

Great Lakes Protection Fund

2021 Annual Report



Background

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 contributed \$81.0 million to the Fund's permanent endowment.

The Fund does three things. First, it invests the endowment to produce income. This income supports regional projects, member states' individual Great Lakes priorities, and operations. 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 2021, the Fund has made a total of 304 grants and program-related investments, representing a \$94 million commitment to protecting and restoring the ecological health of the Great Lakes ecosystem. Additionally, the Fund has paid \$55.5 million directly to its seven member states to support their Great Lakes priorities. Over the course of the past 32 years, the Great Lakes ecosystem has benefited from the States' initial investment of \$81.0 million with an overall commitment of \$149.5 million.

Governors' Ongoing Priorities

From time to time the governors establish, modify and renew their ongoing Great Lakes priorities. Currently, the Fund's goals are responsive to the governors' stated priorities including the following:

- 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.



Activities During 2021

In the past year, the Fund realized over \$6.5 million in investment income from the endowment. The Fund returned \$1.6 million to its member states to support their Great Lakes priorities. The Fund paid \$3.1 million to support regional projects. Audited financial statements can be found in Appendix 1.

The Fund entered 2021 with 22 active projects focused on efforts to prevent biological pollution, restore natural flow regimes, stimulate market forces to adopt best practices and promising technology solutions, and provide leadership for ecosystem restoration in the Great Lakes Basin. These projects represented an investment by the Fund of \$14.2 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 mission-related return on the Fund's investment.

The Fund's strategic plan ([link here](#)) focuses programming in three priority areas: ensuring sustainable use of water resources, controlling pollution from diverse sources and stopping the introduction and spread of non-native aquatic invasive species. Our focus is on building new solutions to these shared gubernatorial priorities. During 2021, the Fund developed and supported ten new projects, growing the portfolio of active, supported work to 25 projects—an investment of over \$15.2 million. The complete portfolio of supported work, including new projects awarded in 2021, can be found in Appendix 3.

Our strategic plan also encourages new types and sizes of awards to better target large investments, better engage experts that provide advice, and better engage our audiences. The Fund continued its efforts to expedite support of small, exploratory projects. More information about the awards can be found in Appendix 3.

Evaluation of the Corporation's Performance

The Fund successfully accomplished its objectives during 2021. Most notably, the Fund's endowment outperformed its market benchmarks and ended the year with a market value of \$166,607,474 million. State shares, paid in the spring of 2022 following our independent audit of financial statements, totaled \$1,593,886 for the year 2021; and \$55,569,127 since inception. These funds are available to member states to address their highest Great Lakes priorities.

The Fund built, vetted, and financed 10 new collaborative teams in 2021. Total investment in these new teams was \$2,999,003. These teams—detailed in Appendix 3—are creating new approaches to drive down the outbreaks of harmful algae, increase the performance of built water infrastructure while reducing its cost, and better deploy strategies to reduce the impact of invasive species. Fund staff worked with all 25 projects to be sure they're on track, help them spot opportunities, adjusted workplans as needed, and worked with them to grow their innovations. We have expanded our use of new media by adding podcasts to our engagement activities. Further the team has applied what we've learned during the pandemic to streamline our operations, adding new technology that has reduced our administrative costs.

Emerging Trends and Future Needs

The Governors have identified their priorities for Great Lakes Basin ecosystem protection and restoration. The Fund will continue its multi-year support agenda in support of these priorities by executing against our strategic plan.



Members of the Corporation in 2021

Governor of Illinois

J.B Pritzker

Governor of Michigan

Gretchen Whitmer

Governor of Minnesota

Tim Walz

Governor of New York

Andrew Cuomo

Governor of Ohio

Mike DeWine

Governor of Pennsylvania

Tom Wolf

Governor of Wisconsin

Tony Evers



Board of Directors in 2021

Kate Bartter (Columbus, OH)

Timothy Bruno (Erie, PA)

Vita DeMarchi, replaced, June 2021, (Syracuse, NY)

Joanne So Young Dill (Barrington, IL)

Judy Drabicki, appointed, June 2021 (Dexter, NY)

Tim Eder (Chelsea, MI)

Peter Gove (St. Paul, MN)

Richard Hylant (Ottawa Hills, OH)

Jill Jedlicka (Lancaster, NY)

Kim Marotta (Mequon, WI)

Andrew McElwaine (Pittsburgh, PA)

Don Ness (Duluth, MN)

Laura Rubin (Ann Arbor, MI)

Kevin Shafer (Milwaukee, WI)

Debra Shore, resigned, October 2021, (Skokie, IL)



Great Lakes Protection Fund Staff

Stephen Cole – Vice President of Programs

Shannon Donley – Project Implementation Manager

Amy Elledge – Communications Manager – retired, December 2021

Collin Knauss – Project Development Manager – hired, September 2021

Mariela Lawrence – Office Administrator

Drew Pfeifer – Vice President of Operations

Janis Post – Business Manager – retired, June 2021

David Rankin – Executive Director

Ryan Smith – Project Development Manager – resigned, March 2021



Appendix 1

2021 Audited Financial Statements



Great Lakes Protection Fund

Financial Report
December 31, 2021



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RSM US LLP

Independent Auditor's Report

Board of Directors
Great Lakes Protection Fund

Opinion

We have audited the financial statements of Great Lakes Protection Fund (the Fund), which comprise the statements of financial position as of December 31, 2021 and 2020, the related statements of activities, and cash flows for the years then ended, and the related notes to the financial statements.

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of the Fund as of December 31, 2021 and 2020, and the changes in its net assets and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinion

We conducted our audits in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the Fund and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audits. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Fund's ability to continue as a going concern within one year after the date that the financial statements are issued (or within one year after the date that the financial statements are available to be issued when applicable).

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

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In performing an audit in accordance with GAAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Fund's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Fund's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control–related matters that we identified during the audit.

RSM US LLP

Chicago, Illinois
March 14, 2022



Great Lakes Protection Fund

**Statements of Financial Position
December 31, 2021 and 2020**

	2021	2020
Assets		
Cash and cash equivalents	\$ 10,901,444	\$ 8,468,533
Investments	155,668,688	143,908,681
Accrued interest	37,342	52,364
Other assets	29,939	25,971
Furniture, equipment and leasehold improvements, net of accumulated depreciation of \$62,022 and \$52,955 in 2021 and 2020, respectively	13,942	17,841
	\$ 166,651,355	\$ 152,473,390
Liabilities and Net Assets		
Liabilities:		
State shares payable	\$ 1,593,886	\$ 1,263,100
Accrued expenses	192,284	171,339
	1,786,170	1,434,439
Net assets:		
Without donor restrictions	8,507,405	8,540,408
With donor restrictions	156,357,780	142,498,543
	164,865,185	151,038,951
	\$ 166,651,355	\$ 152,473,390

See notes to financial statements.



Great Lakes Protection Fund

**Statements of Activities
Year Ended December 31, 2021**

	Without Donor Restrictions	With Donor Restrictions	Total
Income:			
Realized investment income and gains, net	\$ 88,759	\$ 6,412,683	\$ 6,501,442
Miscellaneous revenue	-	119	119
Net assets released from restrictions	6,445,037	(6,445,037)	-
	<u>6,533,796</u>	<u>(32,235)</u>	<u>6,501,561</u>
Expenses:			
Mission:			
Regional grant payments	3,136,034	-	3,136,034
State shares	1,593,886	-	1,593,886
Salaries and benefits	706,587	-	706,587
Facilities	97,272	-	97,272
Other mission expenses	112,881	-	112,881
	<u>5,646,660</u>	<u>-</u>	<u>5,646,660</u>
Management and general:			
Salaries and benefits	542,688	-	542,688
Facilities	113,520	-	113,520
Other management and general expenses	142,169	-	142,169
	<u>798,377</u>	<u>-</u>	<u>798,377</u>
Total expenses	<u>6,445,037</u>	<u>-</u>	<u>6,445,037</u>
Increase (decrease) in net assets before other items	88,759	(32,235)	56,524
Unrealized (losses) gains	(121,762)	13,891,472	13,769,710
(Decrease) increase in net assets	<u>(33,003)</u>	<u>13,859,237</u>	<u>13,826,234</u>
Net assets:			
Beginning of year	8,540,408	142,498,543	151,038,951
End of year	<u>\$ 8,507,405</u>	<u>\$ 156,357,780</u>	<u>\$ 164,865,185</u>

See notes to financial statements.



