



## 2005 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 2005, the Fund has made a total of 205 grants and program-related investments, representing a \$46.7 million commitment to protecting and restoring the ecological health of the Great Lakes ecosystem. Additionally, the Fund has returned more than \$34.9 million to its seven member states to support their Great Lakes priorities.

This brings the Fund to an important milestone. Over the course of the past 17 years, the Great Lakes ecosystem has benefited from the States' initial investment of \$81 million with an overall commitment of more than \$81.6 million to date.

### Activities During 2005

In the past year, the Fund generated over \$5.9 million in net investment income from the endowment. The Fund returned \$1.6 million to its member states in support of their Great Lakes priorities. The Fund paid \$3 million to support regional projects. Audited financial statements can be found in Appendix 1.

The Fund entered 2005 with 26 active projects focused on efforts to prevent biological pollution, restore natural flow regimes, engage market forces, and provide leadership for ecosystem restoration in the Basin. These projects represented an investment by the Fund of just over \$12.9 million.

Over the course of the year, work was completed on 12 of these projects. These projects are identified in Appendix 2. All projects generated new information on how to protect and restore the health of the Great



Lakes Basin ecosystem. All but one of these projects met or exceeded the Fund's original expectations. Not a single project failed to provide a good return on the Fund's investment.

Upon conclusion of several of these grants, many grantees were able to establish a set of groundbreaking "firsts". One team lead by the University of Michigan created the first-ever biological characterization of the risks carried in the empty tanks of "no ballast on board" (NOBOB) vessels. Another team lead by the University of Michigan prepared the first watershed analysis of flow characteristics for all Great Lakes tributaries. The first verification protocol for emission reductions resulting from Clean Power was developed and implemented by the team led by Environmental Resources Trust. They packaged and sold 425,000 MWh of "EcoPower". These products (from wind and landfill gas sources) are displacing 413,000 tons/year of CO<sub>2</sub> emissions, 3,414 tons/year of SO<sub>x</sub> emissions, and 1,710 tons/year of NO<sub>x</sub> emissions.

During 2005, the Fund developed and supported three new projects, maintaining the portfolio of active, supported work at just under \$7.8 million. A list of new projects is included as Appendix 3. Among the new projects is a grant made to the National Academies of Science to develop options for the owners and users of the St. Lawrence Seaway to help them achieve the Governors' objective of stopping the introduction of invasive species while increasing access to global markets. The complete portfolio of supported work is included as Appendix 4.

### **Evaluation of the Corporation's Performance**

The Fund accomplished its objectives in 2005. 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 returned 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. A copy of those priorities is included as Appendix 5. 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 identifying and demonstrating options for preventing additional introductions of invasive species, informing external decisions that affect the Basin, and creating new ways to finance ecological restoration.

### **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

### *Illinois*

The Honorable Rod R. Blagojevich

### *Michigan*

The Honorable Jennifer M. Granholm

### *Minnesota*

The Honorable Tim Pawlenty

### *New York*

The Honorable George E. Pataki

### *Ohio*

The Honorable Bob Taft

### *Pennsylvania*

The Honorable Edward G. Rendell

### *Wisconsin*

The Honorable James E. Doyle



## **BOARD OF DIRECTORS**

Mr. Todd Ambbs (*Madison, WI*)

Mr. Ken DeBeaussaert (*Lansing, MI*)

Mr. Michael Elmendorf (*Albany, NY*)

Mr. Alan Fish (*Madison, WI*)

Mr. Edwin Hammett (*Toledo, OH*)

Mr. Scott Harrison (*Lutsen, MN*)

Mr. A. Bart Holaday (*Chicago, IL*)

Sr. Pat Lupo, OSB (*Erie, PA*)

Mr. Andrew McElwaine (*Harrisburg, PA*)

Mr. Gerald Mikol (*Buffalo, NY*)

Mr. Roy Ray (*Akron, OH*)

Mr. Craig Shaver (*Minneapolis, MN*)

Ms. Maureen Smyth (*Flint, MI*)

Mr. Peter Wise (*Chicago, IL*)

## **GREAT LAKES PROTECTION FUND STAFF**

Amy Elledge – Communications Administrator

Laurence LaBoda – Director, Finance and Administration

Erin McCallister – Program Associate

David Rankin – Program Director

Gloria Swanson – Executive Administrator

Russell Van Herik – Executive Director



**APPENDIX 1**  
**AUDITED FINANCIAL STATEMENTS**



**Great Lakes Protection Fund**

**Financial Statements**

**December 31, 2005 and 2004**



**Altschuler, Melvoin and Glasser LLP**  
Certified Public Accountants and Consultants



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**Great Lakes Protection Fund**  
**Table of Contents**  
**December 31, 2005 and 2004**

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	Page
<b>Independent Auditors' Report</b>	1
<b>Financial Statements</b>	
Statements of Financial Position	2
Statements of Activities	3
Statements of Cash Flows	4
Notes to the Financial Statements	5 - 7



**Altschuler, Melvoin and Glasser LLP**  
Certified Public Accountants and Consultants

**Independent Auditors' 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, 2005 and 2004 and the statements of activities and of cash flows for the years then ended. The financial statements are the responsibility of the Fund's management. Our responsibility is to express an opinion on the financial statements based on our audits.

We conducted our audits in accordance with U.S. generally accepted auditing standards. 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, 2005 and 2004 and its activities and cash flows for the years then ended in conformity with U.S. generally accepted accounting principles.

