

# Great Lakes Protection Fund

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2022 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 2022, the Fund has made a total of 313 grants and program-related investments, representing a \$98.6 million commitment to protecting and restoring the ecological health of the Great Lakes ecosystem. Additionally, the Fund has paid \$57 million directly to its seven member states to support their individual Great Lakes priorities. Over the course of the past 33 years, the Great Lakes ecosystem has benefited from the States' initial investment of \$81.0 million with an overall commitment of \$155.5 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 2022

In the past year, the Fund realized over \$4.7 million in investment income from the endowment. The Fund returned \$1.3 million to its member states to support their individual Great Lakes priorities. The Fund paid \$3.4 million to support regional projects. Audited financial statements can be found in Appendix 1.

The Fund entered 2022 with 25 active projects focused on the priorities identified in our strategic plan: 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. These projects represented an investment by the Fund of \$15.2 million at the start of the year.

Over the course of the year, work was completed on ten of these projects. These completed projects are identified in Appendix 2. All projects generated new and valuable 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.

During 2022, the Fund developed and supported nine new projects, growing the portfolio of active, supported work to 24 projects—an investment of over \$4.7 million. 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. The complete portfolio of supported work, including new projects awarded in 2022, can be found in Appendix 3.

## Evaluation of the Corporation's Performance

The Fund successfully accomplished its objectives during 2022. Most notably, the Fund's endowment ended the year with a market value of \$135,518,545. State shares, paid in the spring of 2023 following our independent audit of financial statements, totaled \$1,332,157 for the year 2022; and \$56,901,284 since inception. These funds are available to member states to address their highest Great Lakes priorities.

The Fund built, vetted, and financed 9 new collaborative teams in 2022. Total investment in these new teams was \$4.7 million. 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 2022

## **Governor of Illinois**

J.B Pritzker

## **Governor of Michigan**

Gretchen Whitmer

## **Governor of Minnesota**

Tim Walz

## **Governor of New York**

Kathy Hochul

## **Governor of Ohio**

Mike DeWine

## **Governor of Pennsylvania**

Tom Wolf

## **Governor of Wisconsin**

Tony Evers



## Board of Directors in 2022

Kate Bartter (Columbus, OH)

Timothy Bruno (Erie, PA)

Joanne So Young Dill (Barrington, IL)

Judy Drabicki (Dexter, NY)

Tim Eder (Chelsea, MI)

Peter Gove (St. Paul, MN)

Richard Hylant (Ottawa Hills, OH)

Howard Learner (Chicago, IL)

Jill Jedlicka (Lancaster, NY)

Andrew McElwaine (Pittsburgh, PA)

Don Ness (Duluth, MN)

Laura Rubin (Ann Arbor, MI)

Demetria Smith, appointed, April 2022 (Milwaukee, WI)

Adam Tindall-Schlicht, resigned, October 2022 (Milwaukee, WI)



# Great Lakes Protection Fund Staff

Stephen Cole – Vice President of Programs

Shannon Donley – Project Implementation Manager

Collin Knauss – Project Development Manager

Mariela Lawrence – Administrative Assistant

Drew Pfeifer – Vice President of Operations

David Rankin – Executive Director



# Appendix 1

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## 2022 Audited Financial Statements



## **Great Lakes Protection Fund**

Financial Report  
December 31, 2022





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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, 2022 and 2021, 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, 2022 and 2021, 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.

### 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 21, 2023



**Great Lakes Protection Fund**

**Statements of Financial Position  
December 31, 2022 and 2021**

	2022	2021
<b>Assets</b>		
Cash and cash equivalents	\$ 9,465,708	\$ 10,901,444
Investments	126,010,747	155,668,688
Accrued interest	42,090	37,342
Other assets	47,190	29,939
Operating lease right-of-use asset	511,525	-
Furniture, equipment and leasehold improvements, net of accumulated depreciation of \$62,314 and \$62,022 in 2022 and 2021, respectively	7,720	13,942
	<u>\$ 136,084,980</u>	<u>\$ 166,651,355</u>
<b>Liabilities and Net Assets</b>		
<b>Liabilities:</b>		
State shares payable	\$ 1,332,157	\$ 1,593,886
Accrued expenses	179,707	192,284
Operating lease liability	538,611	-
	<u>2,050,475</u>	<u>1,786,170</u>
<b>Net assets:</b>		
Without donor restrictions	8,393,301	8,507,405
With donor restrictions	125,641,204	156,357,780
	<u>134,034,505</u>	<u>164,865,185</u>
	<u>\$ 136,084,980</u>	<u>\$ 166,651,355</u>

See notes to financial statements.