Great Lakes Protection Fund

**Statements of Activities
Year Ended December 31, 2020**

	Without Donor Restrictions	With Donor Restrictions	Total
Income:			
Realized investment income and gains, net	\$ 76,358	\$ 5,500,813	\$ 5,577,171
Miscellaneous revenue	-	170	170
Net assets released from restrictions	6,257,481	(6,257,481)	-
	<u>6,333,839</u>	<u>(756,498)</u>	<u>5,577,341</u>
Expenses:			
Mission:			
Regional grant payments	3,206,805	-	3,206,805
State shares	1,263,098	-	1,263,098
Salaries and benefits	742,393	-	742,393
Facilities	107,154	-	107,154
Other mission expenses	70,134	-	70,134
	<u>5,389,584</u>	<u>-</u>	<u>5,389,584</u>
Management and general:			
Salaries and benefits	577,961	-	577,961
Facilities	104,792	-	104,792
Other management and general expenses	185,144	-	185,144
	<u>867,897</u>	<u>-</u>	<u>867,897</u>
Total expenses	<u>6,257,481</u>	<u>-</u>	<u>6,257,481</u>
Increase (decrease) in net assets before other items	76,358	(756,498)	(680,140)
Unrealized gains	57,290	11,197,653	11,254,943
Net assets released from restrictions - appropriation for temporary reserve	3,000,000	(3,000,000)	-
Increase in net assets	<u>3,133,648</u>	<u>7,441,155</u>	<u>10,574,803</u>
Net assets:			
Beginning of year	<u>5,406,760</u>	<u>135,057,388</u>	<u>140,464,148</u>
End of year	<u>\$ 8,540,408</u>	<u>\$ 142,498,543</u>	<u>\$ 151,038,951</u>

See notes to financial statements.



Great Lakes Protection Fund

Statements of Cash Flows
Years Ended December 31, 2021 and 2020

	2021	2020
Cash flows from operating activities:		
Cash provided by dividends, interest and miscellaneous	\$ 4,815,372	\$ 3,672,957
Cash payments for:		
Grants	(3,136,034)	(3,215,798)
State shares	(1,263,100)	(1,188,498)
Salaries and benefits	(1,326,633)	(1,355,239)
Facilities	(216,533)	(216,549)
Investment management and advisory fees	(172,971)	(134,983)
Other operating expenses	(197,819)	(255,608)
Net cash used in operating activities	(1,497,718)	(2,693,718)
Cash flows from investing activities:		
Purchases of investments	(2,243,839)	(4,503,955)
Proceeds from sales of investments	6,179,636	11,673,244
Purchases of furniture, equipment and leasehold improvements	(5,168)	(6,329)
Net cash provided by investing activities	3,930,629	7,162,960
Increase in cash and cash equivalents	2,432,911	4,469,242
Cash and cash equivalents:		
Beginning of year	8,468,533	3,999,291
End of year	\$ 10,901,444	\$ 8,468,533

See notes to financial statements.



Great Lakes Protection Fund

Notes to 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 health of the ecosystem of the Great Lakes Basin.

Basis of accounting: Under accounting principles generally accepted in the United States of America, not-for-profit organizations report net assets in two classes: net assets with donor restrictions or net assets without donor restrictions based on the existence or absence of donor-imposed restrictions.

Cash and cash equivalents: For purposes of the financial statements, the Fund considers money market funds to be cash equivalents.

The Fund maintains cash accounts at financial institutions, which at times may exceed \$250,000. A significant portion of cash equivalents is invested in interest-bearing money market accounts. Such amounts are insured by the Federal Deposit Insurance Corporation up to \$250,000 per taxpayer ID number. 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 fair value based on quoted market prices. Realized gains on the sale of mutual funds are computed using the specific-identification method. Realized gains on the sale of other investments are computed using the first-in, first-out method. Purchases and sales of investments are recorded on a trade-date basis. Interest is recorded on the accrual basis. Dividend income is recorded on the ex-dividend date. Endowment fund investment income or loss (including gains and losses on investments, interest and dividends) is recorded as increases or decreases in net assets with donor restrictions until appropriated for expenditure by the Fund. Other investment income or loss is included in the statements of activities as increases or decreases in net assets without donor restrictions unless the income or loss is restricted by donor or law. Changes in fair value are recorded as unrealized gains/losses in the statements of activities.

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 three to seven years. Leasehold improvements are amortized over the lesser of useful life or 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 conditions have been met. Most grants cover a three-to-five-year period.

State shares: In accordance with the articles of incorporation, the Fund is required to disburse to the member states one-third of its realized 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.



Great Lakes Protection Fund

Notes to Financial Statements

Note 1. Nature of Activities and Significant Accounting Policies (Continued)

Functional expenses: The costs of providing the Fund's mission and other activities have been summarized on a functional basis in the statements of activities. Accordingly, certain costs have been allocated among mission and management and general expenses.

The financial statements report certain categories of expenses that are attributed to more than one function. Therefore, expenses require allocation on a reasonable basis that is consistently applied. The expenses that are allocated include salaries and benefits, which are allocated on the basis of estimates of time and effort, as well as facilities, which are allocated on a square footage basis.

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.

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

The Fund follows the accounting guidance related to accounting for uncertainty in income taxes, which addresses the determination of whether tax benefits claimed or expected to be claimed on a tax return should be recorded in the financial statements. Under this guidance, the Fund may recognize the tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by taxing authorities, based on the technical merits of the position. Examples of tax positions include the tax-exempt status of the Fund and various positions related to the potential sources of unrelated business taxable income. The tax benefits recognized in the financial statements from such a position are measured based on the largest benefit that has a greater than 50% likelihood of being realized upon ultimate settlement. At December 31, 2021 and 2020, there were no unrecognized tax benefits identified or recorded as liabilities.

Recent accounting pronouncements: In February 2016, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2016-02, *Leases (Topic 842)*. The guidance in this ASU supersedes the leasing guidance in Topic 840, *Leases*. Under the new guidance, lessees are required to recognize lease assets and lease liabilities on the statement of financial position for all leases with terms longer than twelve months. Leases will be classified as either finance or operating, with classification affecting the pattern of expense recognition in the statement of activities. The new standard is effective for the Fund in 2022. The Fund is currently evaluating the impact of the adoption of this standard on its financial statements.

COVID-19: The COVID-19 pandemic affected the Fund's activities and finances beginning in March 2020. Subsequently, the Fund worked with each funded team to evaluate their projects, identifying risks to their work and, where necessary, adjusting project completion and payment timelines. To date, the Fund has experienced significant fluctuations in its investment portfolio due to volatile market conditions primarily caused by the pandemic. During 2020, in response to the pandemic, the Fund's Board of Directors appropriated \$3,000,000 to create a Temporary Reserve Fund. The Temporary Reserve Fund plus the already existing Sequestration Fund represents an estimate of 18 months of expenses so that the Fund can continue to pursue its mission in the event of a long-term economic downturn.

Subsequent events: The Fund has evaluated subsequent events for potential recognition and/or disclosure through March 14, 2022, the date the financial statements were available to be issued.