*Altschuler, Melvoin & Glasser LLP*

Chicago, Illinois  
February 10, 2006

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1





**Great Lakes Protection Fund**  
**Statements of Financial Position**  
**December 31, 2005 and 2004**

	<u>2005</u>	<u>2004</u>
<b>Assets</b>		
Cash and cash equivalents	\$ 2,398,833	\$ 3,939,299
Receivable from broker for sales of securities	145,617	16,154
Investments	119,720,914	115,702,379
Accrued interest	179,367	133,393
Other assets	15,820	20,873
Furniture and equipment (net of accumulated depreciation of \$237,307 and \$203,899 in 2005 and 2004)	<u>58,323</u>	<u>87,355</u>
	<u><b>\$122,518,874</b></u>	<u><b>\$119,899,453</b></u>
<b>Liabilities and Net Assets</b>		
Liabilities		
Grant commitments	\$ 241,855	\$ -
Member state shares	1,624,037	366,094
Liability to brokers for purchase of securities	181,021	22,022
Accrued expenses	109,800	303,689
Accrued pension contribution	<u>3,703</u>	<u>3,593</u>
	<u>2,160,416</u>	<u>695,398</u>
Net assets		
Unrestricted	36,831,470	35,677,067
Permanently restricted	<u>83,526,988</u>	<u>83,526,988</u>
	<u>120,358,458</u>	<u>119,204,055</u>
	<u><b>\$122,518,874</b></u>	<u><b>\$119,899,453</b></u>

See accompanying notes.

2



**Great Lakes Protection Fund**  
**Statements of Activities**  
**Years Ended December 31, 2005 and 2004**

	2005		2004	
	Unrestricted	Permanently Restricted	Total	Total
Revenue				
Investment income	\$ 6,118,019	\$ -	\$ 6,118,019	\$ 3,008,836
Expenses				
Program grants	3,040,882		3,040,882	1,817,278
Member state shares	1,624,037		1,624,037	366,094
Investment management and advisory fees	196,330		196,330	344,096
Administrative expenses	1,049,577		1,049,577	1,566,459
	5,910,826	-	5,910,826	4,093,927
<b>Increase (decrease) in net assets before unrealized gain on investments</b>	207,193	-	207,193	(1,085,091)
Unrealized gain on investments	947,210		947,210	9,410,145
<b>Increase in net assets</b>	1,154,403	-	1,154,403	8,325,054
Net assets				
Beginning of year	35,677,067	83,526,988	119,204,055	27,352,013
<b>End of year</b>	<b>\$ 36,831,470</b>	<b>\$ 83,526,988</b>	<b>\$ 120,358,458</b>	<b>\$ 35,677,067</b>
				<b>\$ 83,526,988</b>
				<b>\$ 119,204,055</b>

See accompanying notes.



**Great Lakes Protection Fund**  
**Statements of Cash Flows**  
**Years Ended December 31, 2005 and 2004**

	2005	2004
<b>Operating activities</b>		
Increase in net assets	\$ 1,154,403	\$ 8,325,054
Depreciation	33,408	32,454
Realized (gain) loss on sales of investments	(1,901,099)	202,255
Unrealized gain on investments	(947,210)	(9,410,145)
Changes in		
Accrued interest	(45,974)	29,102
Other assets	5,053	(4,917)
Grant commitments	241,855	
Member state shares	1,257,943	(1,283,197)
Accrued expenses	(193,889)	171,471
Accrued pension contribution	110	128
<b>Net cash used in operating activities</b>	<u>(395,400)</u>	<u>(1,937,795)</u>
<b>Investing activities</b>		
Purchases of investments	(33,367,229)	(69,156,777)
Proceeds from sales of investments	32,226,539	70,414,564
Purchases of equipment and improvements	(4,376)	(10,738)
<b>Net cash provided by (used in) investing activities</b>	<u>(1,145,066)</u>	<u>1,247,049</u>
<b>Decrease in cash and cash equivalents</b>	(1,540,466)	(690,746)
<b>Cash and cash equivalents</b>		
Beginning of year	<u>3,939,299</u>	<u>4,630,045</u>
<b>End of year</b>	<u>\$ 2,398,833</u>	<u>\$ 3,939,299</u>

See accompanying notes.

4



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**Great Lakes Protection Fund**  
**Notes to the Financial Statements**  
**Years Ended December 31, 2005 and 2004**

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**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 U.S. generally accepted accounting principles, 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.

**Furniture and Equipment**—Furniture and equipment is stated at cost. Depreciation is recorded on a straight-line basis over the estimated useful lives of the assets.

**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 U.S. generally accepted accounting principles 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**  
**Years Ended December 31, 2005 and 2004**

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**Note 2 Investments**

Investments consist of the following:

	2005	
	Cost	Market
Bond mutual funds	\$ 28,171,396	\$ 28,537,084
Common stocks and stock equivalents	78,785,987	91,183,830
	<u>\$106,957,383</u>	<u>\$119,720,914</u>

  

	2004	
	Cost	Market
Bond mutual funds	\$ 28,171,396	\$ 29,158,284
Common stocks and stock equivalents	75,714,664	86,544,095
	<u>\$103,886,060</u>	<u>\$115,702,379</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 \$1,624,037 and \$366,094 at December 31, 2005 and 2004, respectively.

