioritize

areas of sediment contamination for remedial actions outside of the navigation channel in the Buffalo River system. (Contact: Marc Tuchman, 312-353-1369, tuchman.marc@epa.gov).

Saginaw Dioxin Studies

On May 3rd and 4th, GLNPO's sediment survey vessel, the *R/V Mudpuppy*, visited Saginaw, Michigan to collect sediment samples in the Saginaw River watershed near Saginaw, Michigan. The field crew collected a series of sediment cores from the watershed for laboratory analysis for dioxins, furans, and total organic carbon. The main purpose of the sampling was to collect preliminary data characterizing the horizontal and vertical extent of dioxin/furan contamination in the Saginaw, Cass, and Shiawassee Rivers' sediments, downstream of the confluence of the Tittabawassee and Saginaw Rivers. Sampling was coordinated with the U.S. Fish and Wildlife Service, the Michigan Department of Environmental Quality, and the U.S. Army Corps of Engineers. Results of the laboratory analysis are expected by the end of August 2003. (Contact: Scott Cieniawski, 312-353-9184, cieniawski.scott@epa.gov)



Scientists Hold Collected Sediment Core Sections Before Placing into Sample Jars

Chicago Hosts International Conference

The 46th annual conference of the International Association for Great Lakes Research was held at DePaul University in Chicago from June 22nd to 26th. This year's Great Lakes Conference was held jointly with the International Lake Environment Committee's 10th World Lakes Conference. The theme for the joint conferences was: "Global Threats to Large Lakes: Managing in an Environment of Instability and Unpredictability."

Over 700 people attended the conference which included 45 technical sessions. GLNPO scientists were heavily involved in the conference, chairing sessions, presenting papers, presenting posters, and assisting in overall conference organization.

Specific sessions chaired by GLNPO included:

- Using indicators to assess Great Lakes ecosystem health;
- Lake Michigan Mass Balance results and implications;
- Toxic and nutrient loadings to the Great Lakes and other large lakes; and
- Status and trends of planktonic communities in the Laurentian Great Lakes and beyond.

The subjects of papers presented by GLNPO scientists included:

- Quality Assurance, organics, and mercury monitoring in the Lake Michigan Mass Balance Study;
- Great Lakes Binational Toxics Strategy and emerging chemicals of concern in the Great Lakes;
- Ranking critical ecological areas in the Great Lakes basin;
- Beach monitoring;

- Fish contaminant monitoring;
- Great Lakes zooplankton; and
- Contaminated sediments.

The conference was partially supported by a grant from GLNPO and was held in conjunction with the International Lake Environment Committee. For more information on the International Lake Environment Committee, see: http://www.ilec.or.jp/eg/index.html. From this web site, one can access a database of lakes from all over the world.
(Contact: Marc Tuchman, 312-353-1369, tuchman.marc@epa.gov)

Greening the Government

GLNPO's Danielle Green spoke on "Sustainable Landscaping" at the "Greening the Government Conference" in Philadelphia, Pennsylvania. Her presentation focused on ways to reduce pollution and save money by managing lands using native plants. USEPA Regions 1, 2, and 3 co-sponsored this first in the nation conference for Federal Facilities, Tribes, and state and local government agencies. This two and a half day conference provided a forum for learning about Green programs, tools, and successful case studies from both the government and private sectors. The conference included presentations on topics such as Green Buildings and Green Purchasing and Energy Conservation. Current Executive Orders encourage the use of native plants in landscaping federal lands.
(Contact: Danielle Green 312-886-7594, green.danielle@epa.gov)

Example of Sustainable Landscaping Using Native Plants

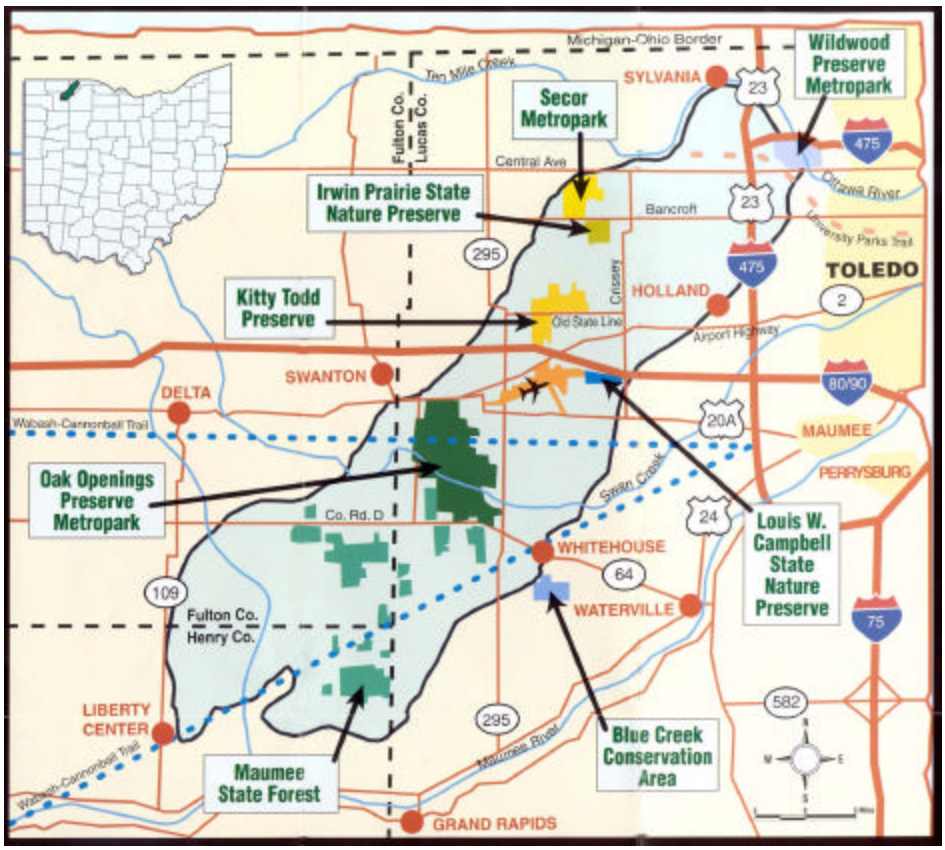
Oak Openings: "One of America's Last Great Places"