Great Lakes Protection Fund

Notes to Financial Statements

Note 2. Liquidity and Availability

The Fund regularly monitors liquidity to meet its grant payments, operating needs and the annual state share payments (general expenditures). The Fund relies on investment income and available financial assets to meet general expenditures over the next 12 months.

The tables below present information related to financial assets available for general expenditures within one year at December 31, 2021 and 2020:

	2021	2020
Financial assets at year-end:		
Cash and cash equivalents	\$ 10,901,444	\$ 8,468,533
Investments	155,668,688	143,908,681
Accrued interest	37,342	52,364
	<u>\$ 166,607,474</u>	<u>\$ 152,429,578</u>
Financial assets not available for general expenditures within one year:		
Donor restricted endowment	\$ 81,000,000	\$ 81,000,000
Donor restricted earnings on endowment, less future year estimated appropriations of \$7,172,000 and \$6,721,000, respectively	68,185,780	54,777,543
	<u>\$ 149,185,780</u>	<u>\$ 135,777,543</u>
Financial assets available for general expenditures within one year	<u>\$ 17,421,694</u>	<u>\$ 16,652,035</u>

Cash and cash equivalents are available on demand. All investments at year-end can be converted to cash within three days of a sale.



Great Lakes Protection Fund

Notes to Financial Statements

Note 3. Investments

Investments consist of the following:

	2021	
	Cost	Fair Value
Exchange-traded funds:		
Global equity:		
Global equity index	\$ 5,457,077	\$ 9,768,784
Mutual funds:		
Domestic equity:		
Large cap index	16,307,856	60,221,550
Mid cap index	4,777,545	10,031,549
Small cap index	4,774,108	9,334,579
International equity:		
Emerging markets	7,800,000	9,264,722
Small cap	3,430,153	4,320,204
Developed markets index	4,400,000	5,465,283
Foreign large value	5,163,008	5,741,207
Fixed income:		
Core plus	11,805,049	12,018,749
Core	6,600,000	6,748,381
Strategic income	8,936,055	8,927,669
Short-term treasury	4,150,000	4,207,821
Intermediate-term government	4,066,667	4,172,975
U.S. government securities	5,456,161	5,445,215
	<u>\$ 93,123,679</u>	<u>\$ 155,668,688</u>
	2020	
	Cost	Fair Value
Exchange-traded funds:		
Global equity:		
Global equity index	\$ 6,078,632	\$ 9,330,552
Mutual funds:		
Domestic equity:		
Large cap index	16,859,015	50,854,587
Mid cap index	4,851,399	8,279,098
Small cap index	4,853,386	8,163,706
International equity:		
Emerging markets	7,800,000	8,979,824
Small cap	3,430,153	4,313,210
Developed markets index	4,400,000	5,057,244
Foreign large value	6,000,000	6,223,048
Fixed income:		
Core plus	11,805,049	12,515,446
Core	6,600,000	6,985,791
Strategic income	8,936,055	9,121,175
Short-term treasury	4,150,000	4,315,510
Intermediate-term government	4,066,667	4,355,646
U.S. government securities	5,303,026	5,413,844
	<u>\$ 95,133,382</u>	<u>\$ 143,908,681</u>



Great Lakes Protection Fund

Notes to Financial Statements

Note 4. Fair Value Disclosures

The accounting guidance on fair value provides a framework for measuring fair value and defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants on the measurement date. That framework provides a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to unobservable inputs (Level 3 measurements).

Financial assets and liabilities carried at fair value will be classified and disclosed in one of the following three categories:

- Level 1:** Valuations for assets and liabilities traded in active exchange markets, such as the New York Stock Exchange. Level 1 assets primarily include listed equities, money market funds, government securities, mutual funds and exchange-traded funds. Valuations are obtained from readily available pricing sources for market transactions involving identical assets or liabilities.
- Level 2:** Valuations for assets and liabilities traded in less active dealer or broker markets. Valuations are obtained from third-party pricing services for identical or similar assets or liabilities. Level 2 assets primarily include equities traded in over-the-counter markets.
- Level 3:** Valuations for assets and liabilities that are derived from other valuation methodologies, including option pricing models, discounted cash flow models and similar techniques, and not based on market exchange, dealer, or broker-traded transactions. Level 3 valuations incorporate certain assumptions and projections in determining the fair value assigned to such assets or liabilities.

In certain cases, the inputs used to measure fair value may fall into different levels of the fair value hierarchy. In such cases, an investment's level within the fair value hierarchy is based on the lowest level of input that is significant to the fair value measurement. The Fund's assessment of the significance of a particular input to the fair value measurement in its entirety requires judgment, and considers factors specific to the investment.

For the years ended December 31, 2021 and 2020, the application or valuation techniques applied to similar assets and liabilities have been consistent. The following is a description of the valuation methodology used for assets measured at fair value:

Investments in securities traded on a national securities exchange, or reported on the NASDAQ national market, are stated at the last reported sales price on the day of valuation. These financial instruments are classified as Level 1 in the fair value hierarchy.

The Fund assesses levels of the investments at each measurement date, and transfers between levels are recognized on the actual date of an event or change in circumstances that caused the transfer. For the years ended December 31, 2021 and 2020, there were no such instances.

All of the Fund's investments are classified as Level 1 as of December 31, 2021 and 2020.



Great Lakes Protection Fund

Notes to Financial Statements

Note 5. Grants Activity

Grants activity for 2021 and 2020 is as follows:

	Grants Approved	Grants Paid	Grants Payable
2021	\$ 2,993,003	\$ 3,136,034	\$ -
2020	\$ 3,134,000	\$ 3,206,805	\$ -

As of December 31, 2021, total grants approved since the Fund's inception amounted to approximately \$94.0 million, of which approximately \$6.3 million related to grants for which the conditions have not been met and, therefore, the grant expenses have not been recognized. Upon satisfaction of the conditions by the recipients, the Fund will recognize the grant expenses and disburse the remaining payments. The terms of most grants cover a three-to-five-year period.

Note 6. Net Assets

Net assets without donor restrictions:

Net assets that are not subject to donor-imposed restrictions and may be expended for any purpose in performing the primary objectives of the Fund. Certain net assets without donor restrictions have been designated by the Board of Directors as a Sequestration Fund and a Temporary Reserve Fund. Combined, the Sequestration Fund and the Temporary Reserve Fund represent an estimate of amounts sufficient to provide for 18 months of expenses so the Fund can continue to pursue its mission in the event of long-term economic downturn. The balances of \$8,507,405 and \$8,540,408 in net assets without donor restrictions for 2021 and 2020, respectively, represents the combined unspent portion of the Sequestration Fund and Temporary Reserve Fund of \$8,000,000, plus any interest earned.

Net assets with donor restrictions:

Net assets subject to stipulations imposed by donors and grantors. Some donor restrictions are temporary in nature; those restrictions will be met by actions of the Fund or by the passage of time. Other donor restrictions are perpetual in nature, where the donor has stipulated the funds be maintained in perpetuity.



Great Lakes Protection Fund

Notes to Financial Statements

Note 6. Net Assets (Continued)

Net assets with donor restrictions were as follows for the years ended December 31, 2021 and 2020:

	2021	2020
Original donor-restricted endowment contribution amount and amounts required to be retained by donor:		
Illinois	\$ 15,000,000	\$ 15,000,000
Michigan	25,000,000	25,000,000
Minnesota	1,500,000	1,500,000
New York	12,000,000	12,000,000
Ohio	14,000,000	14,000,000
Pennsylvania	1,500,000	1,500,000
Wisconsin	12,000,000	12,000,000
	<u>81,000,000</u>	<u>81,000,000</u>
Accumulated investment gains on endowment funds, which, once appropriated, are expendable to support the activities of the Fund	75,357,780	61,498,543
Total net assets with donor restrictions	<u>\$ 156,357,780</u>	<u>\$ 142,498,543</u>

Donor-restricted endowment contributions represent the contributions received from member states in accordance with the Fund's articles of incorporation. These amounts cannot be expended.