**Great Lakes Protection Fund**

**Statements of Activities**  
**Year Ended December 31, 2022**

	Without Donor Restrictions	With Donor Restrictions	Total
<b>Income:</b>			
Realized investment income and gains, net	\$ 86,122	\$ 5,674,058	\$ 5,760,180
Miscellaneous revenue	-	1,044	1,044
Net assets released from restrictions	6,524,583	(6,524,583)	-
	<u>6,610,705</u>	<u>(849,481)</u>	<u>5,761,224</u>
<b>Expenses:</b>			
<b>Mission:</b>			
Regional grant payments	3,431,672	-	3,431,672
State shares	1,332,157	-	1,332,157
Salaries and benefits	695,477	-	695,477
Facilities	138,328	-	138,328
Other mission expenses	176,533	-	176,533
	<u>5,774,167</u>	<u>-</u>	<u>5,774,167</u>
<b>Management and general:</b>			
Salaries and benefits	461,654	-	461,654
Facilities	106,035	-	106,035
Other management and general expenses	182,727	-	182,727
	<u>750,416</u>	<u>-</u>	<u>750,416</u>
<b>Total expenses</b>	<u>6,524,583</u>	<u>-</u>	<u>6,524,583</u>
<b>Increase (decrease) in net assets before other items</b>	86,122	(849,481)	(763,359)
Unrealized losses	(200,226)	(29,867,095)	(30,067,321)
<b>Decrease in net assets</b>	<u>(114,104)</u>	<u>(30,716,576)</u>	<u>(30,830,680)</u>
<b>Net assets:</b>			
Beginning of year	<u>8,507,405</u>	<u>156,357,780</u>	<u>164,865,185</u>
End of year	<u>\$ 8,393,301</u>	<u>\$ 125,641,204</u>	<u>\$ 134,034,505</u>

See notes to financial statements.



# Great Lakes Protection Fund

## Statements of Activities Year Ended December 31, 2021

	Without Donor Restrictions	With Donor Restrictions	Total
<b>Income:</b>			
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>
<b>Expenses:</b>			
<b>Mission:</b>			
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>
<b>Management and general:</b>			
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>
<b>Total expenses</b>	<u>6,445,037</u>	<u>-</u>	<u>6,445,037</u>
<b>Increase (decrease) in net assets before other items</b>	88,759	(32,235)	56,524
Unrealized (losses) gains	(121,762)	13,891,472	13,769,710
<b>(Decrease) increase in net assets</b>	<u>(33,003)</u>	<u>13,859,237</u>	<u>13,826,234</u>
<b>Net assets:</b>			
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 Cash Flows**  
**Years Ended December 31, 2022 and 2021**

	2022	2021
Cash flows from operating activities:		
Cash provided by dividends, interest and miscellaneous	\$ 3,550,569	\$ 4,815,372
Cash payments for:		
Grants	(3,431,672)	(3,136,034)
State shares	(1,593,885)	(1,263,100)
Salaries and benefits	(1,211,233)	(1,326,633)
Facilities	(231,104)	(216,533)
Investment management and advisory fees	(144,487)	(172,971)
Other operating expenses	(405,176)	(197,819)
<b>Net cash used in operating activities</b>	<b>(3,466,988)</b>	<b>(1,497,718)</b>
Cash flows from investing activities:		
Purchases of investments	(6,120,300)	(2,243,839)
Proceeds from sales of investments	8,154,236	6,179,636
Purchases of furniture, equipment and leasehold improvements	(2,684)	(5,168)
<b>Net cash provided by investing activities</b>	<b>2,031,252</b>	<b>3,930,629</b>
<b>(Decrease) increase in cash and cash equivalents</b>	<b>(1,435,736)</b>	<b>2,432,911</b>
Cash and cash equivalents:		
Beginning of year	10,901,444	8,468,533
End of year	<b>\$ 9,465,708</b>	<b>\$ 10,901,444</b>

See notes to financial statements.



