

GREAT LAKES PROTECTION FUND



2002 ANNUAL REPORT

In 1989, the Governors of the Great Lakes states created the Protection Fund to help them protect and restore their shared natural resources. The Fund is the first endowment created to benefit a specific ecosystem. It is designed to support the creative work of collaborative teams that test new ideas, take risks, and share what they have learned. It is a source of support for groups that value innovation and entrepreneurship, learn by doing, and focus on tangible benefits for the Great Lakes ecosystem. Seven Great Lakes states have contributed \$81 million to the Fund's permanent endowment. The endowment is invested to produce income to support regional projects and for member states to use in support of their Great Lakes priorities.

**The mission of the Great Lakes Protection Fund
is to identify, demonstrate, and promote regional action to
enhance the health of the Great Lakes ecosystem.**

The Fund makes grants, loans, and program related investments to accomplish its mission. It relies on the advice of independent, technical experts to shape programming and review individual requests for support. From its inception through December 2002, the Fund made a total 191 grants and program-related investments, representing a \$40.6 million commitment to protecting and restoring the ecological health of the Great Lakes ecosystem. Additionally, the Fund has returned more than \$31.3 million to its seven member states to support their Great Lakes priorities.

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THE GOVERNORS OF THE GREAT LAKES STATES created the Great Lakes Protection Fund to support efforts that protect and restore the ecological health of the Great Lakes. The Fund invests in regional projects that are innovative, action-oriented, collaborative, and result in tangible benefits to the health and integrity

of the Great Lakes. At the end of calendar year 2002, the Fund had four major categories of investment in its regional project portfolio. These categories included projects that: prevent biological pollution, restore natural flow regimes, create markets for environmental improvement, and support leadership initiatives in Great Lakes restoration.

During 2002, Fund grantees continued to improve ecosystem health by restoring natural flows in Great Lakes tributaries, wetlands, and lakes; exploring how Great Lakes water use may impact the basin's

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water-dependent natural resources; evaluating new technologies to keep Great Lakes open to world commerce but closed to exotic species; and testing new markets for ecological services. New projects were added to support the Governors' commitment to create a new, innovative, resource-based water conservation standard; to prevent ecological problems; and to restore the health of the Great Lakes ecosystem.

THE LAKES are physically connected to the Mississippi River drainage and the Hudson River drainage through canal systems constructed more than 100 years ago. The canals serve as corridors that link the biota in these very different watersheds. The Lakes are also virtually connected – biologically through transportation systems – to most of the major ports in the world by the ballast tanks and hulls of ocean going vessels. These physical connections, and the biological connections they imply, link the ecosystem to nearby places, such as Arkansas and Mississippi, as well as far away ports on the Baltic and Black seas.

The Great Lakes are increasingly important in the global economic system. The largest brewery in the basin is British-owned and trades on the London Stock exchange. The third largest auto manufacturer in the United States, with a significant

number of manufacturing facilities in the basin, is now a German firm. The companies that buy grain that leaves the basin on ocean-going vessels are foreign-owned, as are the manufacturers of the steel that arrives on the return trips of those same vessels. The Great Lakes are being bottled, captured as product, and used to carry goods to support a range of economic returns both foreign and domestic. The fact that they contain nearly 20% of the fresh surface water on the planet will not escape the thirsty regions of the world.

As the region continues to make progress correcting the ecological damage inflicted on the Lakes from more or less local sources, its leaders are turning their attention to how the Lakes should be managed given their role in the global economic /ecologic system.



In recognition of the connections and to maintain their authority over the water resources of the basin, the region's governors and premiers have stated their intention to revise the system by which they manage the ecosystem's water. In June 2001, they signed a supplementary agreement to the Great Lakes Charter of 1985, known as Annex 2001, which

commits the governors and premiers to overhaul the standard by which water use decisions are evaluated and upgrades the mechanism used to enforce that standard.

The new decision-making standard will be based on the relationship of water uses to the health of the basin's natural resources.