With the exception of Indiana, all states have made their required contributions. There is no due date for the contribution payable by Indiana, which has not yet joined the Fund.

Note 7. Endowment Net Assets

The Fund's endowment net assets are comprised of restricted contributions made by the member states, as well as the net effect of the realized and unrealized investment returns and losses on those investments and the operating expenses of the Fund. As the original contributions were made for the purpose of establishing a fund of assets to provide income for the Fund, the Fund's net assets are considered an endowment, as defined by accounting guidance related to financial statement presentation for not-for-profit organizations.



Great Lakes Protection Fund

Notes to Financial Statements

Note 7. Endowment Net Assets (Continued)

Interpretation of Relevant Law – The Fund has interpreted the Illinois Uniform Prudent Management of Institutional Funds Act (UPMIFA) as requiring the preservation of the fair value of the original contribution as of the contribution date of the donor-restricted endowment funds absent explicit donor stipulations to the contrary. As a result of this interpretation, the Fund classifies as net assets with donor restrictions (a) the original value of contributions donated to the permanent endowment, (b) the original value of subsequent contributions to the permanent endowment, and (c) accumulations to the permanent endowment made in accordance with the direction of the applicable donor contribution instrument at the time the accumulation is added to the Fund. In accordance with UPMIFA, the Fund considers the following factors in making a determination to appropriate or accumulate earnings on donor-restricted endowment funds:

- 1) The duration and preservation of the Fund;
- 2) The purpose of the Fund and the donor-restricted endowment fund;
- 3) General economic conditions;
- 4) The possible effect of inflation and deflation;
- 5) The expected total return from income and the appreciation of investments;
- 6) Other resources of the Fund; and
- 7) The investment policies of the Fund.

The changes in endowment net assets for the Fund were as follows for 2021 and 2020:

	2021	2020
	With Donor Restrictions	With Donor Restrictions
Endowment net assets, beginning of year	\$ 142,498,543	\$ 135,057,388
Realized income and gains, net	6,412,683	5,500,813
Miscellaneous revenue	119	170
Unrealized gain on investments	13,891,472	11,197,653
Amounts appropriated for expenditure - temporary reserve	-	(3,000,000)
Amounts appropriated for expenditure	(6,445,037)	(6,257,481)
Endowment net assets, end of year	<u>\$ 156,357,780</u>	<u>\$ 142,498,543</u>

Return Objectives and Risk Parameters – The Fund has adopted endowment investment and spending policies that attempt to provide a predictable stream of funding to its programs while ensuring that the original value of the endowment contributions is preserved. Assets are invested in a manner intended to achieve an annualized nominal return of 5% to 7%. Actual returns in any given year may vary from this amount.

Strategies Employed for Achieving Objectives – To satisfy its long-term rate-of-return objectives, the Fund relies on a total return strategy in which returns are achieved through both capital appreciation (realized and unrealized) and current yield (interest and dividends). The Fund targets a diversified asset allocation that places a greater emphasis on equity-based investments to achieve its long-term return objectives within prudent risk constraints.



Great Lakes Protection Fund

Notes to Financial Statements

Note 7. Endowment Net Assets (Continued)

Spending Policy and How the Investment Objectives Relate to Spending Policy – The Fund has a policy of appropriating an estimate of expenditures each year as part of a formal, annual budget. Adjustments to appropriations are also approved during the year as unexpected changes arise. As discussed in Note 1, due to the uncertain economic and market conditions during 2020, the Board appropriated \$3,000,000 for expenditure, which has been designated by the Board as a Temporary Reserve Fund.

Note 8. Commitments

The Fund is obligated under an office lease expiring in December 2025 with an option to extend the lease for an additional five-year period.

Rent expense totaled \$210,861 and \$205,486 for 2021 and 2020, respectively.

Minimum payments required under the lease are as follows:

2022	\$	188,252
2023		190,831
2024		193,411
2025		179,658
	\$	<u>752,152</u>

Note 9. Retirement Plan

The Fund maintains a retirement plan under the provisions of Section 401(a) of the IRC applicable to governmental retirement plans. The Fund makes contributions under two provisions in the plan:

- 1) Contributions equal to 10% of each employee's compensation. All employees must participate upon commencement of employment.
- 2) Discretionary matching contributions in the amount of 100% of the employee's deferral contributions to the Fund's 457(b) deferred compensation plan (Note 10). The Fund's discretionary matching contributions are limited to 6% of the employee's compensation for the year. All employees contributing to the Fund's 457(b) deferred compensation plan are eligible to participate.

All Fund contributions on behalf of employees are 100% vested when made. The Fund contributed \$159,968 and \$160,181 to the retirement plan for 2021 and 2020, respectively.

Note 10. Deferred Compensation Plan

The Fund maintains a deferred compensation plan under the provisions of Section 457(b) of the IRC. All employees are eligible to voluntarily participate upon commencement of employment. Participants can elect to participate in the deferred compensation to the extent permitted by applicable contribution limits under Section 457(b) of the Internal Revenue Code.

The Fund makes discretionary matching contributions to the retirement plan (Note 9) in the amount of 100% of the employee's deferral contributions to the Fund's 457(b) deferred compensation plan. The Fund's discretionary matching contributions are limited to 6% of the employee's compensation for the year. Only employee contributions were made to the deferred compensation plan for 2021 and 2020.



Appendix 2

Projects Completed in 2021



Buy & Supply Side Support to Accelerate Adoption of Regenerative Agriculture in Great Lakes Basin Large-Acreage Commodity Crops (\$135,000)

The IPM Institute of North America, Inc.

Contact: Caitlin Leahy

This design project brought together a team of agriculture, conservation, and finance experts to determine the best ways to expand the adoption of regenerative farming systems across the Great Lakes basin. The team worked with farm advisors and the food industry, to lay the groundwork for new business models, products and services to engage farmers and support regenerative farming systems. The project complemented the Fund-supported Partnership for Ag Resource Management (PARM), a successful program that works with farm advisors and agricultural retailers to reduce fertilizers and pesticides from entering the Great Lakes.

Great Lakes Communication Leadership Awards (\$115,000)

The Great Lakes Protection Fund created the Leadership Awards to celebrate individuals and institutions that have played pivotal roles in accelerating new actions for protecting the health of the Great Lakes ecosystem and its communities. The Fund named three individuals and three organizations as recipients of the 2020 Great Lakes Leadership Award for Communications Excellence. This award celebrated the recipients' outstanding storytelling, including efforts to connect diverse audiences to the Great Lakes ecosystem, its challenges, and efforts to solve these challenges.

The winners included Peter Annin, Dan Egan, Tom Henry, Great Lakes Now, Institute for Nonprofit News, and U.S. Water Alliance. The individual and organizational recipients have all covered a range of threats to the Great Lakes, including invasive species, toxic algae blooms, climate change, racial inequities, stormwater runoff, and aging water infrastructure. Their communication leadership has delivered solution-oriented stories of positive ecological impact, and their efforts continue to be a critical source of Great Lakes information to the broader public.

Expand Knowledge for Small Grains as a Great Lakes Basin Nutrient Reduction Strategy (\$50,000)

Artisan Grain Collaborative

Contact: Alyssa Hartman

This project investigated the efficacy and marketability of small grains in the Great Lakes basin. Specifically, the team sought to: identify the water quality benefits of small grains in a row crop or livestock system; and detail existing supply chain dynamics (how small grains move from the farm, through processors, to an end-user) and detail what future regenerative supply chains for food and beverages uses look like.

Council of Great Lakes Governor's, Inc. (\$10,000)

The Fund provided silver level sponsorship for the 2021 Leadership Summit.