## Great Lakes Protection Fund

### Notes to Financial Statements

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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 health of the ecosystem of the Great Lakes Basin.

**Basis of accounting:** Under accounting principles generally accepted in the United States of America (U.S. GAAP), nonprofit 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 (FDIC) 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 (FIFO). 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.

**Leases:** Prior to January 1, 2022, the Fund followed the lease accounting guidance in Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) Topic 840. Effective January 1, 2022, the Fund follows the lease accounting guidance in FASB ASC Topic 842. The Fund determines if an arrangement is a lease at the inception of the contract. Under Topic 842, a lease is a contract, or part of a contract, that conveys the right to control the use of identified property or equipment (i.e., an identified asset) for a period of time in exchange for consideration. The Fund's contracts determined to be or contain a lease include explicitly or implicitly identified assets where the Fund has the right to obtain substantially all of the economic benefits of the asset and has the ability to direct how and for what purpose the assets are used during the lease term.





## Great Lakes Protection Fund

### Notes to Financial Statements

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

Leases are classified as either operating or financing. For operating leases, the Fund recognizes a lease liability equal to the present value of the remaining lease payments, and a right of use asset equal to the lease liability, subject to adjustments, such as for prepaid rent. The lease term may include options to extend or terminate the lease when it is reasonably certain that the Fund will exercise the option. The Fund has elected to use an estimate of their incremental borrowing rate as the discount rate.

**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.

**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 U.S. GAAP 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, 2022 and 2021, there were no unrecognized tax benefits identified or recorded as liabilities.



## Great Lakes Protection Fund

### Notes to Financial Statements

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

**Newly adopted accounting pronouncements:** In February 2016, the 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 statements of financial position for all leases with terms longer than 12 months. Leases will be classified as either finance or operating, with classification affecting the pattern of expense recognition in the statements of activities.

The Fund adopted ASU 2016-02 on January 1, 2022, using the modified retrospective approach. ASC Topic 842 includes practical expedients and policy election choices. The Fund elected the package of practical expedients available in the standard and as a result, did not reassess the lease classification of existing contracts or leases or the initial direct costs associated with existing leases. Refer to Note 8 for the Fund's lease disclosure.

**Subsequent events:** The Fund has evaluated subsequent events for potential recognition and/or disclosure through March 21, 2023, the date the financial statements were available to be issued.

#### 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, 2022 and 2021:

	2022	2021
Financial assets at year-end:		
Cash and cash equivalents	\$ 9,465,708	\$ 10,901,444
Investments	126,010,747	155,668,688
Accrued interest	42,090	37,342
	<u>\$ 135,518,545</u>	<u>\$ 166,607,474</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 \$7,537,000 and \$7,172,000, respectively	37,104,204	68,185,780
	<u>\$ 118,104,204</u>	<u>\$ 149,185,780</u>
Financial assets available for general expenditures within one year	<u>\$ 17,414,341</u>	<u>\$ 17,421,694</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:

	2022	
	Cost	Fair Value
Exchange-traded funds:		
Global equity:		
Global equity index	\$ 4,500,396	\$ 6,464,478
Mutual funds:		
Domestic equity:		
Large cap index	17,851,893	47,446,562
Mid cap index	4,525,858	7,604,914
Small cap index	4,551,703	7,221,783
International equity:		
Emerging markets	7,800,040	7,451,737
Small cap	2,237,851	2,116,715
Developed markets index	4,401,445	4,567,154
Foreign large value	5,163,008	4,687,973
Global equity:		
Global impact	1,000,000	1,055,244
Fixed income:		
Core plus	11,805,049	10,304,134
Core impact	500,000	472,698
Core	6,600,000	5,697,842
Strategic income	8,936,055	8,092,074
Short-term treasury	4,150,000	3,928,630
Intermediate-term government	4,066,667	3,666,888
U.S. government securities	5,443,093	5,231,921
	<u>\$ 93,533,058</u>	<u>\$ 126,010,747</u>
	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>



## Great Lakes Protection Fund

### Notes to Financial Statements

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#### 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 (NYSE). 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, 2022 and 2021, 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, 2022 and 2021, there were no such instances.

All of the Fund's investments are classified as Level 1 as of December 31, 2022 and 2021.



