



Great Lakes Protection Fund 2007 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 private 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 financial support for groups that value innovation and entrepreneurship, focus on tangible benefits for the Great Lakes ecosystem, and learn by doing. Seven Great Lakes states have contributed \$81 million to the Fund's permanent endowment.

The Fund does three things. First, it invests the endowment to produce income. This income supports operations, regional projects, and member states' individual Great Lakes priorities. Second, it designs and finances regional projects. These projects identify, demonstrate, and promote regional action to enhance the health of the Great Lakes ecosystem. Third, it monitors those regional projects to ensure that they are successful, modified when necessary, or terminated if they are not creating value for the ecosystem.

From its inception through December 2007, the Fund has made a total of 216 grants and program-related investments, representing a \$53 million commitment to protecting and restoring the ecological health of the Great Lakes ecosystem. Additionally, the Fund has paid more than \$41.1 million directly to its seven member states to support their Great Lakes priorities. Over the course of the past 19 years, the Great Lakes ecosystem has benefited from the States' initial investment of \$81 million with an overall commitment of more than \$94.1 million to date.

Activities During 2007

In the past year, the Fund generated over \$12 million in net investment income from the endowment. The Fund returned \$3.6 million to its member states in support of their Great Lakes priorities. The Fund paid \$2.7 million to support regional projects. Audited financial statements can be found in Appendix 1.

The Fund entered 2007 with 18 active projects focused on efforts to prevent biological pollution, restore natural flow regimes, engage market forces, and provide leadership for ecosystem restoration in the Great Lakes Basin. These projects represented an investment by the Fund of over \$9.2 million.

Over the course of the year, work was completed on seven of these projects. These projects are identified in Appendix 2. All projects generated new and useful tools that will ultimately improve the health of the Great Lakes ecosystem. Each project provided a unique and positive return on the Fund's investment.



For example, the team led by American Farmland Trust developed a yield-based guarantee offered to landowners to reduce their application of nitrogen, which resulted in annual nitrogen input reductions of 180,000 pounds through the enrollment of over 5,000 acres of farmland. The team expects to increase enrollment and achieve annual nitrogen reductions of over 1 million pounds. In another completed project, the Michigan State University-led team created an integrated water balance analysis system and a web-based user assistance interface that, together, help assess the range and extent of ecosystem services provided by water resources, identify potential impacts from withdrawal, and evaluate what can be done to minimize those impacts. The result is a tool that brings together many previously disparate pieces of data, policy, and knowledge.

During 2007, the Fund developed and supported five new projects, maintaining the portfolio of active, supported work at just over \$9.2 million. Among the new projects is a grant made to a team led by the University of Notre Dame to produce a novel detection technology toolkit that will use genetic probes to identify the species in a water sample within two hours of obtaining it. This project will help to achieve the Governors' objective of stopping the introduction of invasive species while increasing the region's access to global markets. The complete portfolio of supported work, including new projects awarded in 2007, can be found in Appendix 3.

Evaluation of the Corporation's Performance

The Fund accomplished its objectives in 2007. Regional projects were designed and funded to address key gubernatorial priorities—especially the sustainable use of Great Lakes water and stopping invasive species. Ongoing regional efforts were monitored, adjusted when required, and closed-out when appropriate. Significant funds were paid directly to the member states to support their individual priorities.

Emerging Trends and Future Needs

The Governors have identified their priorities for Great Lakes Basin ecosystem protection and restoration. The Fund will continue to focus on those priorities that are not already the responsibility of governments or regulated entities. In the near term, the Fund is likely to focus on the identification and demonstration of options for preventing additional introductions of invasive species, the use of information technology to shape decisions and choices to improve the health of the ecosystem, and to map and reduce the impact of commerce and product lifecycles on the health of water resources.

Actions Taken by the Directors in Response to Public Comments

The Directors have sought, but not received, public comments on this report.



MEMBERS OF THE CORPORATION IN 2007

Governor of Illinois

Rod R. Blagojevich

Governor of Michigan

Jennifer M. Granholm

Governor of Minnesota

Tim Pawlenty

Governor of New York

Eliot Spitzer

Governor of Ohio

Ted Strickland

Governor of Pennsylvania

Edward G. Rendell

Governor of Wisconsin

James E. Doyle



BOARD OF DIRECTORS IN 2007

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Michael Elmendorf (*Albany, NY*)
Alan Fish (*Madison, WI*)
Caren Glotfelty (*Pittsburgh, PA*)
Edwin Hammett (*Toledo, OH*)
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Pat Lupo, OSB (*Erie, PA*)
Matthew Millea (*Albany, NY*)
Pat Quinn (*Chicago, IL*)
Roy Ray (*Akron, OH*)
Craig Shaver (*Minneapolis, MN*)
Maureen Smyth (*Flint, MI*)
David Vaught (*Naperville, IL*)