IN 2002, the Great Lakes Protection Fund awarded more than \$2.3 million in grants to support a portfolio of eight projects related to Annex 2001. The Fund sought short-term projects designed to build technical tools, test various decision-making processes, and provide tangible examples of improvements – projects that link likely future uses of the basin’s waters to opportunities to improve the health of the basin’s water-dependent natural resources. Overall, the Fund has awarded more than \$5 million in grants to support the commitments made by the Governors and Premiers in Annex 2001.

Three case-study projects will each produce teaching cases that will allow others to evaluate specific water use situations that will need to be considered by the system developed under the Annex, and a synthesis that showcases the new tools and approaches that each team creates. The teams funded in these

case studies will explore and identify approaches that will meet new water needs while protecting and enhancing the Great Lakes ecosystem. Two of the case-study projects will evaluate real-world water withdrawal and resource improvement opportunities for communities located within and just outside of the Great Lakes basin surface water divide. Participants include stakeholders from the local communities, resource management agencies, and environmental groups. The third case-study project will explore water withdrawal and resource improvement opportunities for a range of hypothetical cases including: a municipal water supply scenario, an industrial scenario, and a Great Lakes power generation scenario. Stakeholders representing both Great Lakes environmental and industrial sectors will evaluate hypothetical applications for compliance with provisions of Annex 2001.

The remaining five projects are designed to develop and disseminate new technical and process tools that will help likely water users and their consultants, public agencies, and basin citizens better understand the nature of hydroecological systems in the Great Lakes region. Four of these teams will work to develop processes to evaluate, measure, and compare resource improvements; develop a comprehensive modeling toolkit that links flows to ecosystem function; examine groundwater and surface water relationships within the Great

Lakes basin; and explore approaches to ecologically sustainable water management. Another project team will evaluate water conservation efforts and build a water conservation toolkit that will be disseminated throughout the basin.

This suite of Fund-supported projects involves more than eighty individuals representing various units of government, environmental and industry interests, and private consultants. These individuals are scientists, attorneys, engineers, utility managers,



economists, communication experts, decision system experts, political scientists, and business leaders.

To ensure that all project teams learn from one another and share what they have learned with their key customers, the Fund provided support to build a project intranet that directly links the project teams to the Governors' water management working group and the Council of Great Lakes Governors.

Also in 2002, a multi-phase project to assist the Great Lakes States and Provinces in developing a robust water-resources support system (DSS) was nearing completion. With Fund support, the Great Lakes Commission is leading a group of basin stakeholders in inventorying and characterizing sources of information on: the state of Great Lakes water resources, the uses of those resources, and how the various types of uses affect the basin's ecological health. Products from this work are already being used by water resource managers and by Annex project teams working to build technical tools, explore decision-making processes, and provide tangible examples of improvements to the basin's water-dependent natural resources in support of Annex 2001.



IN 2002, the Fund awarded a grant to a team lead by the Ohio State University to develop and produce general guidelines and modeling tools to assess the ecological, hydraulic, and economic impacts of dam removals and management options for both high- and low-head dams in the Great Lakes basin. The guidelines and tools will assist dam owners and restoration advocates to implement flow management strategies that improve water quality

and restore stream habitats in Great Lakes rivers and streams.

Other Fund-supported project teams continued their pioneering work testing the idea that restoring natural flows will yield significant long-term ecological gains in the basin. These grantees continue to find innovative ways to identify new resource improvement opportunities and create long-term resource improvements on the ground at more than 100 locations in the basin.

Teams led by the University of Michigan and Cornell University have developed tools to assess the degree of hydrologic alteration in basin watersheds. They are systematically applying those tools to recognize resource improvement opportunities and build local capacity to improve the health of water-dependent natural resources by implementing new flow restoration projects.

The guidelines and tools will assist dam owners and restoration advocates to implement flow management strategies that improve water quality and restore stream habitats in Great Lakes rivers and streams.