**Note 4 Grants Committed**

Grant activity for 2005 and 2004 is as follows:

	Grants Approved	Grants Paid	Grants Committed at December 31
2005	\$ 1,854,000	\$ 2,799,027	\$ 241,855
2004	2,273,000	1,817,278	

As of December 31, 2005, total grants approved since the Fund's inception amounted to \$46,662,213, of which \$3,274,961 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.



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**Great Lakes Protection Fund**  
**Notes to the Financial Statements**  
**Years Ended December 31, 2005 and 2004**

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**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	<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 2005. 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 \$123,996 and \$131,150 for 2005 and 2004, respectively.

Minimum payments required under the lease are as follows:

2006	\$ 145,556
2007	148,067
2008	150,579
2009	153,090
2010	<u>155,600</u>
	<u>\$ 752,892</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 \$44,862 and \$43,323 to the plan for 2005 and 2004, respectively.



## APPENDIX 2 PROJECTS COMPLETED IN 2005

### PREVENTING BIOLOGICAL POLLUTION

#### **Aquatic Nuisance Species Dispersal Barrier for the Chicago Sanitary and Ship Canal**

The initial goal of this project was to design, operate and evaluate a barrier to prevent the dispersal of aquatic nuisance species between the Great Lakes and Mississippi drainage basins. This project was successful in keeping the scientific community engaged in demanding a dispersal barrier and in designing and conducting an assessment of the initial installation's effectiveness. The team designed and carried out a monitoring program, and consequently discovered that fish could be "pulled" through the barrier in the wakes of barge tugs. This information was used to improve the design of the permanent barrier system.

Great Lakes Commission  
Contact: Shamel Ebou-El-Seoud  
734-971-9135

\$71,000



#### **Assessment of Transoceanic NOBOB Vessels and Low-Salinity Ballast Water as Vectors for Nonindigenous Species Introductions to the Great Lakes**

This project was designed to provide the first scientifically-based characterization of the composition of biological contents of ballast tanks in ships reporting no ballast on board (NOBOB), the first scientific evidence of specific risks from NOBOB vessels, the first assessment of the impact of ballast management practices, and the first quantitative assessment of the effectiveness of open-sea ballast exchange. The team found that over 90% of traffic entering the Great Lakes does so with no ballast on board. Yet, each vessel carries 15 tons of residual sediment in its ballast tanks which, in turn, carries live plant and animal organisms, pathogens, and resting stages. The team estimates that 6,000 to 30,000 non-indigenous organisms are released into Great Lakes waters each year via this sediment vector. Most of these belong to species already present in the lakes. In testing the efficacy of ballast exchange, the team identified an 80–100% rate of effectiveness, noting the difficulty in measuring the outcome due to the sequestering of "resting stages" in the sediments and the spottiness of sampling techniques. The team is now conducting a follow-up project designed to identify practices to reduce this rate of discharge.

University of Michigan  
Contact: Thomas Johengen  
734-764-2426  
[johengen@umich.edu](mailto:johengen@umich.edu)

\$1,123,000



### **Great Lakes Ballast Technology Demonstration Project**

This project set out to perform two ballast technology pilot tests: a test of coupled technology on a barge-based platform at two locations along Lake Superior, and a full-scale installation and testing of a single UV technology onboard a Seaway-sized vessel. The assays developed for both the barge-based and onboard experiments proved effective at measuring the overall impact of the treatments on ballast water. The project findings benchmark performance of these treatment systems against critical biological and operational endpoints, and demonstrate an approach to preliminary vetting of treatment systems, including shipboard evaluation of treatment effectiveness and function. The results of this research laid a foundation and produced a variety of tools for future research and management strategies assessing and monitoring the effectiveness of ballast water treatment systems.

Northeast Midwest Institute  
Contact: Allegra Cangelosi  
202-464-4007  
[acangelo@nemw.org](mailto:acangelo@nemw.org)

\$647,000



### **Great Lakes Ballast Technology Demonstration Project - Final Phase**

The Northeast Midwest Institute committed to four activities under this grant to help remove the barriers to ballast treatment technology development and use. This final phase of the Great Lakes Ballast Technology Demonstration Project (GLBTDP) (1) designed effectiveness measures and determined that coupling of filtration and UV technology will most effectively treat ballast water, (2) attracted engineering firms to design and install treatment systems on new and existing platforms, (3) encouraged the participation of the financial community in the future of ballast treatment technology, and (4) concluded through an independent evaluator that the GLBTDP had a tremendous positive impact on ballast water management policies and, in turn, had an equally positive impact on the Great Lakes ecosystem.

Northeast Midwest Institute  
Contact: Allegra Cangelosi  
202-464-4007  
[acangelo@nemw.org](mailto:acangelo@nemw.org)

\$750,000





### **St. Lawrence Seaway: Issues and Options**

The Academies sought to lead a team to develop the elements of a competition to generate a range of alternate designs for the future waterborne transportation system in the Great Lakes region. The team convened a committee to plan the design competition. Meetings were held in the U.S. and Canada to gather expertise and background information. The project team encountered more difficulty than it expected with the topic and the approach of a design competition. This concept has been abandoned and the Academies are building on the lessons learned in Phase II of this work.