GREAT LAKES PROTECTION FUND STAFF

Amy Elledge – Communications Administrator
Laurence LaBoda – Director, Finance and Administration
Erin McCallister – Program Officer
Naureen Rana – Program Officer
David Rankin – Program Director
Gloria Swanson – Executive Administrator
Russell Van Herik – Executive Director



APPENDIX 1
2007 AUDITED FINANCIAL STATEMENTS



McGladrey & Pullen
Certified Public Accountants

Great Lakes Protection Fund

Financial Report
December 31, 2007 and 2006

McGladrey & Pullen, LLP is a member firm of RSM International –
an affiliation of separate and independent legal entities



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McGladrey & Pullen

Certified Public Accountants

Independent Auditor's Report

Board of Directors of
Great Lakes Protection Fund

We have audited the statements of financial position of Great Lakes Protection Fund (the "Fund") as of December 31, 2007 and 2006 and the statements of activities and cash flows for the years then ended. These financial statements are the responsibility of the Fund's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Great Lakes Protection Fund as of December 31, 2007 and 2006 and its activities and cash flows for the years then ended in conformity with accounting principles generally accepted in the United States of America.

McGladrey & Pullen, LLP

Chicago, Illinois
April 3, 2008



Great Lakes Protection Fund
Statements of Financial Position
December 31, 2007 and 2006

	<u>2007</u>	<u>2006</u>
Assets		
Cash and cash equivalents	\$ 1,935,603	\$ 1,968,705
Receivable from broker for sales of securities	129,807	
Investments	137,075,034	133,367,398
Accrued interest	156,811	180,014
Other assets	22,486	18,643
Furniture, equipment and leasehold improvements (net of accumulated depreciation of \$252,096 and \$237,307 in 2007 and 2006)	<u>63,501</u>	<u>98,005</u>
	<u>\$ 139,383,242</u>	<u>\$ 135,632,765</u>
Liabilities and Net Assets		
Liabilities		
Grant commitments	\$ 184,500	\$ 353,760
Member state shares	3,614,046	2,532,674
Liability to brokers for purchase of securities	58,884	384,121
Accrued expenses	232,641	154,544
Accrued pension contribution	<u>4,611</u>	<u>3,946</u>
	<u>4,094,682</u>	<u>3,429,045</u>
Net assets		
Unrestricted	51,761,572	48,676,732
Permanently restricted	<u>83,526,988</u>	<u>83,526,988</u>
	<u>135,288,560</u>	<u>132,203,720</u>
	<u>\$ 139,383,242</u>	<u>\$ 135,632,765</u>

See accompanying notes.

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Great Lakes Protection Fund
 Statements of Activities
 Years Ended December 31, 2007 and 2006

	2007		2006		
	Unrestricted	Permanently Restricted	Total	Permanently Restricted	Total
Revenue					
Investment income	\$ 12,518,721	\$ -	\$ 12,518,721	\$ 9,088,214	\$ 9,088,214
Expenses					
Program grants	2,504,930		2,504,930	2,486,323	2,486,323
Member state shares	3,614,046		3,614,046	2,532,674	2,532,674
Investment management and advisory fees	364,500		364,500	325,100	325,100
Administrative expenses	1,312,085		1,312,085	1,165,090	1,165,090
	7,795,561	-	7,795,561	6,509,187	6,509,187
Increase in net assets before unrealized gain on investments	4,723,160	-	4,723,160	2,579,027	2,579,027
Unrealized gain (loss) on investments	(1,638,320)		(1,638,320)	9,266,235	9,266,235
Increase in net assets	3,084,840	-	3,084,840	11,845,262	11,845,262
Net assets					
Beginning of year	48,676,732	83,526,988	132,203,720	36,831,470	120,358,458
End of year	\$ 51,761,572	\$ 83,526,988	\$ 135,288,560	\$ 48,676,732	\$ 132,203,720

See accompanying notes.