## Great Lakes Protection Fund

### Notes to Financial Statements

#### Note 5. Grants Activity

Grants activity for 2022 and 2021 is as follows:

	Grants Approved	Grants Paid	Grants Payable
2022	\$ 4,700,000	\$ 3,431,672	\$ -
2021	\$ 2,993,003	\$ 3,136,034	\$ -

As of December 31, 2022, total grants approved since the Fund's inception amounted to approximately \$98.7 million, of which approximately \$7.4 million related to grants for which the conditions have not been met, which generally represent meeting project goals and objectives, 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 \$8,393,301 and \$8,507,405 in net assets without donor restrictions for 2022 and 2021, 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.

Net assets with donor restrictions were as follows for the years ended December 31, 2022 and 2021:

	2022	2021
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	44,641,204	75,357,780
Total net assets with donor restrictions	<u>\$ 125,641,204</u>	<u>\$ 156,357,780</u>





## Great Lakes Protection Fund

### Notes to Financial Statements

#### Note 6. Net Assets (Continued)

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 nonprofit organizations.

**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
- (7) The investment policies of the Fund

The changes in endowment net assets for the Fund were as follows for 2022 and 2021:

	2022	2021
	With Donor Restrictions	With Donor Restrictions
Endowment net assets, beginning of year	\$ 156,357,780	\$ 142,498,543
Realized income and gains, net	5,674,058	6,412,683
Miscellaneous revenue	1,044	119
Unrealized (loss) gain on investments	(29,867,095)	13,891,472
Amounts appropriated for expenditure	(6,524,583)	(6,445,037)
Endowment net assets, end of year	<u>\$ 125,641,204</u>	<u>\$ 156,357,780</u>



## Great Lakes Protection Fund

### Notes to Financial Statements

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#### Note 7. Endowment Net Assets (Continued)

**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.

**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.

#### Note 8. Lease Obligation

The Fund leases office space under a lease classified as an operating lease. The office lease expires in November 2025, with an option to extend the lease for an additional five-year period. The five-year extension option is not recognized as part of the Funds' right-to-use asset and lease liability as it is not reasonably certain the option will be exercised. The Fund's lease agreement does not provide an implicit rate. As the Fund did not have any external borrowings at the transition date with comparable terms to its lease agreement, the Fund estimated its incremental borrowing rate based on rates in the market for collateralized debt at the transition date with the same term as the associated lease. The Fund elected to use a discount rate of 3.25%. Lease cost for the year ended December 31, 2022, is as follows:

Operating lease cost	\$	184,053
Weighted-average remaining lease term—operating leases		2.9 years
Minimum payments required under the lease are as follows:		
2023	\$	190,831
2024		193,411
2025		179,658
		<hr/> 563,900
Less amounts representing interest		25,289
Total obligation	\$	<hr/> 538,611 <hr/>



## Great Lakes Protection Fund

### Notes to Financial Statements

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#### 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 \$148,422 and \$159,968 to the retirement plan for 2022 and 2021, 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 IRC.

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 2022 and 2021.





# Appendix 2

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## Projects Completed in 2022



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

Pennsylvania State University

Contact: Ivor T. Knight

In this effort, the team completed the final outreach activities and communication of project results of a Fund-supported project (960.01) that sought to develop the methods to be able to answer the question, “how clean is clean enough” with ships’ ballast water. The team wanted to determine how the risk of invasion varies when different numbers of a species are released. The lack of scientific data on this question was identified as a key barrier to setting economic and environmental policy decisions on ballast water management in a 2011 report authored by the National Academies of Sciences (NAS). The NAS report was largely focused on marine environments. This team set out to trial research pathways in the exceptional context of the Great Lakes.

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

Council of Great Lakes Governors, Inc.

Contact: David Naftzger

This team developed the Great Lakes Impact Investment Platform. The platform showcases 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 also tracks the performance of these investments against key environmental outcomes for the Great Lakes. The platform was 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 that tracks impact, and designed the platform.

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

University of Michigan

Contact: Jon W. Allan

This design award was an early-stage investment to create a new system of incentives for farmers to produce crops using water-friendly practices. The project team developed a privately financed approach to create demand among businesses for water-friendly grains produced in the Great Lakes basin. They engaged 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 is the development of an implementation proposal to the Fund to build on the findings of this design work.