The National Academies  
Contact: Stephen Godwin  
202-334-3261  
[sgodwin@nas.edu](mailto:sgodwin@nas.edu)

\$260,000



### **The Effectiveness of Filtration at Minimizing the Uptake and Transfer of Viable Organisms in the Ballast Water of a Commercial Vessel**

This team proposed to install a prototype ballast filtration system on a working Great Lakes vessel and to test it during routine operations. The team worked with experts to evaluate the engineering feasibility of retrofitting vessels with ballast treatment technology. Ultimately, a treatment system was installed on board the active transoceanic carrier, the *MT Stolt*. Through testing and analysis, this team developed an exceptional technology performance baseline for ballast water treatment that helped to drive the development of international ballast water standards. These early results provided the initial groundwork which led to additional investigations of ballast treatment technologies, such as secondary UV irradiation.

Northeast Midwest Institute  
Contact: Richard Munson  
202-544-5200  
[dickmunson@nemw.org](mailto:dickmunson@nemw.org)

\$1,572,000



## MARKET MECHANISMS

### **Insuring Environmental Improvement in the Great Lakes Ecosystem: A Collaboration with the Insurance and Great Lakes Industries**

The primary goal of the project was to encourage facilities in the Great Lakes region to prevent PBT pollution by demonstrating the insurance benefits that can accrue to facilities that undertake pollution prevention activities. The project team developed a screening process and created a list of five industry sectors for the initial focus of restructured insurance projects. The team concluded that environmental insurance was unlikely to yield substantial improvements in the ecosystem due to a gap between the terms of insurance (usually 1-3 years) and actual environmental performance (often exceeding the policy term), as well as the gap between environmental impact and claims (if the damage is not regulated or enforced, a claim may never be filed).

Tellus Institute  
617-266-5400

\$299,700



### **Municipal Clean Power Tagging & Brokering Program**

This team set out to substantiate new sources of clean power, broker clean power transactions with local units of government, and audit the environmental results. This project achieved tremendous environmental benefits by reducing harmful emissions in the Basin by 421,500 tons through the sale of 425,000 MWh of EcoPower. In total, the financial value of reduced emissions from this project was over \$4,000,000. The demand for renewable energy sparked by this project led to the first privately financed wind energy project in a Great Lakes state. Additionally, the team developed emissions analysis methodology to describe the reduction in harmful pollutants realized through the acquisition and use of clean energy as an alternative to electricity generated at coal fired power plants.

Environmental Resources Trust, Inc.  
Contact: Alden Hathaway  
202-785-8577  
[ahathaway@ert.net](mailto:ahathaway@ert.net)

\$525,000



## NATURAL FLOW REGIMES

### **Coupling Ecological, Economic, and Engineering (E3) Studies to Formulate Guidelines for Dam Removal and River Restoration in Great Lakes Watersheds**

The ultimate objective of this project was to improve the ecological health of Great Lakes rivers and streams by supporting dam removals and other river restoration efforts to reestablish more natural flow regimes, increasing fish passage, and reconnecting spawning grounds. The tools developed from this project provide a new field of information on the processes occurring during and after dam removal. The models accurately predicted the environmental impact of dam removal, and by utilizing the E3 models, described how undesirable environmental impacts can be avoided. This toolbox will aid dam owners with technical, ecological, and economic considerations associated with dam removal, as well as promote a standard form for addressing these restoration issues.

The Ohio State University Research Foundation  
Contact: Timothy C. Granata  
614-688-8125  
[granata.6@osu.edu](mailto:granata.6@osu.edu)

\$832,000



### **Groundwater and the Great Lakes: A Coordinated Binational Basin-Wide Assessment in Support of Annex 2001 Decision Making**

The initial goals of this project were to develop a three dimensional visualization of the Lake Michigan groundwater divide to illustrate the relationship between ground and surface water, and to produce a tool to simulate the impact of groundwater withdrawal on flows into the Great Lakes. This information and tool set has been put to use in southeastern Wisconsin where it was critical to informing decisions and debates regarding water withdrawals. Experts were able to illustrate the impact that the pumping of groundwater had on the groundwater divide in the region and how the movement of the divide affected water levels in Lake Michigan. Researchers throughout the Basin have approached the team to build upon these initial findings in evaluating the base flow at other locations in the Basin. This project has spurred communication between a variety of individuals and agencies now engaged in dialogue to better manage and inform water use decisions in the Great Lakes.

U.S. Geological Survey  
Contact: Jim Nicholas  
517-887-8903  
[jnichol@usgs.gov](mailto:jnichol@usgs.gov)

\$418,000



### **Improving the Ecological Health of the Water Resources of the Great Lakes**

This team set out to document the extent and effects of physical alterations on flow and biological communities by identifying and evaluating geographical patterns to determine the influence of land use and dams on flow variations. This project created the first watershed analysis of flow characteristics for all Great Lakes tributaries and a working model for the analysis of system flows. A new application of GIS technology developed from this work enables users to construct hydrographs, retrieve information about dams, and access contact information for specific watersheds. Ultimately, this project provides a platform for further research and development on natural flow regimes.

University of Michigan  
Contact: J. David Allan  
734-764-6553  
[dallan@umich.edu](mailto:dallan@umich.edu)

\$300,000



### **Riverine Habitat Assessment and Flow Regime Restoration**

The Ohio Department of Natural Resources proposed to develop risk assessment protocols for flow regime restoration at three sites that could be used as models for other land managers. Using GIS integrated data, the team developed a methodology to delineate the habitat before dam removal. After the simulation of dam removal, the habitat information was helpful in predicting the impact of the dam removal on the potential spawning areas for important fish populations. Based on these eco-hydraulic models, water managers are able to evaluate the impacts from different types of altered dams, including completely removed, partially removed, and unchanged dams. The risk assessment protocols developed from this project will be helpful in evaluating natural flow restoration strategies at riverine habitats throughout the Basin.