Great Lakes Protection Fund
Statements of Cash Flows
Years Ended December 31, 2007 and 2006

	<u>2007</u>	<u>2006</u>
Operating activities		
Increase in net assets	\$ 3,084,840	\$ 11,845,262
Depreciation and amortization	38,739	37,766
Realized gain on sales of investments	(3,943,006)	(2,033,041)
Unrealized (gain) loss on investments	1,638,320	(9,266,235)
Changes in		
Accrued interest	23,203	(647)
Other assets	(3,843)	(2,823)
Grant commitments	(169,260)	111,905
Member state shares	1,081,372	908,637
Accrued expenses	78,097	44,744
Accrued pension contribution	665	243
Net cash provided by operating activities	<u>1,829,127</u>	<u>1,645,811</u>
Investing activities		
Purchases of investments	(22,640,347)	(18,070,024)
Proceeds from sales of investments	20,782,354	16,071,533
Purchases of equipment and improvements	(4,236)	(77,448)
Net cash used in investing activities	<u>(1,862,229)</u>	<u>(2,075,939)</u>
Decrease in cash and cash equivalents	(33,102)	(430,128)
Cash and cash equivalents		
Beginning of year	<u>1,968,705</u>	<u>2,398,833</u>
End of year	<u>\$ 1,935,603</u>	<u>\$ 1,968,705</u>
Supplemental schedule of noncash investing and financing activities		
Write-off and abandonment of fully depreciated equipment and improvements	<u>\$ 61,715</u>	<u>\$ -</u>

See accompanying notes.

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Great Lakes Protection Fund

Notes to the Financial Statements

Note 1 Nature of Activities and Significant Accounting Policies

Great Lakes Protection Fund (the "Fund") is a nonprofit organization designed to have as its members the governors of the eight states bordering on the Great Lakes. Seven of the states have joined the Fund and have made contributions, as specified in the Fund's articles of incorporation, to establish their membership in the Fund. Income earned on the contributions is used to provide grants which finance projects advancing the goals of the Great Lakes Toxic Substances Control Agreement and the binational Great Lakes Water Quality Agreement, so as to advance the health of the ecosystem of the Great Lakes Basin.

The Fund is exempt from income taxes under Section 115(1) of the Internal Revenue Code and applicable state law.

Basis of Accounting—Under accounting principles generally accepted in the United States of America, not-for-profit organizations report net assets in each of the three classes: permanently restricted, temporarily restricted, or unrestricted based on the existence or absence of donor-imposed restrictions.

Cash and Cash Equivalents—For purposes of the statements of cash flows, the Fund considers all highly liquid debt instruments purchased with a maturity of three months or less to be cash equivalents.

The Fund maintains cash accounts at financial institutions, which at times, may exceed \$100,000. The accounts are insured by the Federal Deposit Insurance Corporation ("FDIC") up to \$100,000. A significant portion of cash equivalents is invested in money market accounts. Such amounts are insured by the Securities Investors Protection Company up to \$500,000. Amounts in excess of those levels are insured by the manager to the balance of the account. The Fund has not experienced any losses in such accounts. Management believes that the Fund is not exposed to any significant credit risk on cash and cash equivalents.

Investments—Investments are reflected at current market value. Realized gains for mutual funds are computed using the specific-identification method. Realized gains for all other investments are computed using the first-in, first-out method.

The Fund invests in various investments. Such investments are exposed to various risks such as interest rate, market and credit risk. Due to the level of risk associated with certain investments, it is at least reasonably possible that changes in the values of investments will occur in the near term and that such changes could materially affect the amounts reported in the statements of financial position.

Furniture, Equipment and Leasehold Improvements—Furniture, equipment and leasehold improvements are stated at cost. Depreciation is recorded on a straight-line basis over the estimated useful lives of the assets ranging from five to seven years. Leasehold improvements are amortized over the remaining lease term.

Grant Commitments—Payment of grants beyond the initial installments is contingent on the satisfaction by the recipients of agreed-upon requirements. Unpaid amounts are accrued only if the contingencies have been met.

Use of Estimates—The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions affecting the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the financial statements, as well as the reported amounts of revenue and expenses during the reporting period. Actual results could differ from the estimates.



Great Lakes Protection Fund
Notes to the Financial Statements

Note 2 Investments

Investments consist of the following:

	2007	
	Cost	Market
Bond mutual funds	\$ 29,171,396	\$ 29,629,714
Common stocks and stock equivalents	87,512,193	107,445,320
	<u>\$ 116,683,589</u>	<u>\$ 137,075,034</u>

	2006	
	Cost	Market
Bond mutual funds	\$ 28,171,396	\$ 28,526,531
Common stocks and stock equivalents	83,166,236	104,840,867
	<u>\$ 111,337,632</u>	<u>\$ 133,367,398</u>

The market value of the investments was based on quoted market prices at the respective year-ends

Note 3 Member State Shares

In accordance with the articles of incorporation, the Fund is required to disburse to the member states one-third of its realized investment income after deducting operating expenses, excluding grants. Amounts paid to the states are to be used for the furtherance of the Fund's activities and are allocated on the basis of the state's respective contribution. Accrued member state shares were \$3,614,046 and \$2,532,674 at December 31, 2007 and 2006, respectively.