A project team led by the University of Wisconsin-Milwaukee is evaluating efforts to improve impaired urban streams, floodplains and wetlands in the Milwaukee area. These restoration efforts have resulted in significant gains in thermal, chemical and biological functions within more than 12 miles of urban streams in southeastern Wisconsin. The grantees are developing a toolkit that will allow river restoration teams to identify restoration targets, design appropriate improvement strategies, and measure results. Another team led by the Ohio State

University has developed new designs for agricultural drainage systems that increase channel stability, reduce sedimentation, and improve water quality, habitat and biodiversity. These designs improve the health of water-dependent natural resources and generate substantial ecosystem improvements while reducing long-term channel maintenance in agricultural watersheds. A channel design workshop attracted more than 300 participants representing resource management agencies, consultants, local communities, farmers, and agricul-

tural interests. This Fund-supported pilot project, currently underway in northwestern Ohio, has generated strong basin-wide interest in not only the United States, but in Canada as well.

Fund-supported project teams have also demonstrated the efficacy of dam removals as a long-term resource improvement strategy. The hydrologic integrity of miles of river has been returned to “run of the river” condition, biological connectivity has been restored, and long-term ecosystem benefits are only now starting to accrue. Significantly,

these dam removals were less expensive than originally anticipated.

A collaborative team of electric utilities, agency representatives, and river users completed a project to restore habitat and flows over 1200 miles of Great Lakes tributaries by improving hydropower operations at more than 70 sites in New York, Wisconsin, and Michigan. Through coalition building and systematic action, these grantees demonstrated how altering hydropower operations accrued a broad range of resource improvements at multiple sites in the basin.

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THE GREAT LAKES are physically connected to most of the major ports in the world by the ballast tanks and hulls of ocean going vessels. Moreover, the Great Lakes are connected hydrologically to the Mississippi River drainage, the Hudson River drainage, and the St. Lawrence River through canal and lock systems constructed more than 100 years ago. These physical connections are corridors that allow the passage of biota, both in the waters and in the hulls of ships, between these very different watersheds. Fund grantees continue to explore new ideas and technologies designed to keep the Great Lakes open to world

commerce, but closed to exotic species.

In 2002, a Fund-supported team led by the Northeast-Midwest Institute, Lake Carriers Association, and Stolt-Neilsen Transport Group, successfully developed and installed a full-scale ballast treatment system on a working chemical tanker (M/T Aspiration). This is the first full-scale installation and test of a ballast water treatment system designed to effectively treat 100% of the ballast water 100% of the time in the Great Lakes. A team of scientists and engineers continues to conduct experiments to assess the biological and engineering effectiveness of the system and will be testing and evaluating a new filtration-UV ballast treatment system in 2003.

Another project team working on characterizing the risks posed by vessels entering the Great Lakes with no ballast on board has sampled the residual waters and sediment of 75

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ballast tanks from 38 vessels. Even though these tanks are “empty,” residual water and sediments in the tanks may contain eggs, cysts and other dormant biota that can be “hatched” in fresh water. This project team, which includes U.S. and Canadian scientists, the shipping industry, and government agency members, is evaluating the viability of these eggs, cysts and biota in order to determine the threat posed by these vessels and how present ballast management techniques address those threats. They are also

conducting open-sea transoceanic exchange experiments – experiments designed to test the effectiveness of ballast water exchange in removing coastal plankton from ballast tanks. This work will compare temporal changes in abundance or selected organisms (zooplankton, phytoplankton and microorganisms) in tanks that undergo ballast water exchange to corresponding changes in unexchanged (i.e., control) tanks aboard the same vessel.

AS THE GREAT LAKES PROTECTION FUND looks to 2003 and beyond, it expects to continue to focus on improving the health of the basin's water resources, preventing the introduction of invasive species, developing market solutions for environmental problems, and supporting leadership initiatives designed to improve the ecological health of the basin. These areas are likely to be at the center of the Fund's programming.

The next generation of Fund-supported projects will build on the successes of present and past Fund grantees,

the basin's governments, the region's industry, and the residents of the watershed. New projects will be undertaken by leaders who have identified meaningful opportunities that are, at present, no one else's job.