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

Council of Great Lakes Governors, Inc.

Contact: David Naftzger

This project was 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.

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

Great Lakes Leadership Awards

Contact: Allegra Cangelosi

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 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.

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

University of Michigan

Contact: Andrew David Gronewold

This discretionary funding focused on examining future Great Lakes water level variability under different plausible climate change scenarios and potential impacts on human and ecosystem health.

### **Great Lakes People of Color Water Policy Center – Annual Retreat (\$10,000)**

We The People of Detroit

The Fund provided funding for the Annual Retreat hosted by We the People of Detroit in 2022. This support recognized 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 BIPC 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.



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

Seneca County Soil and Water Conservation District  
Contact: Bret Margraf

This design effort sought to create a farmer-led network of agricultural producers, service providers, and other experts who would drive adoption of strategic practices and new technologies that would 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. The network would be supported by a dedicated online platform that would integrate the most recent science and technology with a social support system.

The covid-19 pandemic created significant challenges and the team was unable to build an implementation project.

### **Early Detection of Ship-Mediated Invasive Species through e-DNA Detection (\$178,000)**

Pennsylvania State University-Erie  
Contact: Ivor T. Knight

This was a design effort to 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. For eDNA to have relevance as a management tool, an understanding of how recently a specimen may have been alive is critical.

In this design effort, the team: 1) built 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; 2) developed a scientific method for determining eDNA extinction rates for Great Lakes relevant AIS; 3) conducted a set of experiments determining the rates of eDNA extinction for three Great Lakes–relevant invertebrate AIS; and 4) developed a plan and a proposal for a larger implementation project.

### **Implementation and Evaluation of Accurate Dairy Feeding (\$690,000)**

AgModels LLC  
Contact: Michael Barry

This team focused on developing technology with the potential to change the dairy industry. They created a novel precision feeding system for dairy farms to reduce phosphorous inputs into the Great Lakes. Dairy cows are overfed phosphorous routinely for milk production. If less phosphorous goes into the cow, less will come out. The new precision feeding system gives cows only what they need when they need it. In its final form, the system consists of a series of modules (mixing, feed inventory, animal inventory and production), and a custom analytical engine that will perform statistical analysis and reporting and provide real-time feedback to on-farm decision-makers. The team piloted the system on ten large dairy farms in New York.



# Appendix 3

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## Portfolio of Projects as of December, 2022



*Team composition described includes both paid and unpaid collaborators.*

#### **Performance Based Financing Models for Sustainable Agriculture in the Great Lakes Basin (\$600,000)**

This team will create a new class of agriculture investment products for institutional ESG investors that are measured by the carbon footprint of fertilizer used in crop production. These investment products will have preferred (lower) interest rates based on their performance in delivering environmental benefits by reducing nutrients applied to the land or lost to the water system.

This project is part of a multi-phase strategy that reduces nutrient use in the region by expressing them as reduced carbon emissions. This aligns improved nutrient management on farms with ESG investors' climate change strategies. Corporations and institutional investors can meet their sustainability goals by passing performance requirements for nutrient management through their value chains.

This team will explore which customers value reframing nutrient use and loss as their carbon footprint equivalents. Significantly, this testing will also help the team understand how these products would result in farmers and landowners implementing conservation practices. This work will set the stage for field testing -in a later phase -the financial products the team has developed.

##### **Team Composition:**

University of Michigan (Fiscal Agent)  
Croatan Institute  
Limno-Tech, Inc.  
Farmers Business Network  
Cornell University

#### **Creating the Foundation for Dairy Farm Transitions to Low Overhead Regenerative Grazing (\$150,000)**

This design effort will develop pathways for small and medium-sized farms to transition their conventional dairy operations to regenerative grazing (i.e. maintaining perennial pasture for dairy herds without tillage and with minimal synthetic inputs). Low-overhead regenerative dairy farming offers a compelling opportunity for small and medium-sized dairy farmers to enter into a profitable, ecologically friendly system. At the end of the design phase, the team will have identified areas in the Great Lakes basin with the highest economic and ecological benefits, and will have developed transition pathways for small-and medium-sized dairy farms.