Note 4 Grants Committed

Grant activity for 2007 and 2006 is as follows:

	Grants Approved	Grants Paid	Grants Committed December 31
2007	\$ 2,928,000	\$ 2,674,189	\$ 184,500
2006	3,514,000	2,383,540	353,760

As of December 31, 2007, total grants approved since the Fund's inception amounted to \$53,104,213, of which \$4,510,330 related to grants for which the contingencies have not been met and, therefore, the grant expenses have not been recognized. Upon satisfaction of the contingencies by the recipients, the Fund will recognize the grant expenses and disburse the remaining payments.



Great Lakes Protection Fund

Notes to the Financial Statements

Note 5 Permanently Restricted Net Assets

Permanently restricted net assets represent the contributions received from member states in accordance with the Fund's articles of incorporation, along with interest on delayed payments. These amounts cannot be expended.

With the exception of Indiana, all states have made their required contributions, which were as follows:

Illinois	\$	15,000,000
Michigan		25,000,000
Minnesota		1,500,000
New York		12,000,000
Ohio		14,000,000
Pennsylvania		1,500,000
Wisconsin		12,000,000
		<u>12,000,000</u>
	\$	<u>81,000,000</u>

There is no due date for the contribution payable by Indiana, which has not yet joined the Fund.

In accordance with its articles of incorporation, the Fund charges interest to states electing to extend the time to make the required contributions. No such interest was charged in 2007. No interest is due from the State of Indiana until such time as it elects to join the Fund and to determine the time to make its required contributions.

Note 6 Commitments

The Fund is obligated under an office lease expiring in December 2010.

Rent expense totaled \$163,603 and \$148,607 for 2007 and 2006, respectively.

Minimum payments required under the lease are as follows:

2008	\$	150,579
2009		153,090
2010		155,600
		<u>155,600</u>
	\$	<u>459,269</u>

Note 7 Retirement Plan

The Fund maintains a retirement plan under the provisions of the Internal Revenue Code applicable to governmental retirement plans. All employees are eligible to participate upon commencement of employment. The Fund makes contributions equal to 10 percent of each employee's compensation. Employees cannot contribute to the plan. The Fund contributed \$55,412 and \$48,316 to the plan for 2007 and 2006, respectively.



APPENDIX 2 PROJECTS COMPLETED IN 2007

PREVENTING BIOLOGICAL POLLUTION

ANS-HACCP Training Initiative to Prevent the Spread of Aquatic Nuisance Species by Resource Managers, Researchers, and Enforcement Officers

The primary goal of this project was to build on the successful Aquatic Invasive Species (AIS)-Hazard Analysis Critical Control Point (HACCP) approach to prevent the spread of biological pollution to uninfested waters through two significant pathways: the movement of equipment (i.e., boats, trailers, nets, waders, water collection devices) used by federal, state, tribal, and private resource researchers, managers, consultants, and enforcement personnel; and the transfer of baitfish and fish raised for stocking into public and private waters. As part of this effort, the project team revised the existing AIS-HACCP manual and distributed a total of 1,000 new manuals at 27 different training workshops. These workshops were “train-the-trainer” exercises aimed at teaching the AIS-HACCP process to various natural resource management leaders in the public and private sectors. A number of workshop participants have since developed and implemented customized AIS-HACCP plans for their various constituencies.

Minnesota Sea Grant Program
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\$246,000



Identifying, Verifying, and Establishing Options for Best Management Practices for NOBOB Vessels

The goal of this project was to develop and test a set of enhancements to the Canadian Shipping Federation’s Code of Conduct, which specifies ballast water Best Management Practices (BMPs) for vessels entering the Great Lakes. Specifically, the project team extended the current requirements to NOBOB (No Ballast On Board) vessels by identifying: where, when, and how ballast should be taken on; how ballast tank sediment can be better managed; and why saltwater exchange should be conducted. Based on experiments conducted, the team recommended that: vessels operating from foreign ports should flush their ballast tanks with deep ocean water on each transoceanic leg to significantly reduce the presence of unwanted zooplankton in ballast water acquired from a freshwater port; and vessels traveling to the Great Lakes from coastal areas should conduct empty-refill ballast water exchange (BWE) versus low-through BWE to most effectively destroy potential coastal invaders. In addition to these recommendations, the team designed and deployed new remote monitoring technologies that record how vessels manage ballast tanks, including when and how much water is added and discharged.