We the People of Detroit (\$10,000)

The Fund provided funding for the Global Majority Caucus Retreat and Planning event hosted by We the People of Detroit in 2021. This support recognizes the profound socio-economic and environmental challenges that have disproportionately impacted communities of color. The burden on BIPOC leaders has been challenging due to the ongoing pandemic and repeated instances of racially motivated injustice and systemic oppression experienced on the frontlines of the environmental movement. The Fund believes that a genuine commitment to advancing justice, equity, diversity, and inclusion in the environmental space embraces supporting BIPOC environmental leaders. This retreat provided an important opportunity for BIPOC leaders to heal, rest, reflect, and collaborate with one another to strengthen their bond as a community and their ongoing efforts to work for a brighter future.

Strategies to Engage Middle Adopter Farmers on Cover Crops (\$653,000)

National Wildlife Federation
Contact: Lekha Knuffman

The goal of this project was to change the behavior of those farmers resistant to implementing conservation practices (referred to as middle-to-late adopters and who comprise over 70% of farmers) through improved communication strategies. The team sought to answer the question: What messages resonate best with those farmers who are resistant to change?

The team developed and tested a series of outreach and communications strategies to engage middle-to-late adopter farmers that address the fundamental cultural components of their decision making as it pertains to conservation practices. The team undertook original research into the mental models of middle-to-late adopter farmers in the basin, evaluated existing successful strategies and sharpened those strategies based on their research and experiences.

From this research the team built a brand-new training program and curriculum called Grow More which they tested, evaluated, and refined at several pilot locations in the basin. Grow More has grown into a popular program that trains agricultural outreach professionals in the best ways of reaching middle-to-late adopters to convince them to adopt conservation practices. This is a new approach as, historically, most conservation outreach has been strongly focused on innovators and early adopters, which comprise a small percentage of the farming population.

Green Infrastructure – Private Capital (\$886,300)

Environmental Consulting & Technology, Inc.
Contact: Sanjiv Sinha

This team introduced the region to performance-based public-private partnerships and environmental impact bonds that would pay for, maintain, and monitor large-scale, high-impact green infrastructure projects based on the environmental, social, and economic outcomes they generated. When the project began in 2015, public-private partnerships, environmental impact bonds, and large-scale green infrastructure were new concepts to many communities.



The original goal was to execute first-ever green infrastructure public-private partnership agreements (P3s) in two to four Great Lakes municipalities as a new approach to financing distributed green infrastructure. The P3s would be large (up to \$50 million) and would enable cities to aggregate services and optimize performance, to make it economically feasible for governments and utilities to greatly expand green infrastructure throughout the Great Lakes region.

Over time, the team's efforts changed course as new opportunities arose to demonstrate other innovative financing models, specifically environmental impact bonds. By the project's end, this team had become a key partner in the first-of-its-kind community-based public-private partnership (CBP3) (financed at \$20 million) in the greater Milwaukee region to construct, monitor, and maintain distributed green infrastructure; and the first-of-its-kind environmental impact bond (EIB) in the greater Buffalo area, established for the same purpose, and at \$68 million the largest EIB in the country.



Appendix 3

Portfolio of Projects as of December, 2021



Team composition described includes both paid and unpaid collaborators.

New Financing Tools for Invasive Species Control (\$17,500)

This project, awarded in 2021, is one phase of a multi-phased effort to determine the viability of outcomes-based financing for managing and controlling invasive species. The project team focused specifically on phragmites in Ontario as a test case. Fund support, combined with other support, allowed the team to: identify prevention and control measures for phragmites and the specific costs; identify and quantify benefits and to whom they accrue; and design the outcomes-based financing transaction, including financing approach, program model, and transaction participants.

Team Composition:

Great Lakes St. Lawrence Governors and Premiers (Fiscal Agent)
Quantified Ventures
Invasive Species Centre of Ontario
Nature Conservancy of Canada

Great Lakes Trailblazers Leadership Awards (\$150,000)

The Great Lakes Protection Fund created the Leadership Awards to celebrate individuals and institutions that have played pivotal roles in accelerating new actions for protecting the health of the Great Lakes ecosystem and its communities. The 2021 Trailblazers Leadership Award recognized leaders who are solving “wicked problems” for the Great Lakes. Those that are important, emerging, and challenging to unpack and solve. These wicked problems include microplastics, PFAS/PFOS pollution, infrastructure finance, invasive species, agricultural drainage, and resilient water systems. The Fund named six individuals as recipients of the 2021 Great Lakes Trailblazers Leadership Award.

The 2021 winners include Allegra Cangelosi, Rob Collier, Crystal M. C. Davis, Eric Letsinger, David M. Lodge and Sherri A. Mason.

Overcoming Barriers to Municipal Green Infrastructure Implementation (\$150,000)

Awarded in 2021, this design project will examine the primary obstacles to developing green infrastructure and other stormwater management projects in small and mid-size communities. Stormwater management projects in municipalities are becoming increasingly urgent, driven by frequent flooding and exacerbated by more frequent and intense storms. These problems develop most acutely in low-income and disadvantaged communities where governments and sewer districts lack the resources to deliver effective solutions. Often, smaller communities have fewer financing options for green infrastructure and stormwater management projects than their larger counterparts. At the same time, however, there is growing investor interest in financing green infrastructure projects in these communities.

This project represents an important first step in connecting these communities in need with interested investors and other sources of project financing. The project team will work with managers from Great Lakes municipalities (focusing on disadvantaged communities) and representatives of potential investors to design financial “prototype” products that bridge this gap. While these prototypes will not be tested



during this design project, the team will step through cities' approval processes to identify and resolve obstacles that might include zoning ordinances, legal review, green infrastructure maintenance, and budgeting.

If successful, this design work will be the foundation for an implementation proposal the team will submit to the Fund for possible support.

Team Composition:

Delta Institute (Fiscal Agent)

Building Agroforestry to Improve Water Quality (\$1,200,000)

Awarded in 2021, this project will drive the growth of agroforestry across the Great Lakes basin. Agroforestry – incorporating trees into row crop farmland – has been shown to improve performance of riparian buffers around farmland, and alley cropping (the practice of interspersing rows of tree crops among common row crops) substantially reduces nutrient loss from the land. However, significant challenges exist regarding the widespread adoption of agroforestry throughout the Great Lakes basin, including the inability to drive market demand for tree crops, like hazelnuts, without a reliable supply source, and vice versa. Further, an unreliable market creates a dearth of capable technical support for farmers to incorporate agroforestry on their land. This project will develop and deploy the support systems needed to accelerate the adoption of agroforestry across the region.

The project team will (1) establish a set of pilot farms in northeast Wisconsin implementing agroforestry, (2) engage a community of farmers and customers throughout the basin, and (3) develop the tools they need to accelerate the growth of agroforestry across the region. With demonstration sites as hubs, the project team's farmers and trained technical service providers will create practitioners' guides to agroforestry's technical and financial aspects. These guides, engagement by farmers across the region, and the feedback from initial pilot clusters will lead to a second set of agroforestry pilots in western Michigan in the latter stages of the project and detailed plans for four more in the following years.

Team Composition:

Savanna Institute (Fiscal Agent)

Farm Commons

Chiwara Permaculture Research and Education L3C / We are the Forest

USDA National Agroforestry Center

Iroquois Valley Farmland REIT

Newaygo Conservation District

Michigan Alliance for Environmental and Outdoor Education

Country Financial

Artisan Grain Collaborative

Oceana Conservation District

Croatan Institute

McFarlane Manufacturing Company Incorporated

Ozaukee Washington Land Trust

Riveredge Nature Center

River Alliance of Wisconsin



Transforming Land Stewardship Through a Farm Navigator Network (\$1,219,000)

Awarded in 2021, this project will increase the adoption of conservation practices and regenerative farming systems across the Great Lakes basin by creating the Great Lakes Farm Navigator Network, a new network of “navigators” and a supporting training program that will assist senior farmers and landowners transition their land to new owners and operators who have a commitment to conservation.