The Fund welcomes all project ideas that:

- are designed to achieve specific ecological outcomes and have a pragmatic plan to do so,
- test new ideas,
- and are designed and executed by diverse teams.



THE GREAT LAKES PROTECTION FUND'S BOARD OF DIRECTORS approved the following projects, representing a \$3,438,000 investment in the future of the Great Lakes. The Fund invested \$2,306,000 to assist with implementation of Annex 2001 to the Great Lakes Charter, and \$1,132,000 was invested in other projects to continue the Fund's efforts to enhance and restore the health of the Great Lakes ecosystem.

For more information, contact the project manager listed after each project.

\$200,000 TetraTech EMI

TetraTech EMI will lead a team of scientists, engineers, local officials, and members of the interested public in building case studies of how small communities near the edge of the Great Lakes drainage basin can meet their water needs under the management system contemplated by Annex 2001 to the Great Lakes Charter. The cases will explore the issues faced by both small communities that need water and those that have access to abundant supplies. The cases will be analyzed by applying principles from available planning documents such as Lakewide Management Plans, Remedial Action plans and watershed management plans. The team plans to produce a set of planning tools to help meet likely requirements to be developed under the Annex.

Contact:

Jeffrey Edstrom 312.946.6466

\$411,000 CH2M-Hill

CH2M-Hill will lead a team of scientists, engineers, local officials, industry representatives and citizen activists in building a case study of how a medium sized city can move from a limited groundwater supply to a new source of water under the system to be developed under Annex 2001 to the Great Lakes Charter. The case will present a detailed set of facts relating surface waters to groundwater systems, the needs of the city, a realistic set of supply choices, and detailed modeling of potential ecological benefits and harms. The case will be analyzed by a wide variety

of stakeholder interests. The team expects to produce technical models that relate water uses to ground and surface water movements and assess ecological consequences of various supply options.

Contact:

Tony Myers 414.272.2426

\$494,000 Policy Solutions, Ltd.

Policy Solutions, Inc. will lead a team of industry, municipal and environmental interest groups in building and evaluating three case studies of how new or expanded in-basin uses of water can meet the requirements of the system contemplated by Annex 2001. The cases will explore how in-basin public water supplies can meet new needs and how two new industrial needs for water can be met in a fashion consistent with the requirements to be developed under the Annex. The team plans to identify the conditions under which new uses are consistent with the Annex, how uncertainty can be best managed, and who should bear the risks associated with that uncertainty.

Contact:

Henry L. Henderson 312.346.4640

\$67,000 Great Lakes Commission

The Great Lakes Commission will prepare a water conservation toolkit to assist public water supplies and state and provincial agencies in meeting the water conservation requirements to be developed in the system contemplated under the Annex. The Commission will survey water conservation practice and identify “best available” technologies and practices. These will then be made available in an online directory.

Contact:

Thomas R. Crane 734.665.9135

\$75,000 The Nature Conservancy

The Nature Conservancy will lead a workshop on identifying ecological flow requirements for streams and implementing strategies to achieve them. The Conservancy

will convene recognized experts and share lessons that they and their partners have learned in balancing competing uses of water.

Contact:

Lois Morrison 312.759.8017

\$521,000 Enterprising Environmental Solutions, Inc.

EESI will lead a team of scientists, engineers, economists, decision scientists, industry and environmental interest groups and others to develop metrics and models to quantify the resource impacts of various types of water withdrawals. The team will identify expected water needs, build conceptual ecological models of how new withdrawals meet those needs, impact water-dependent natural resources, identify leading and lagging indicators of such impacts and develop a mathematical framework for measuring resource improvements. The team will also operate a project intranet to ensure that all eight projects are in constant communication with each other and with relevant stakeholders.

Contact:

Scott Van de Mark 412.481.9400

\$120,000 Limno-Tech, Inc.