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\$770,000



MARKET MECHANISMS

Restoration of the Great Lakes Basin Water through the Use of Conservation Credits

The goal of this project was to develop a comprehensive, publicly-available online tool to assess the ecological impacts of certain water withdrawals within the Great Lakes Basin, and to encourage water users, governments and others seeking permits to stimulate improved conditions by purchasing conservation credits. Specifically, the project team produced: an integrated water balance analysis (IWBA) system that relates surface water, groundwater, and biological regimes; a conservation credit system that allows the generation of credits for activities that repair alterations to basin hydrologic regimes; and a web-based “user assistance interface” (UAI) that couples the credit system to the analysis system. To test their products, the project team developed a pilot case study around verifying and integrating various flow modeling exercises at Augusta Creek in Kalamazoo County, MI. Additionally, these tools are being adapted to help guide permitting decisions regarding large groundwater withdrawals in the State of Michigan, as called for by Michigan’s Public Act 34 of 2006, the state’s first comprehensive water use and groundwater management legislation.

Michigan State University
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bartholi@msu.edu

\$540,000



Using Market Mechanisms to Reduce the Use of Fertilizers and Pesticides in States Bordering the Great Lakes

The goal of this project was to improve Great Lakes water quality by developing and marketing risk management products for farmers who voluntarily reduce nitrogen inputs to their land. The American Farmland Trust Agricultural Conservation Innovation Center worked with a team of insurers, farm operators, farm advisers, and state and federal farm agencies to develop a yield-based guarantee that could protect farmers against financial losses associated with lower crop yields due to reduced fertilizer and chemical inputs. Ultimately, the team registered over 5,000 acres of farmland under the guarantee, resulting in reduced annual nitrogen inputs in the Great Lakes Basin by 180,000 pounds. The team expects to increase product registration numbers and achieve an annual nitrogen reduction of over 1 million pounds.

American Farmland Trust
Contact: Brian Brandt
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bbrandt@farmland.org

\$373,000



NATURAL FLOW REGIMES

Developing a Process to Quantify and Facilitate Water Withdrawal Driven Ecosystem Improvements

The primary goal of this project was to facilitate the creation, documentation, and financing of resource improvements that benefit the Great Lakes Basin ecosystem. The project team developed a “quality gallon” measurement that prioritizes stormwater Best Management Practices (BMPs) by weighting the actual volume of water retained by the BMP. They also created a “quality gallon accounting system” that includes a registry for reporting, verifying, and certifying ecosystem improvements. Additionally, the project team created a second set of tools that can be characterized as alternative methods to fund and implement stormwater BMP retrofits, as measured in gallons and “quality gallons.” These tools include one-time funding sources, funding sources from incentives that could be offered to the redevelopment community, and market-based approaches. Finally, the team developed example ecosystem improvement transaction contracts for a bioretention easement, a performance zoning resolution, and a rain garden maintenance agreement. Team members vetted their products in both the Menomonee River watershed near Milwaukee, WI and the Rouge River watershed in southeast Michigan.

CH2M Hill
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mark.mittag@ch2m.com

\$525,000



Restoring Flow Regimes Through Growing Water Transactions: Basin-Wide Case Studies

The main goals of this project were to develop process frameworks and creative financing tools to facilitate “growing water” transactions in four different watersheds within the Great Lakes Basin. In this context, “growing water” refers to the ability of improved flow regimes, to generate biological and ecological benefits for water resources. The project team developed case studies around their investigations of potential growing water transactions. Such scenarios included: brownfield redevelopment incorporating green infrastructure to facilitate more effective stormwater management; point source institutions’ purchases of more environmentally-friendly practices on agricultural lands, as brokered by a Conservation District; a conservation development plan offering \$4.1 million in avoided costs related to infrastructure maintenance, artificial groundwater recharge, a new water treatment facility, and the replacement of lost biodiversity; and the use of wetland mitigation credits to support habitat restoration.

Environmental Trading Network
Contact: Mark Kieser
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mkieser@kieser-associates.com

\$250,000



LEADERSHIP FOR ECOSYSTEM RESTORATION

Quality Hunting Ecology

The ultimate objective of this project was to improve forest stream and surface water quality in the Great Lakes Basin by ensuring natural regeneration of hardwood and mixed deciduous/coniferous forests. Specifically, this project was aimed at addressing excessive deer browse, a significant threat to the recruitment of native tree species, the consequences of which can lead to the conversion of working forests to land uses severely harmful to Great Lakes streams, rivers, and wetlands. Quality Hunting Ecology (QHE) requires that hunters harvest two antlerless deer before taking a buck, thereby lowering the herd population by reducing the number of breeding does. The QHE program was piloted and successful in both Wisconsin and Pennsylvania, where they succeeded in incorporating the QHE demonstration area model into the Pennsylvania Game Commission's forest watershed restoration program. The Quality Hunting Ecology work continues and is recognized for having upgraded both scientific work on deer and forest habitat, as well as state agencies policies that support landowners and hunters collaborating to improve the health of forested watersheds.