We are at a pivotal moment in farming and farmland ownership. Nearly one in three farmers in the Great Lakes states are over 65 years old, and the average age of landowners renting land to farmers is 66. Many of these farmers and landowners are interested in establishing and maintaining conservation practices on their land. Still, they haven’t created farm transfer plans that incorporate conservation practices. The Great Lakes Farm Navigator Network will advise, train and support senior farmers and landowners to implement conservation options in their farm transfer plans and support beginning farmers to secure land access with a commitment to conservation. They will focus on:

- Women farmers/landowners – to develop and implement conservation or farm transfer plans.
- Senior farmers/landowners – to implement conservation options, such as agricultural conservation easements within their farm transfer planning.
- Beginning farmers – to secure land access with an articulated land ethic or commitment to conservation, tied to their personal and business goals.

The team will recruit and train navigators from regions where agriculture’s impact is the highest in the basin: Michigan, New York, Ohio, and Wisconsin. Navigators will come from multiple sectors, including University Extension, agricultural organizations, retailers, land trusts, and soil and water conservation districts, and they will undergo training in estate planning, contracting, trust instruments, and corporate and other sustainability initiatives. This will be a first-of-its-kind holistic program to serve all three diverse audiences of women farmers/landowners, senior farmers/landowners, and beginning farmers to achieve multiple land-related goals.

If successful, the team expects to reduce phosphorus contribution to the Lakes by more than 400 metric tons per year within ten years.

Team Composition:

American Farmland Trust (Fiscal Agent)
Michigan State University Kellogg Biological Station
Michigan State University Extension
Central State University Extension
Renewing the Countryside
Ohio Federation of Soil and Water Conservation Districts
Northwest State Community College
Ohio State University Extension
Cornell University



Climate Change, Water Levels, and Human and Ecosystem Health (\$46,503)

This discretionary grant, awarded in 2021, is examining future Great Lakes water level variability under different plausible climate change scenarios and potential impacts on human and ecosystem health.

Team Composition:

University of Michigan (Fiscal Agent)

Healthy Ports: Port Bay Monitoring (\$100,000)

In 2018, the Board awarded a team led by the University of Buffalo \$1,590,000 to pilot new passive sediment management strategies at river mouths to create new wetland and fish habitat, improve water quality, support local economies, and reduce the cost and environmental impacts from dredging. To further support this project, under the same resolution, the Board voted unanimously to make up to \$100,000 available to support expanded monitoring and data analysis, so that the project team can assess improvements to the physical, chemical and biological integrity of the Great Lakes ecosystem.

This is a three-year project to monitor the Healthy Port Futures Port Bay, New York site, that will provide proof-of-concept for the work the team has done and generate novel and valuable data that will inform other shoreline communities. The Port Bay project depends on adaptive management, so monitoring is essential to its long-term viability. The project, which consists of annual construction of a cobble-feeding system of dredged material, provides both beach nourishment and habitat creation. It is part of a much larger regional sedimentary system; thus, information from this project can be quickly used to support projects elsewhere. The team will prepare an integrated assessment of impact from all of its pilot projects at the end of the three years.

Team Composition:

University of Pennsylvania (Fiscal Agent)

Permanently Protect Problematic Watersheds Through Great Lakes Friendly Product Labeling (\$90,000)

This design project, awarded in 2021, will identify the smaller parcels of land that contribute disproportionately to nutrient pollution and use private funds to permanently remove them from agricultural use. During this design phase, the project team will work with subject matter experts to identify land to put into conservation, create partnerships to buy and manage the land, and develop an income stream to fund the program. When successfully completed, this project will form the foundation for a market test of the key elements of this program, which can be expanded across priority watersheds and the Great Lakes basin. An implementation project to test and then grow the program will be developed and submitted to the Fund for possible support.

Team Composition:

Freshwater Society (Fiscal Agent)

Bolin Agency

Science Museum of Minnesota



Great Lakes Impact Investment Platform Implementation (\$371,000)

Awarded in 2020, this team will develop the Great Lakes Impact Investment Platform. The platform will showcase investments (tax-exempt bonds, environmental impact bonds, and other lending instruments) that deliver positive Great Lakes environmental outcomes and contribute to the vitality of the region. The platform will also track the performance of these investments against key environmental outcomes for the Great Lakes. The platform is designed to promote the linkages between financial instruments and the work that those instruments support to advance green infrastructure, forest health, and sustainable farming practices. The team hopes that by increasing attention to such investments, investors will be more motivated to make them. This project was developed through a design award where the team met with Great Lakes data and impact investing experts, developed a reporting system for the platform that tracks impact, and designed the platform.

Team Composition:

Council of Great Lakes Governors, Inc. (Fiscal Agent)
The Nature Conservancy
University of Michigan School for Environment and Sustainability
Environmental Consulting and Technology Inc.

Transition Financing for Regenerative Agriculture Systems (\$1,187,000)

Awarded in 2020, this project will expand and accelerate the adoption of regenerative agriculture practices across the Great Lakes basin by designing and developing transition loan products and supporting services that will facilitate farmers' transitions from conventional agriculture to regenerative agriculture. Regenerative agriculture systems that minimize soil disturbance, maximize crop diversity, keep the soil covered, maintain root structure, and integrate livestock have been shown to reduce sediment and nutrient runoff from farms. However, a variety of obstacles exist to adopting these practices that require farmers to face new financial uncertainty, obtain new knowledge, invest more time, and procure new equipment.

The project team, led by Cornell University, will engage agricultural lenders, farmers, landowners, and other stakeholders across the Great Lakes basin. The transition loan products created will be standardized, reliably and simply underwritten, and competitive with other agriculture lending products. The work will initially take place in the Lake Ontario watershed in New York state, which offers a cross-section of farm types including crops, livestock, vineyards, and vegetables. This will be valuable in developing alternative financial solutions that are attractive to farmers with different types of operations across the Great Lakes basin.

Team Composition:

Cornell University (Fiscal Agent)
Evidn
Cornell Atkinson Center for Sustainability



Great Lakes One Water Partnership: Path to Sustainability (\$487,000)

Awarded in 2020, this project will build on the progress made by the Great Lakes One Water (GLOW) partnership, a first-of-its-kind effort to bring the region's shoreline community foundations together to develop solutions around water. The GLOW partnership encompasses 27 lakeshore community foundations working together in six regional teams (Upper Great Lakes, Lake Erie, Lake Huron, Lake Ontario, Lower Lake Michigan, and Upper Lake Michigan) to address the water infrastructure issues in their respective communities. The project team will transition the GLOW partnership into building transformational leadership on water issues and expanding the ability of the region's shoreline communities to address the water quality and human health challenges posed by aging water, stormwater, and wastewater systems.

This project's focus will be on building the local capacity within the GLOW partnership to ensure its success and long-term sustainability and will include up to \$210,000 for grants that directly support the water-focused action agendas built by the six regional teams. This project will develop tools to help the GLOW partnership communicate with the public, local decision-makers, and elected officials, and expand the ability of its members to raise funds locally and regionally to support their activities. By strengthening regional networks of different stakeholders, the GLOW partnership will become a model for other regions ready to collaborate and take action to design and deploy innovative solutions to water issues.