Funded by a GLNPO grant, The Nature Conservancy:

- Developed a marketing and outreach campaign which evaluated the awareness and knowledge level of local residents regarding the Oak Openings;
- Developed a professional marketing strategy and campaign to inform and engage local residents on the importance of the Oak Openings as a unique natural area;
- Implemented an Oak Openings marketing campaign;
- Conducted a market evaluation to gauge effectiveness of the campaign; and
- Restored three small sites as visual examples of the messages disseminated through the marketing campaign.

As a result of this project, the Oak Openings Region Green Ribbon Initiative was created. This is a community-based effort to preserve an additional 6,000 acres of habitat within the region. Initiative supporters in addition to The Nature Conservancy include: Metroparks for the Toledo Area, the Black Swamp Conservancy, Oak Openings Region Preservation Alliance, and the Ohio Department of Natural Resources. A local advocacy group, Oak Openings Region Preservation Alliance, was also formed as a result of the project. This group created a signage program and installed road signs throughout the region to inform motorists when they are entering the Oak Openings Region. One possible indirect impact of the campaign was the successful passage of the

Metroparks of the Toledo Area's $19 million land acquisition levy in the fall of 2002. Although the Oak Openings campaign was not connected to the levy campaign, it passed with 61% in favor, and it is reasonable to assume the marketing strategy to inform residents about the Oak Openings helped them visualize what acquisition dollars would be used to purchase.



Map of the Oak Openings Region in Ohio

TNC designated Oak Openings region as "One of America's Last Great Places." To learn more about the Oak Openings, please visit: http://oakopen.org/ (Contact: Karen Rodriguez, 312-353-2690, rodriguez.karen@epa.gov)

Legislators Focus on Great Lakes

Last year, Congress passed the Great Lakes Legacy Act of 2002, which provides for a multi-year, multi-million dollar program to clean up contaminated sediments in U.S. Great Lakes Areas of Concern. For more information on the Legacy Act, see the February 2003 Significant Activities Report.

This year, responding to recommendations in an April 2003 report (http://www.gao.gov/new.items/d03515.pdf) by the United States General Accounting Office, legislators have introduced several significant pieces of Great Lakes legislation:

The Senate and House introduced Bills calling for increased monitoring on the Great Lakes (Senate Bill 1116, introduced on May 22nd and House of Representatives Bill 2668, introduced on July 8th).

On July 14th, the House and Senate both introduced bills calling for funding restoration efforts in the Great Lakes (House Bill 2720, Senate Bill 1398).

On July 16th, the U.S. Senate Committee on Governmental Affairs Subcommittee on Oversight of Government Management, the Federal Workforce, and the District of Columbia held hearings on Great Lakes Restoration Management. The Honorable George Voinovich, United States Senator, chaired

the hearing. Witnesses testified in 3 panels:

Panel 1:
- The Honorable Mike DeWine, United States Senator
- The Honorable Carl Levin, United States Senator

Panel 2:
- John Stephenson, Director of Natural Resources and Environment Issues, United States General Accounting Office
- Robyn Thorson, Region III Director, U.S. Fish and Wildlife Service
- Thomas Skinner, Region 5 Administrator and Great Lakes National Program Manager, U.S. Environmental Protection Agency
- Colonel William E. Ryan, III, Deputy Commander, Great Lakes Ohio River Division, U.S. Army Corps of Engineers
- Timothy Keeney, Deputy Assistant Secretary, National Oceanic and Atmospheric Administration

Panel 3:
- The Honorable Dennis L. Schornack, Chairman, United States Section, International Joint Commission
- The Honorable Susan Garrett, Illinois State Senator, District 29
- Chris Jones, Director, Environmental Protection Agency, State of Ohio on behalf of the Council of Great Lakes Governors
- Margaret Wooster, Executive Director, Great Lakes United

The witnesses' written statements are available at: http://govt-aff.senate.gov/index.cfm?Fuseaction=Hearings.Detail&HearingID=98

(The General Accounting Office is Congress' investigative, evaluation, and audit arm which probes issues at the request of the U.S. Congress.)
(Contact: Gary Gulezian, 312-886-4040, gulezian.gary@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.