Sand County Foundation
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\$300,000





APPENDIX 3 PORTFOLIO OF PROJECTS AS OF DECEMBER, 2007

PREVENTING BIOLOGICAL POLLUTION

Building a Framework to Advance Aquatic Nuisance Species Management of Organisms in Trade in the Great Lakes Region (Awarded in 2007)

This planning effort will result in an implementation plan for a project to reduce the threats to the Great Lakes Basin ecosystem presented by the trade in live organisms. In this initial phase, the team will engage a series of public agencies and private commercial interests to plan an effort to design and test actions that prevent the release of invasive plants and animals that could disrupt key ecological processes and out-compete native organisms. The team expects to identify high risk activities in the aquarium and pet trade, nursery and water garden trade, and the aquaculture and bait industries; develop action plans to minimize those risks; and assemble a project team to do the work.

Great Lakes Commission
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\$77,000



Developing and Applying a Portable Real-Time Genetic Probe for Detecting Aquatic Invasive Species in Ships' Ballast (Awarded in 2007)

The goals of this project are to: build five species-specific molecular probes—four for potentially invasive species (Chinese mitten crab, killer shrimp, golden mussel and predatory water flea) and one to detect zebra mussels; develop a ship-scale, laboratory independent detection platform that can be used onboard or in port; and establish an end-user network to communicate the technology's progress and application. Led by experts in the fields of invasive species biology, molecular ecology, and nanotechnology, this project team will produce a novel detection technology for the “next set” of invasive species in the Great Lakes. If successful, the tools developed will give decision makers the ability to know the invasive species threat posed by a particular vessel within two hours of obtaining a ballast water sample.

University of Notre Dame
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\$805,000



Eco-Pro: An Intelligence System for Shipping to Protect the Ecosystem of the Great Lakes

Ultimately, the goal of this project is the elimination of the introduction of aquatic invasive species and pathogens via ocean-going ships entering the Great Lakes. In order to achieve this end, the project team will create a first-of-its-kind information system that integrates biological, commercial, and transportation information. The resulting “proof of concept” prototype system will display shipping routes and generate detailed profiles of each vessel transiting the St. Lawrence Seaway, including identification of cargo owners, future destinations, prior ports of call, and the ecological and public health conditions existing at those locales. The team will also develop a searchable computerized system that collects relevant information on the likely risks presented by a particular vessel. In order to build robust risk profiles for each vessel, the system will be vetted by invasion biologists, resource managers, and public health experts.

University of Illinois at Chicago
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\$435,000



Risk Assessment and Management of Great Lakes Species

The ultimate goal of this project is to move towards the elimination of new introductions of invasive species into the Great Lakes. It also aims to halt the further spread of invasive, non-native species from the Great Lakes to other waters of North America. As part of this effort, the project team will: provide the scientific basis for assessing the relative invasion risk of vessels entering the Great Lakes based on ports they have previously visited; accelerate the development of rapid genetic tests to determine the content of ballast tanks; and identify the best places and strategies to stop the spread of invasive species by recreational boaters.

University of Notre Dame
Contact: David Lodge
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\$1,090,000



Ship-Mediated Harmful Microbes: Protecting the Great Lakes Ecosystem

(Awarded in 2007)

The goals of this project are to: develop, test, and make widely available a set of new quantitative analytic techniques for microorganisms that threaten human health, wildlife health, or are otherwise ecologically or economically important; inventory the bacteriological content of ships' ballast water; develop ship-based and harbor monitoring protocols for viruses and bacteria; and convene monitoring programs to develop an institutional blueprint for microbial monitoring in the Great Lakes Basin. In parallel, and without Fund support, the Great Ships Initiative will initiate tests of disinfection methods to create a "rapid treatment response" capacity to prevent the release of harmful microbes from ships operating in the Lakes. These efforts will improve the region's ability to identify and respond to the threats posed by "microbial stowaways" on vessels or in basin ports.

Northeast-Midwest Institute
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\$1,029,000



St. Lawrence Seaway: Issues and Options – Phase II

The goal of this project is to identify options to stop invasions of exotic species via ships using the St. Lawrence Seaway, while also expanding global trade, using a classic National Academy of Sciences (NAS) study approach. The project's advisory committee includes experts in decision analysis, political science, international trade, and economic development. The committee plus various other experts will form an "innovation cell" that will commission a number of scholarly papers to inform the development of options to promote international commerce while also eliminating the introduction of invasive species and pathogens into the Great Lakes from ocean-going vessels transiting the Seaway. Additionally, the committee will develop a final report outlining its recommendations and will prepare a dissemination plan for communicating the report's key messages to various interested parties.