Ohio Department of Natural Resources  
Contact: Constance Livchak  
419-626-4296  
[constance.livchak@dnr.state.oh.us](mailto:constance.livchak@dnr.state.oh.us)

\$207,000



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## APPENDIX 3 PROJECTS INITIATED IN 2005

### **Achieving Ecosystem Benefits through Pollution Prevention and Energy Efficiency Transactions**

The ultimate outcome 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. In creating transactions and working with landowners in Illinois and Michigan, the team will develop a series of tools to track and measure the full extent of the environmental impacts associated with specific reduction actions. In conjunction with a panel of Sustainability Institute Fellows, the team will verify these ecosystem impacts and identify third party transactions to retire the benefits. The tools and products developed include: investment grade audits, efficiency contracts, carbon offset transactions, and facility footprint mapping. If successful, the project will allow the ecosystem improvements generated to accumulate in the Great Lakes Basin.

Delta Institute \$435,000  
Contact: Timothy Brown  
312-554-0900  
[thbrown@delta-institute.org](mailto:thbrown@delta-institute.org)



### **Lake Ontario Resource Improvement Opportunity Assessment**

This team will expand the geographic scope of a resource improvement screening model (developed by Cornell University in a previous grant) to all of Lake Ontario, create a user-friendly template that allows a project proponent to use the screening level information to assemble an improvement project, and create methods to capture the benefits which accrue to that project over space and time. In particular, the team will allow a user to identify the full suite of restoration opportunities that might exist at the site in addition to the more regionally common opportunities used as a “screen” to identify likely sites. Last, the team expects to develop tools that will allow a project proponent to identify the resource improvements that will occur offsite, or later in time.

Natural Heritage Institute \$544,000  
Contact: Gregory Thomas  
415-693-3000  
[gat@n-h-i.org](mailto:gat@n-h-i.org)



### **St. Lawrence Seaway: Issues and Options – Phase II**

The team will build on its efforts of Phase I work to identify options to eliminate the introduction of non-indigenous species into the Great Lakes. In addition to committee members from Phase I, the team will include new members with expertise in decision analysis, political science, international trade and economic development as well as members from the Royal Society of Canada. The committee and additional experts (identified throughout the process) will form an “innovation cell” that will develop options to (1) promote international commerce and (2) eliminate the introduction of invasive species. They will identify topics (selected by committee and reviewed by stakeholders) for eight commissioned papers. Upon presentation of the commissioned papers and comment by stakeholders at a two-day symposium, the committee will develop ranked options in the form of a final report. Ultimately, the committee will brief federal officials and other interested parties on the final report’s findings.

The National Academies  
Contact: Stephen Godwin  
202-334-3261  
[sgodwin@nas.edu](mailto:sgodwin@nas.edu)

\$875,000



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## APPENDIX 4

### PORTFOLIO OF PROJECTS AS OF DECEMBER, 2005

#### PREVENTING BIOLOGICAL POLLUTION

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

Six Great Lakes Sea Grant Extension programs will train the research and resource management communities in the use of the Hazard and Critical Control Point methodology to identify and eliminate the risk of introducing aquatic nuisance species in their routine operations. This methodology was developed to prevent the contamination of foodstuffs and has been expanded by the team to apply to the bait and aquaculture industries. The methodology requires that participants identify potentially risky behavior and the critical times when that behavior must be modified to prevent the spread of invasive species. Sea Grant extension agents will provide this training and act as a resource for state and federal resource management agencies and research institutions.

Minnesota Sea Grant Program \$246,000  
Contact: Jeffrey Gunderson  
218-726-8715  
[jqunder1@umn.edu](mailto:jqunder1@umn.edu)



##### **Great Lakes Pollution Prevention Project: Biological Pollution and the Waterborne Transportation System**

A team led by the Northeast Midwest Institute will: 1) evaluate the waterborne transportation system and outbreaks of biological pollution; 2) identify strategies to prevent future outbreaks; 3) create a model environmental management system to ensure that those strategies are adopted throughout the value chain (ports, shippers, carriers, etc.); 4) create a communication and outreach strategy to ensure that the management systems are adopted; and 5) work with the emerging Great Lakes Cities initiative and restoration strategy.

Northeast Midwest Institute \$325,000  
Contact: Allegra Cangelosi  
202-464-4007  
[acangelo@nemw.org](mailto:acangelo@nemw.org)



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

This team will develop and test a set of enhancements to the Canadian Shipping Federation's Code of Conduct that specifies ballast management practices for vessels entering the Great Lakes. Specifically, they will extend the current requirements to NOBOB vessels by identifying where, when and how ballast should be taken on even though it will be discharged before entering the Great Lakes system, how sediment can be managed, and the use of salt-water exchange even if loaded with cargo. The team will conduct controlled experiments to assess each method.

University of Michigan  
Contact: Thomas Johengen  
734-764-2426  
[johengen@umich.edu](mailto:johengen@umich.edu)

\$770,000



### **St. Lawrence Seaway: Issues and Options – Phase II**

The team will build on its efforts of Phase I work to identify options to eliminate the introduction of non-indigenous species into the Great Lakes. In addition to committee members from Phase I, the team will include new members with expertise in decision analysis, political science, international trade and economic development as well as members from the Royal Society of Canada. The committee and additional experts (identified throughout the process) will form an "innovation cell" that will develop options to (1) promote international commerce and (2) eliminate the introduction of invasive species. They will identify topics (selected by committee and reviewed by stakeholders) for eight commissioned papers. Upon presentation of the commissioned papers and comment by stakeholders at a two-day symposium, the committee will develop ranked options in the form of a final report. Ultimately, the committee will brief federal officials and other interested parties on the final report's findings.