Team Composition:

Public Sector Consultants, Inc. (Fiscal Agent)
OAI, Inc.
Networks Northwest
Huron Pines
Small Change Fund
Michigan State University Extension
Cleveland Water Alliance

Water-Friendly Financing in Agriculture Supply Chains (\$100,000)

Awarded in 2020, this design award is an early-stage investment to create a new system of incentives for farmers to produce crops using water-friendly practices. The project team will develop a privately financed approach to create demand among businesses for water-friendly grains produced in the Great Lakes basin. They will engage financial and agricultural stakeholders to explore how the offering of performance-based, low-interest loans to supply chain businesses can influence farming practices. The project team estimates that this strategy will have substantial benefits to the Great Lakes and over time could reduce nutrient runoff by ten to fifteen percent. A primary outcome from the design phase will be the development of an implementation proposal to the Fund to build on the findings of this design work.

Team Composition:

University of Michigan (Fiscal Agent)
Croatian Institute



Advancing Early Detection of Ballast-mediated invaders in the Great Lakes (\$648,000)

Awarded in 2020, and developed from a project design award, this project will make early detection of aquatic invasive species (AIS) both more economical and practical and significantly improve the prospects for prevention and containment of AIS in the Great Lakes. Existing detection methods for target invasive organisms are time-consuming and expensive. Consequently, new colonies of AIS are often only detected after they are well-established. The project team will develop “smoke detectors” for AIS – new protocols for sampling and analysis that are inexpensive, rapid, and easy to use. They will use methods that detect the genetic material of target organisms in Great Lakes harbors and determine whether its presence indicates a reproducing colony of that organism. The team will “package” the products of their work so state resource managers and others that lead AIS management activities can quickly adopt them.

Team Composition:

Pennsylvania State University – Erie (Fiscal Agent)
Governors State University
Pennsylvania Sea Grant
Tom Ridge Environmental Center Foundation
US Environmental Protection Agency
US Naval Research Laboratory
American Great Lakes Ports Association
Alliance for the Great Lakes
Pennsylvania Department of Environmental Protection
Great Lakes Commission
Central Michigan University
NOAA Great Lakes Environmental Research Laboratory

Great Lakes Resiliency and Finance Cluster (\$1,230,000)

Awarded in 2019, this project will establish a self-sustaining cluster of public and private sector professionals interested in market-based, efficient, and effective, delivery/finance of resilient stormwater infrastructure across the Great Lakes. The project will seek large-scale impacts and investments that directly address water quality and climate resiliency and have socio-economic benefits.

Team Composition:

Environmental Consulting and Technology, Inc. (Fiscal Agent)
Delta Institute
Center For Neighborhood Technology
American Society of Adaptation Professionals
CDP North America
HIP Investor, Inc.
Quantified Ventures
Fitch Ratings



Nutrient Reduction through Real-time Optimization and Control (\$905,000)

Awarded in 2019, this is a foundational proof-of-concept project to develop a real-time monitoring and control system for reducing phosphorus, nitrogen, and sediment discharged by agricultural drains. The project team will deploy an array of sensors on farmland to continuously measure critical parameters such as precipitation, water levels, and flow, water quality, and soil moisture. They will build machine learning models using sensor and weather data to predict field drainage behavior on a variety of time scales.

Team Composition:

Xylem, Inc. (Fiscal Agent)
University of Notre Dame
Van Buren Conservation District

Massively Scaleable Water Information Systems (\$905,000)

Awarded in 2019, this project will provide a radical improvement in water data collection and watershed-scale information tools to reduce the pollutants carried by surges of stormwater. The team will deploy county-scale water information systems that will contain 40 to 50 sensors across stream networks and built infrastructure, each of which will report water level data continuously. This network will provide data at the spatial and temporal scales that stormwater, watershed, and emergency managers need to manage and respond to changing weather patterns and extreme events.

Team Composition:

Hyfi, LLC (Fiscal Agent)
University of Michigan
Flood Apex Program, Department of Homeland Security
Water Environment Foundation
rethought Insurance
AIR Worldwide
Springmatter
Michigan Department of Transportation
Kent County, Michigan
Kalamazoo County, Michigan
United States Army Corps of Engineers
Kent County Sheriff's Office
Ohio Emergency Management Agency
Cleveland Water Alliance
Lake Ontario Watershed Protection Alliance
Department of Water Environment Protection Onondaga County, NY
Division of Homeland Security and Emergency Services, NY



Risk Release Follow up Study Revealing How Clean is Clean: Great Lakes Invasive Species (\$54,200)

Awarded in 2019, this project will focus on completing a previously awarded grant to Northeast Midwest Institute. The work is aimed at producing robust and practicable methods and first results on the risk-release relationship for worst-case Great Lakes aquatic invaders. While the data collection and experimental work was completed by Northeast Midwest, follow up activities related primarily to outreach and communication of results will enhance the outcome of the original project.

Team Composition:

Pennsylvania State University – Erie (Fiscal Agent)

Smart2Genius: Catalyzing Farmer Adoption of Strategic Best Practices (\$200,000)

Awarded in 2018, this design grant will establish a farmer-led network of agricultural producers, service providers, and other experts who will drive adoption of strategic practices and new technologies that will improve farm profitability and reduce nutrient loads and stream flashiness without involving government programs, making them more attractive to the majority of farm operators in the basin. This network will be supported by a dedicated online platform that will integrate the most recent science and technology with a social support system.

In this design phase the team will: expand the core team to include expertise in Ohio, Wisconsin, Michigan, and Ontario; establish a community of leader farmers and match them to strategic practices; determine the impact and adoption metrics for the implementation phase; and prepare an implementation proposal to the Fund to test a suite of technologies and management actions on farm fields. An initial community of farmers, grouped in hub farms, will select strategic practices, test them, and evaluate the impact on their operations (yield, profit) and the health of nearby water resources to inform the implementation proposal.

Team Composition:

Seneca County Soil and Water Conservation District (Fiscal Agent)
Heidelberg University
Bowling Green State University

Advancing Stormwater Management at Marinas in the Great Lakes (\$839,000)

Awarded in 2018, this team will improve nearshore water quality and habitat quality in the Great Lakes by advancing better stormwater management at Great Lakes marinas. Great Lakes marinas and the boating industry depend on clean waters and a healthy coastal environment for the success of their business. Yet, they operate on the nearshore of the Great Lakes and their tributaries, where concentrated human activity can significantly impact flora and fauna. Furthermore, the operation of marinas can cause various sources of pollution, such as sediments, pesticides, oil and road dirt, heavy metals, and nutrients to runoff into nearshore waters during storm events.

To improve stormwater management at Great Lakes marinas, the team will develop a marina-specific stormwater management decision support tool and pilot the installation of green infrastructure practices in



three private marinas in Michigan, Ohio and Wisconsin. The team will develop and implement monitoring and maintenance plans at each marina, as well as develop training curricula. They will host a technical training workshop to scale up green infrastructure practices across the nearly 1,000 marinas in the Great Lakes watershed. The team will leverage its multi-state Clean Marina program (there are currently 200 marinas certified in the region) to drive adoption of the practices identified by the tool and demonstrated in the pilots.

Team Composition:

Michigan Sea Grant (Fiscal Agent)
Michigan Clean Marina Program
Ohio Sea Grant
Erie Conservation District
Ohio Department of Natural Resources
Wisconsin Sea Grant
Wisconsin Coastal Management
Ohio State University

Early Detection of Ship-Mediated Invasive Species through eDNA Detection (\$178,000)

Awarded in 2018, this design grant will reduce the spread of aquatic invasive species (AIS). Spread of AIS is often well underway, and practically impossible to contain, by the time the Great Lakes region becomes aware of it. One promising, underutilized AIS management tool is environmental DNA, or eDNA. eDNA is the identification of an organism by finding its genetic material in the environment without any obvious signs of the organism being present.

Currently the presence of eDNA may or may not signal the presence of live organisms, in real time or in the past, depending on how long that eDNA persists in the environment. For eDNA to have relevance as a management tool, an understanding of how recently a specimen may have been alive is critical.