Limno-Tech will build a modeling framework that couples existing computer models to predict the ecological consequences of new or increased water withdrawals and test it on a basin river system. The project team will build conceptual models that relate likely water withdrawal scenarios in various watershed types in the basin to potential ecological effects. The team will then select a single watershed type to build and test a linked set of quantitative models.

Contact:

Dr. Joseph DePinto 734.332.1200

\$418,000 U.S. Geological Survey

A team of hydrologists and groundwater specialists will develop a three dimensional visualization of the Lake Michigan basin which illustrates how groundwater relates to the surface water system. The team will also produce a tool that simulates the impact of groundwater withdrawal on flows into the Great Lakes, and a map

that illustrates the contribution of groundwater into Great Lakes tributaries. Last, the Survey and Environment Canada will develop protocols and data reporting procedures so that groundwater can be included in routine hydrological analyzes.

Contact:

Jim Nicholas 517.887.8906

\$300,000 Inform, Inc.

Inform, Inc. will lead a network of state and local governments and other large institutional buyers to reduce purchases and ultimately the use and disposal of products that release persistent, bio-accumulative, and toxic chemicals (PBT's) into the Great Lakes basin ecosystem. The project team will measure the environmental results of new purchasing strategies adopted by project partners and evaluate the effectiveness of the of these strategies by comparing them with past purchasing behavior. Pilot projects will be tested by major institutional purchasers in Illinois, Michigan, Indiana, Minnesota, New York, and Wisconsin. By coordinating purchasing activities, Inform anticipates reductions of more than 220 pounds of lindane, over 10,000 pounds of para-dichlorobenzene, 265 pounds of mercury, and 2000 pounds of lead from entering the Great Lakes ecosystem.

Contact:

Alicia Culver 212.361.2400 ext. 234

\$832,000

The Ohio State University

The Ohio State University will lead an interdisciplinary team of scientists, state agency representatives, dam owners, and not-for-profit river restoration organizations to develop and produce general guidelines and modeling tools to assess the ecological, hydraulic, and economic impacts of dam removals and management options for both high- and low-head dams in the Great Lakes basin. The guidelines and tools will assist dam owners and restoration advocates to assess, apply for, and implement dam removals and/or alternative management strategies that improve water quality and restore in stream habitat in Great Lakes rivers and streams.

Contact:

Dr. Timothy Granata 614.688.8125

INDIVIDUALS, NOT-FOR-PROFIT ORGANIZATIONS, GOVERNMENT AGENCIES, AND BUSINESSES which have identified a significant regional opportunity to improve the health of the Great Lakes and have a pragmatic plan to exploit that opportunity are encouraged to apply to the Fund for support. The Fund also welcomes projects that are designed to test, manage, or demonstrate how certain “master variables” when acted upon, will result in tangible improvements to the health of the Great Lakes ecosystem.

The first step in the Fund’s formal review process is the submission of a brief preproposal that summarizes the proposed project. The Fund will accept preproposals at any time. After a favorable evaluation of a preproposal by a committee of the Fund’s Board of Directors, a full project proposal is invited. Fund staff and independent technical experts review all proposals. The Fund’s Board of Directors expects to make award decisions at their March, June, September and December meetings.

Complete funding guidelines can be obtained from the Fund’s office or found at the Fund’s website: *www.glpf.org*.

IN ADDITION TO THE FUND'S SUPPORT OF REGIONAL PROJECTS, one third of the corporation's net earnings are paid to member states in proportion to their share of the permanent endowment. Each state uses its share to support local projects that are consistent with that state's Great Lakes priorities. Additional information, including funding guidelines and application procedures can be obtained from the individuals listed to the right:

Illinois

Rick Coffman
217.524.9914

Michigan

Emily Finnell
517.241.7927

Minnesota

John Wells
800.657.3794

New York

Donald Zelazny
518.402.8540

Ohio

Jeffrey Busch
419.245.2514

Pennsylvania

Lori Boughton
814.332.6816

Wisconsin

Kim Walz
608.264.9220

MEMBERS OF THE CORPORATION & BOARD OF DIRECTORS

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