The National Academies  
Contact: Stephen Godwin  
202-334-3261  
[sgodwin@nas.edu](mailto:sgodwin@nas.edu)

\$875,000





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## LEADERSHIP FOR ECOSYSTEM RESTORATION

### **PBT-Free Purchasing in the Great Lakes Basin**

INFORM will lead a team of large public purchasers working for state agencies, local governments and public institutions in the Great Lakes Basin to identify products free from persistent, bioaccumulative toxic chemicals (PBTs) and revise the bid specifications and other contract language for upcoming purchases to ensure the use of alternatives. If product alternatives are not available, the purchasers will require vendors to take the goods back and recover the PBTs at the end of the product's life. The project team would track changes in purchasing practices and monitor the resulting PBT reductions. The team's long-term goal is to change manufacturing processes and product-design specifications for certain goods, which will lead to a complete phase-out of products that contain PBTs.

INFORM, Inc. \$300,000  
Contact: Joanna Underwood  
212-361-2400



### **Public Benefit Charges: A Promising New Avenue to Reduce Toxics Deposition to the Great Lakes**

The Center for Clean Air Policy (CCAP) will design and test criteria to support energy efficiency and renewable energy projects that reduce the maximum amount of toxic emissions—especially mercury, dioxins/furans and cadmium—deposited from the air into the Great Lakes. CCAP will lead a team of representatives from agencies, non-profits, the energy sector, and State public benefit fund leaders to demonstrate the benefits of applying selection criteria to support energy efficiency (EE) and renewable energy (RE) projects with public benefit charge funds. The criteria will be applied to fund decisions at a pilot scale in Illinois and New York to estimate the resulting air quality benefits achieved.

Center for Clean Air Policy \$300,000  
Contact: Stacey Davis  
202-408-9260  
[sdavis@ccap.org](mailto:sdavis@ccap.org)



### Quality Hunting Ecology

Sand County Foundation will work with private land owners, state resource agencies, the insurance industry, and hunters to implement a plan to reduce the impact of deer on forest regeneration at three model sites in the Great Lakes Basin. The Foundation has already demonstrated success at a small scale by increasing the proportion of mature male deer in the target population and has reduced the overall number of deer and the rate of population growth. The Foundation is expanding this program to cover 300,000 acres. The project will result in improved water quality through a more diverse and robust forest complex.

Sand County Foundation  
Contact: Kevin McAleese  
608-242-5237  
[mcaleese@mailbag.com](mailto:mcaleese@mailbag.com)

\$300,000



## MARKET MECHANISMS

### Achieving Ecosystem Benefits through Pollution Prevention and Energy Efficiency Transactions

The ultimate outcome 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. In creating transactions and working with landowners in Illinois and Michigan, the team will develop a series of tools to track and measure the full extent of the environmental impacts associated with specific reduction actions. In conjunction with a panel of Sustainability Institute Fellows, the team will verify these ecosystem impacts and identify third party transactions to retire the benefits. The tools and products developed include: investment grade audits, efficiency contracts, carbon offset transactions, and facility footprint mapping. If successful, the project will allow the ecosystem improvements generated to accumulate in the Great Lakes Basin.

Delta Institute  
Contact: Timothy Brown  
312-554-0900  
[thbrown@delta-institute.org](mailto:thbrown@delta-institute.org)

\$435,000



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

The team will develop a water-balance decision support system that will, in turn, support the research and development of a water conservation credit system. The team will support and build on existing efforts to link three existing models—surface hydrology, groundwater movement and in-stream biological condition—to evaluate the potential consequences of changes in groundwater withdrawals. The team will estimate the impact of various water conservation and harvesting techniques on groundwater supply. The team expects to run these linked models in two selected watersheds to prototype a water conservation credit verification system. In these watersheds, the estimated effect of installing practices to enhance groundwater recharge would be balanced against new requests for withdrawals.

Michigan State University  
Contact: Jon Bartholic  
517-353-9785  
[bartholi@msu.edu](mailto:bartholi@msu.edu)

\$540,000



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

The American Farmland Trust Agricultural Conservation Innovation Center (ACIC) will work with a team of insurers, farm operators, farm advisers and state and federal farm agencies to improve Great Lakes water quality by providing risk management incentives that promote conservation practices to reduce fertilizer and chemical applications on agricultural lands within the Basin. The team will develop and implement a set of risk management products (insurance policies or service warranties) that protect farmers against financial losses associated with lower crop yields due to reduced fertilizer and chemical inputs. The project team will also evaluate the effectiveness of using risk management products as a tool to promote agricultural conservation practices and achieve Great Lakes environmental outcomes

American Farmland Trust  
Contact: Brian Brandt  
614-221-8610  
[bbrandt@farmland.org](mailto:bbrandt@farmland.org)

\$373,000



## NATURAL FLOW REGIMES

### **Creating Improvements to the Great Lakes Ecosystem to Offset Withdrawal Requests**

This is the first phase of a project to develop up to five stream and wetland restoration projects that will create improvement credits available to an entity. This team expects the project to proceed in two phases. In the first phase, the team will identify potential sites and screen them for their ability to generate resource improvements. The team will then develop restoration plans for each site including the design of an ongoing monitoring and assurance program. Last, the team will develop a system to identify and measure resource improvements, based on the work previously supported by the Fund. In the second phase, the team will create a land trust (or series of trusts) to hold the property, construct the improvement projects and market the resulting improvements.