The team will build a regional network of advisors and customers that will work together to advance the use of eDNA as a Great Lakes AIS prevention and management tool; develop a scientific method for determining eDNA extinction rates for Great Lakes relevant AIS; conduct a set of experiments determining the rates of eDNA extinction for at least one and up to three Great Lakes–relevant invertebrate AIS; and develop a Go-Forward plan and a proposal for a larger implementation project.

Team Composition:

Pennsylvania State University – Behrend (Fiscal Agent)
Mary Balcer—Scientist
Governors State University
United States Environmental Protection Agency, Research Triangle Park
United States Fish and Wildlife Service
US EPA NERL
United States Navy Research Laboratory
Central Michigan University
Lake Carriers Association



Chamber of Marine Commerce
Port of Erie
Port of Duluth-Superior
PA Office of the Great Lakes and Coastal Resource Management
The Nature Conservancy
Pennsylvania Department of Environmental Protection
Great Lakes Commission
NOAA
American Great Lakes Ports Association
Minnesota Department of Natural Resources
Alliance for the Great Lakes

Smart Management of Microplastic Pollution in the Great Lakes (\$929,000)

Awarded in 2018, this project will empower a new set of regional leaders focused on reducing the amount of microplastics that enter the Great Lakes each year. The team will work with municipal leaders and local groups to pilot a plastic reduction campaign and mitigation initiative in Williamston and Pontiac, MI. To support this campaign, the team will design and build a first-of-its-kind, portable optical sensor that they will use as a monitoring tool to evaluate the performance of the plastic reduction campaign.

The portable technology will integrate optical sensors with machine learning and edge computing to enable a low- cost, real-time quantification of plastic particles in water. Use of this technology will offer a dramatic improvement over the current monitoring techniques which are laborious and consist of manual counting of plastic particles under a microscope. The optical sensor will test the effectiveness of two very different mitigation strategies: one strategy will seek to reduce plastic fibers coming off clothing in the wash; the second will seek to reduce large plastics entering the stormwater system by installing green infrastructure to capture trash during large rain events.

By developing a microplastics mitigation toolbox (tested mitigation strategies supported by new sensor technology) this team is developing solutions that can be adopted by communities throughout the basin to reduce microplastics. New approaches are needed now, as most of the microplastics work being done in the region has been focused on trying to determine the extent of the problem or reducing litter, not large-scale solutions.

Team Composition:

Wayne State University (Fiscal Agent)
Ingham Conservation District
City of Williamston
Tri County Regional Planning Commission
Michigan Association of Conservation Districts
Clinton River Watershed Council
OHM Environmental Advisors
Nymbus Systems Cooperation
Great Lakes Water Authority
Sierra Club Michigan Chapter
Great Lakes Environmental Research Laboratory, NOAA



Harnessing Automated Demand Response to Reduce Great Lakes Mercury Emissions (\$1,006,000)

Awarded in 2018, this project is a first-of-its-kind effort to reduce mercury emissions from coal-powered plants by combining two unrelated programs; electric utility Demand Response and Automated Emissions Response.

Consumer demand for more choice around energy production, and specifically demand for choosing clean energy, sits at the heart of this work. Demand response programs provide financial incentives from the utility to the users to conserve energy during high demand times (e.g., a hot summer day) to reduce the strain on the electric grid. They try to reconcile too much demand with not enough supply. These programs have the infrastructure in place to connect with many electricity customers, but interest and participation are low.

Alternatively, Automated Emissions Response (AER) is an innovative technology that determines when the electric grid is supplied by cleaner sources of energy and allows customers the ability to choose clean energy for their electricity needs. For the first time, consumers can now have control over their emissions reductions with this popular program without compromise to cost, comfort or functionality.

The AER software will be an add-on feature of familiar demand response programs (which cut consumption during a handful of peak energy demand events) and will optimize your emissions reductions the rest of the year. The impacts from this project are optimistic based on research showing a 3x increase in participants when AER is offered as part of a demand response program. More program participants and increased demand for mercury emissions reductions will incentivize mercury-emitting power plants to run or install mercury emissions reduction technology which cuts emissions by at least 90%.

The team will work closely with electric utilities and demand response recruiters to demonstrate that more customers will be drawn to demand response programs with the addition of AER. The project will run two distinct pilots: one for residential electricity customers, the other for commercial electricity customers. Both pilots will involve software engineering; pilot implementation; and scaling efforts. Four utilities in the region; ComEd, Xcel Energy, DTE Energy, and Consumers Energy, have all agreed to participate in the project.

Team Composition:

WattTime (Fiscal Agent)
Rocky Mountain Institute
OhmConnect
UC Berkely Center for the Built Environment

Healthy Port Futures (\$1,590,000)

Awarded in 2017, this team will pilot new passive sediment management strategies at river mouths that will create critical wetland habitat, improve water quality, support local economies, and greatly reduce the cost and environmental impacts from dredging. Specifically, working with the US Army Corps of



Engineers, a number of medium-sized port authorities and the Ohio EPA, the team will pilot passive sediment management (PSM) strategies in Ashtabula, Ohio creating over forty acres of new, publicly accessible wetland habitat. A second pilot port community will be added once Ashtabula is underway. PSM directs sediment through natural processes to shorelines and shallow zones and out of deep channels. This creates healthy wetland and benthic habitat benefiting both aquatic and terrestrial wildlife, creates recreational and tourism opportunities in the ports, and greatly reduces the need for dredging.

If successful basin-wide, this project will result in the adoption of landscape-based strategies and practices for PSM in the over forty medium-sized port communities through all states in the Great Lakes Basin.

Team Composition:

University of Pennsylvania (Fiscal Agent)
Cornell University
University of Minnesota
USGS Great Lakes Science Center
Michigan Aerospace
Anchor QEA
Ohio Environmental Protection Agency
U.S. Army Corps of Engineers
University of Wisconsin – Sea Grant Institute
Port of Toledo
Kurtz Brothers
Great Lakes Commission

Advancing Systematic and Fundamental Changes in Agricultural Water Resources Management (\$1,135,000)

Awarded in 2016, this project will reshape traditional agricultural operations by demonstrating approaches that merge drainage management authority objectives with conservation services that follow circular economy principles. The project aims to improve water quality, rebuild soil health and increase crop resiliency, while benefiting farm economics and creating new business opportunities throughout the region.

Agricultural landowners in legal drainage districts must pay assessments to maintain and improve the public drainage systems that serve them. These assessments are generally based purely on acreage and/or linear extent of the adjacent drainage. This project will test new methods for calculating drain assessments that reward farmers who implement land management practices that improve soil and water quality. This adaptive drain fee assessment model presents the opportunity to test market-based approaches that work in support of the model.

Three treatment approaches will be tested in this project with pilot locations in Van Buren County, Michigan, Milwaukee River watershed, Wisconsin and a to-be-finalized location in Indiana. These pilots will yield information on both water quality benefits and economic opportunities associated with phosphorus capture. The project will create and propel a community of practice that includes drainage



district authorities, conservation managers, agricultural retailers, commodity buyers, farmers, and food waste generators that will extend this work beyond the initial Great Lakes pilot locations.

Team Composition:

Kieser and Associates, LLC (*Fiscal Agent*)

Agren, Inc.

American Farmland Trust

Cocoa Corp

Newtrient, LLC

University of Wisconsin – Milwaukee

Van Buren Conservation District

St. Joseph River Basin Commission



The Fund's mission is to identify, demonstrate, and promote regional action to enhance the health of the Great Lakes Ecosystem.

1560 Sherman Avenue
Suite 1370
Evanston, Illinois 60201
T 847-425-8150
F 847-424-9832

To start a conversation, discuss a project idea,
or inquire about our proposal process, email at:
startaconversation@glpf.org
glpf.org
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