The National Academies
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\$875,000



LEADERSHIP FOR ECOSYSTEM RESTORATION

A Phosphorus Soil Test Metric for Reducing Dissolved Phosphorus Loads (Awarded in 2007)

The goals of this project are to: develop a surficial phosphorous (SurP) soil test to measure the level of phosphorous currently available in the soil; work with certified crop advisors, the fertilizer community, and local farmers to build a toolbox of management options that allow them to take action on the land based upon detected phosphorous levels; measure phosphorous inputs to tributaries in Ohio; work with groups in Saginaw Bay (MI), Green Bay (WI) and Ontario to share the results and lessons learned in Ohio; and develop a SurP metric that describes the level of reactive phosphorous in the soil and the likelihood of increased phosphorous loads into nearby tributaries. This metric will drive changes on the land that lead to ecosystem improvements in the Lakes. The project team will work with all members of the agricultural supply chain to reduce dissolved, reactive phosphorous in the Ohio Lake Erie Basin by fifty percent within the next ten years and deliver the tools to achieve similar results in Saginaw Bay, Green Bay, and Ontario. This phosphorous reduction will drive down eutrophication in Lake Erie, reduce the outbreak of harmful algal blooms, and improve aquatic health.

Heidelberg College
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\$947,000



Great Lakes Cities Permeability Index Planning (Awarded in 2007)

This planning effort will result in a detailed project plan for the creation of an operational Great Lakes Cities Permeability Index (GLCPI), an assessment tool aimed at measuring and advancing the use of green infrastructure and its impacts on improving the water quality of the Great Lakes. The GLCPI will include: a registry of green infrastructure improvements (including rain barrels, rain gardens, green roofs, vegetated filter strips, greenways, and other methods of capturing stormwater on-site); a Geographic Information System to display permeable and impermeable land cover, soils, stormwater infrastructure, and stormwater problem areas for each participating municipality; and a “green values” calculator to quantify the cost-effectiveness of registered and potential green infrastructure improvements and the amount of pollutant(s) removed by each feature.

Center for Neighborhood Technology
Contact: Steve Wise
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\$70,000



Water Conservation and Efficiency Initiative

The goal of this project is to help meet the commitments set forth by the Great Lakes Governors in the Great Lakes Charter Annex through the development of basin-wide water conservation and efficiency goals. These goals will be used to help shape individual state conservation programs. The Council of Great Lakes Governors (CGLG) will engage regional stakeholders to develop goals and objectives for the Regional Body's review and consideration. (The Regional Body was created by the Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement and consists of the Great Lakes Governors and Premiers or their designees.) Based on this review, CGLG staff will work with the State of Wisconsin to develop its program to meet those water conservation goals and objectives.

Council of Great Lakes Governors
Contact: David Naftzger
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\$169,000



MARKET MECHANISMS

A Regional Finance Strategy to Restore the Health of the Great Lakes Ecosystem

The goal of this project is to stop the contamination of streams, rivers, beaches, and coastlines by the release of untreated or partially treated waters from sanitary, storm, and combined sewer systems or other sources of run-off. A project team of lawyers, finance experts, agency representatives, and others will develop an implementation plan for one or more new finance program(s) that will create new, low-cost, flexible capital to be used for activities described in the Great Lakes Regional Collaboration's Strategy to Restore and Protect the Great Lakes (the Strategy). This plan will be developed in conjunction with, and designed to operate along side of, existing state revolving loan funds (SRFs) and environmental bond programs. The value this project will add is in the new type of financing arrangements that are developed, not necessarily the creation of a new regional entity. New tax credits and multi-state tax exemptions will be explored to leverage federal commitments and lower the "bill" for the activities identified under the Strategy.

Bricker & Eckler LLP
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\$685,000



Achieving Ecosystem Benefits through Pollution Prevention and Energy Efficiency Transactions

Ultimately, the goal of this project is the conservation of Great Lakes water and reductions of criteria air pollutants, solid and hazardous waste, and emissions associated with climate change. Working with a number of different facilities in Michigan, the project team expects to: reduce water use by over 15 million gallons per day; eliminate almost 3 million tons of solid waste; reduce CO₂ emissions by over 11,000 tons; reduce emissions of criteria air pollutants by 150,000 pounds; and reduce hazardous chemical use by over 200,000 gallons each year. In these transactions and in working with landowners in Illinois and Michigan, the project team will develop a series of tools to track and measure the full extent of environmental impacts associated with specific reduction actions. Such tools will include investment grade audits, efficiency contracts, carbon offset transactions, and facility footprint mapping.