Land and Water Resources, Inc.  
Contact: David Urban  
847-692-7170  
[dturban@lawrinc.com](mailto:dturban@lawrinc.com)

\$459,000



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

The team will identify resource improvements from changes in land and water uses, develop and implement a tool to register those ecosystem improvements, and create the legal and financial arrangements to trade or sell credits to those interested in securing increased basin withdrawals. The team will identify the likely hydrological benefits of wetland restoration, stormwater retention, and various agricultural and residential best management practices and then couple the hydrologic benefits to expected improvements in ecological condition. Standards for various types and magnitudes of ecological improvements will be developed and a mechanism to register improvements will be created. Last, the team expects to identify the legal, financial and insurance mechanisms required to support trading or sales of improvement “credits”.

CH2M Hill  
Contact: Mark Mittag  
414-272-2426  
[mark.mittag@ch2m.com](mailto:mark.mittag@ch2m.com)

\$525,000



### **Identifying and Valuing Restoration Opportunities at Watershed and Subwatershed Scales**

The team will develop, test and apply a suite of watershed assessment tools to identify high-value restoration opportunities that reverse ecological impairments associated with altered hydrology. The team will conduct a baseline survey of watershed types in the Basin—identifying boundaries, dominant hydrology, dominant land use and principal supply of water for human uses. From this inventory, the team will select four pilot watersheds based on the nature of ecological impairments, the nature of restoration activities that are planned or underway, and whether any other Fund supported activity is underway at the site. In these watersheds, the team will test the ability of several protocols to predict and track the consequences of the restoration work including the index of hydrologic alteration, Instream Flow Council protocols, and ecological flow prescription protocols. Building on work at these sites, the team will create a set of methods to value and compare different restoration opportunities. Ultimately, the team expects to generate a “water base unit” metric to measure ecological improvements.

Applied Ecological Services  
Contact: Steven Apfelbaum  
608-897-8547  
[steve@appliedeco.com](mailto:steve@appliedeco.com)

\$499,000



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

Applied Ecological Services (AES) will monitor the effectiveness of stormwater treatment trains in improving water quality and flow during and after construction. AES will construct Stormwater Treatment Trains—vegetated swales that convey runoff, wetlands that remove nutrients and sediment, and sedimentation basins and stages release outlets—at three developments in southeast Wisconsin. The project will evaluate the ecological impacts of, and costs associated with, three watershed sensitive developments and compare them to pre- and post-development conditions and traditional residential developments.

Applied Ecological Services, Inc.  
Contact: Steven Apfelbaum  
608-897-8547  
[steve@appliedeco.com](mailto:steve@appliedeco.com)

\$369,000



### **Lake Ontario Resource Improvement Opportunity Assessment**

This team will expand the geographic scope of a resource improvement screening model (developed by Cornell University in a previous grant) to all of Lake Ontario, create a user-friendly template that allows a project proponent to use the screening level information to assemble an improvement project, and create methods to capture the benefits which accrue to that project over space and time. In particular, the team will allow a user to identify the full suite of restoration opportunities that might exist at the site in addition to the more regionally common opportunities used as a “screen” to identify likely sites. Last, the team expects to develop tools that will allow a project proponent to identify the resource improvements that will occur offsite, or later in time.

Natural Heritage Institute  
Contact: Gregory Thomas  
415-693-3000  
[gat@n-h-i.org](mailto:gat@n-h-i.org)

\$544,000



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

This is the first phase of a project to investigate and build environmental markets for the ecological improvements associated with restoring natural flow regimes. In this first phase, the team expects to identify existing efforts that are, or easily could be, generating ecological improvements at three to six areas in the Basin. For each location, the team will identify the full suite of environmental benefits generated, define how to create rights in those improvements, identify why those projects are generating improvements, and how they are presently being accounted. Based on the elements common to the case sites, the team will prepare model methods to capture the value of the benefits created and model contracts to convey rights to a second party. The project will also consider how market mechanisms can be incorporated into existing local, state, and federal environmental regulations, land use decision-making and infrastructure planning and investment.

Environmental Trading Network  
Contact: Mark Kieser  
269-344-7117  
[mkieser@kieser-associates.com](mailto:mkieser@kieser-associates.com)

\$250,000



### **Restoring the Great Lakes Ecosystem's Natural Flow Regime: Three Demonstration Projects**

The Nature Conservancy (TNC) will reestablish natural flow regimes through research, restoration, and monitoring activities at three conservation sites with different hydrology. At Ives Road Fen in Michigan and Shivering Sands in Wisconsin, TNC will reestablish groundwater/surface water flow connections, restore natural land contours and control exotic species. In the eastern Lake Ontario/St. Lawrence River, TNC will study the effects of lake level alterations on the shoreline and will identify changes that could be made to current dam operations and other processes that modify the flow regimes of the near-shore currents.