Delta Institute

\$435,000

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Developing New Financing Products for Great Lakes Ecosystem Restoration

The end goal of this project is to achieve healthier Areas of Concern (AOCs) around the Great Lakes Basin. A project team of ecological and financial professionals will develop and deploy financial ecosystem restoration tools to generate approximately \$50 million in revenues. One such tool is the use of tax increment financing (TIF) to support the cleanup of contaminated sediment, the construction of wet-weather discharge controls, and the restoration of wetlands. Specifically, the project team will work with the City of Buffalo, NY to pilot test two potential models on the revenue-generation side: one linked to a planned Bass Pro shop development and the other linked to a long linear TIF that would follow the river and divert a small percentage of rising tax revenues to a dedicated fund. The team will also run two models for the uses of the funds: one to support sediment cleanup and the other to support more modest stream restoration or wetland creation projects. Additionally, the project team will develop a plan to share the Buffalo results with all interested AOC communities.

Northeast-Midwest Institute

\$593,000

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NATURAL FLOW REGIMES

Identifying and Valuing Restoration Opportunities at Watershed and Subwatershed Scales

The primary goal of this project is the development, testing, validation, and application of a suite of integrated GIS watershed and hydrologic assessment tools and metrics that link hydrologic impairments with restoration opportunities within four pilot watersheds within the Great Lakes Basin—the Milwaukee River (WI); the Paw Paw River (western MI); the Shiawassee River (MI); and the St. Joseph River (IN, MI, OH). These tools and metrics will allow those who produce, purchase, or evaluate resource improvements to describe the impact that a particular action or set of actions has on the hydrologic regime. As part of this effort, the project team will develop: a “stream power tool” that identifies areas of maximum hydrologic restoration potential; a “wetlands water retention/storage tool” that quantifies potential hydrologic restoration opportunities associated with wetland restoration sites; and a method of conducting “water use/pathway assessments” that indicates the potential effects of flow path changes on hydrologic parameters as water moves across or through a watershed.

Applied Ecological Services
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\$499,000



Implementing and Documenting the Benefits and Costs of “Stormwater Treatment Trains” in Three Model Conservation (Watershed Sensitive) Developments

The goal of this project is to monitor the effectiveness of “stormwater treatment trains” in improving water quality and flow during and after construction. “Stormwater treatment trains” include vegetated swales that convey runoff, wetlands that remove nutrients and sediment, and sedimentation basins with staged release outlets. They will be constructed at three developments in southeast Wisconsin. The project team will evaluate the ecological impacts of, and costs associated with, these watershed sensitive developments and compare them to pre- and post-development conditions and traditional residential developments.

Applied Ecological Services, Inc.
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\$369,000



Innovative Outreach to Absentee Landowners in the Great Lakes

The goal of this project is to reach out to an untapped audience in the Great Lakes Basin—absentee agricultural landowners—to encourage the implementation of conservation practices on their properties that will ultimately restore stream and river health, increase riparian habitat, improve water quality, and generally reduce the negative impacts of agriculture on the Great Lakes ecosystem. The project team is working in three Great Lakes watersheds: Manitowoc County, WI; Orleans County, NY; and Saginaw Bay, MI. They are informing over 1,200 absentee landowners of conservation opportunities and as a result, hope to stimulate the conversion of at least 1,600 acres of production land to vegetative filter strips. If such a result can be achieved, the annual amounts of sediment, phosphorus, and nitrogen entering the Great Lakes will be reduced by 2,320 tons, 3,840 pounds, and 7,600 pounds, respectively. Local agencies will work with landowners and operators to ensure the installation, maintenance, and ecological evaluation of conservation practices.

M&M Divide Resource Conservation & Development
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\$542,000



Lake Ontario Resource Improvement Opportunity Assessment

The goal of this project is to expand the geographic scope of Cornell University's GIS-based Hydroecological and Conservation Mapping Tool (the Tool), which was developed under a previous Fund grant, to all of Lake Ontario to inform the development of resource improvement projects and to create methods to capture the benefits accrued by those projects over space and time. More specifically, the project team will revise the Tool to allow users to identify the full suite of restoration opportunities that might exist at a given site. The project team and advisory board will select watersheds in New York and Ontario within which to test the revised Tool. Among other things, the Tool will create maps that depict the extent of habitat degradation, riparian degradation, habitat fragmentation, and streamflow alteration.

Natural Heritage Institute
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\$544,000



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