The Nature Conservancy  
Contact: Lois Morrison  
312-759-8017  
[lmorrison@tnc.org](mailto:lmorrison@tnc.org)

\$653,000



**APPENDIX 5**  
**GOVERNORS' PRIORITIES**





October 1, 2003

The Honorable Michael DeWine  
140 Russell Senate Office Building  
Washington, D.C. 20510

As the Governors of our nation's Great Lakes States, we would like to express our appreciation for the introduction of S.1398, "The Great Lakes Environmental Restoration Act" and H.R.2720, the "Great Lakes Restoration Financing Act." We recognize that despite the many federal, state and local efforts currently underway to restore and protect them, the Great Lakes remain at risk of damage from continuing pollution, environmental degradation and unsustainable water resource management practices. We applaud the bills' sponsors and cosponsors for acting to address these threats and are heartened by the potential for substantial additional federal dollars to abate them.

Two decades ago our States jointly formed the Council of Great Lakes Governors, in part to fulfill our lead responsibilities as stewards of the Great Lakes Basin's water resources and in recognition of the tremendous ecological, economic and social benefits they provide. The Great Lakes Governors remain committed to protecting and restoring the natural habitat and water quality of the Great Lakes Basin; preserving diverse and thriving plant and animal communities; protecting the water supply; and, safeguarding human health.

The Region's Governors have reached consensus that the following priorities should guide Great Lakes restoration and protection efforts:

- Ensure the sustainable use of our water resources while confirming that the States retain authority over water use and diversions of Great Lakes waters.
- Promote programs to protect human health against adverse effects of pollution in the Great Lakes ecosystem.
- Control pollution from diffuse sources into water, land and air.
- Continue to reduce the introduction of persistent bioaccumulative toxics into the Great Lakes ecosystem.
- Stop the introduction and spread of non-native aquatic invasive species.
- Enhance fish and wildlife by restoring and protecting coastal wetlands, fish and wildlife habitats.
- Restore to environmental health the Areas of Concern identified by the International Joint Commission as needing remediation.
- Standardize and enhance the methods by which information is collected, recorded and shared within the region.
- Adopt sustainable use practices that protect environmental resources and may enhance the recreational and commercial value of our Great Lakes.

BOB TAFT  
CHAIRMAN  
*Governor of Ohio*

ROD BLAGOJEVICH  
*Governor of Illinois*

JIM DOYLE  
*Governor of Wisconsin*

JENNIFER M. GRANHOLM  
*Governor of Michigan*

JOSEPH E. KERNAN  
*Governor of Indiana*

GEORGE E. PATAKI  
*Governor of New York*

TIM PAWLENTY  
*Governor of Minnesota*

ED RENDELL  
*Governor of Pennsylvania*

DAVID NAFTZGER  
*Acting Executive Director*

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e-mail: [cglg@cglg.org](mailto:cglg@cglg.org)



Last year, in response to the request of members of the Great Lakes Congressional Task Force and under the leadership of its Chairman, Governor Bob Taft, the Council launched the *Great Lakes Governors' Priorities Task Force*. The premise of the Task Force's work to date has been that coordinated planning is needed to achieve comprehensive restoration and protection of the Great Lakes while making efficient use of limited resources. Working with the Great Lakes Congressional delegation, Great Lakes Mayors, and stakeholders throughout the region, we believe a broad based plan can be constructed in the context of pending legislation, thus providing both a blueprint for restoration and protection and critically needed federal resources to implement it. This plan should build on the significant State and Federal investments to date, value broad public participation, foster sound public policy and sustainable behavior, and address the environmental issues of the present and anticipate the challenges of tomorrow so that the Great Lakes experience full restoration and protection, balanced with economic prosperity.

We will soon present to Congress detailed comments on S. 1398 and H.R. 2720. As the legislative process moves forward, the Great Lakes Governors encourage Congress to work toward enactment of a bill that encompasses these overarching principles:

- minimal bureaucracy, allowing efforts to be directed toward protection and restoration rather than toward process and paperwork;
- affordable non-federal match requirements, particularly in light of ongoing and significant State investments in Great Lakes restoration;
- coordination of the efforts of the many government and non-governmental entities involved in protection and restoration activities; and,
- recognition of the leadership role of the Great Lakes Governors in defining regional priorities.

While the approach of the House and Senate bills is not identical, there are elements of these principles in each. The two bills are a similarly strong expression of Congressional intent to invest significant additional resources in Great Lakes protection and improvements, while seeking coordination throughout the region. We are also pleased to see both bills address the development of water quality indicators as a measure of progress.

In addition to detailed comments on the legislation, we plan to submit a short-term agenda to help guide spending decisions while a more comprehensive protection and restoration funding program is being developed. We believe it is vital to maintain the momentum of federal, state, and local governments, along with multiple stakeholder groups, on those projects and programs that are furthering our restoration goals today.

We welcome the opportunity to join you in building momentum for this historic advance in national support for the world's largest source of fresh surface water. We look forward to building on the partnership between the region's Governors and the Great Lakes Congressional Task Force to secure the protection and restoration of the Great Lakes ecosystem for generations to come.



*Rod Blagojevich*  
Rod Blagojevich  
Governor of Illinois

*Joseph E. Kernan*  
Joseph E. Kernan  
Governor of Indiana

*Jennifer Granholm*  
Jennifer Granholm  
Governor of Michigan

*Tim Pawlenty*  
Tim Pawlenty  
Governor of Minnesota

*George E. Pataki*  
George E. Pataki  
Governor of New York

*Bob Taft*  
Bob Taft  
Governor of Ohio

*Edward Rendell*  
Edward Rendell  
Governor of Pennsylvania

*Jim Doyle*  
Jim Doyle  
Governor of Wisconsin



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