##### **Team Composition:**

Wallace Center at Winrock International (Fiscal Agent)  
Croatan Institute



### **Extending the Great Lakes Impact Investment Platform (\$170,000)**

This team has developed the Great Lakes Impact Investment Platform. The platform showcases investments (green 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 also tracks the performance of these investments against key environmental outcomes for the Great Lakes. These outcomes are gallons of water saved, kilowatts of energy saved, tons of carbon reduced or stored, tons of nutrients reduced, and acres of forest and farmland certified.

The platform is designed to promote the linkages between financial instruments and the work that those instruments support to deliver environmental and social impacts across four themes –forestry, smart water systems, agriculture and energy. The team expects that by increasing attention to such investments, investors will be more motivated to make them.

The team's goal is to create a self-sustaining platform that will drive more impact investment and environmental improvement for the region. The project's final year will be focused on establishing a sustainable business model and transitioning to that model.

#### **Team Composition:**

Council of the Great Lakes Governors, Inc. (Fiscal Agent)  
University of Michigan  
The Nature Conservancy  
Environmental Consulting & Technology, Inc.  
Cambridge Associates  
BLX Group  
Milwaukee Metropolitan Sewerage District  
Orrick  
Conservation Finance Network

### **Permanent Destruction of PFAS in Landfill Leachates and Wastewater (\$690,000)**

The project team is developing an innovative approach to destroying PFAS in the Great Lakes region, and they anticipate their work will raise the bar for PFAS destruction technology. Its success will activate a marketplace for technologies that destroy PFAS, permanently removing these dangerous compounds from the Great Lakes ecosystem. Current treatments remove PFAS from water by filtration, adsorption, and reverse osmosis; however, these methods produce solid waste and wastewater with highly-concentrated PFAS that are often stored on industrial sites or in landfills from where they can re-enter the environment.

The team, led by Michigan State University and Fraunhofer USA, will test, validate, and scale their technology, a magnetically enhanced arc plasma (MEAP), which has been shown to permanently destroy PFAS, removing the risk that these compounds will re-contaminate Great Lakes water. Their work has shown this process to be more effective, faster, and less energy-intensive than other emerging PFAS destruction technologies. The project team, which includes industry, academic, municipal, and not-for-profit participants, will evaluate MEAP technology's performance in treating landfill leachates and wastewater –two significant sources of PFAS in the environment – and create a foundation for its widespread adoption after Fund support ends.



### **Team Composition:**

Michigan State University (Fiscal Agent)  
Fraunhofer USA Center Midwest CMW  
City of Grand Rapids, MI  
Granger Waste Services  
Ampres, Inc.

## **Forging New Pathways to Improved Water Quality and Climate Resiliency in the Great Lakes (\$1,215,000)**

The 2021 Bipartisan Infrastructure Law (BIL) has created a unique opportunity to reinvest in the region's water infrastructure through state revolving fund (SRF) loans and grants over the next five years. Many water utilities in the Great Lakes basin need significant capital reinvestment, especially those serving smaller and disadvantaged communities, which often lack technical, managerial, and financial resources. Historically, SRF support has been used to replace aging water infrastructure with the same conventional infrastructure. While this approach may improve the performance of some systems, it is unlikely to reduce the burden on ratepayers, which is often unbearably high for small and disadvantaged communities. This is a cycle in need of disruption, and we expect the project team's efforts to change the trajectories of these communities.

The project team—Moonshot Missions, technical experts, and the partner utilities—will spearhead this disruption by developing “Moonshot Modules” that incorporate natural infrastructure and resiliency solutions while also standardizing, simplifying, and reducing the cost of improvements relevant to many utilities. They will develop, pilot, and then package these Modules at six utilities that represent the diversity of Great Lakes systems and engage communities across the region to expand their impact.

The project team will expand to include twenty-five more utilities by the end of the project's term and build a community of practice that will carry these practices across the region.

### **Team Composition:**

Moonshot Missions (Fiscal Agent)  
Sanjay Gaur  
HydroDigital, LLC  
SJS Consulting

## **Expand Disadvantaged Communities' Access to State Revolving Funds (\$1,650,000)**

This team will launch a predevelopment loan fund (with \$1 million of initial financing) that supports disadvantaged communities that typically don't apply to their state's clean water revolving fund (SRF) because the process is expensive, complex, and requires upfront investments in planning. Sharply increased funding to SRFs from the 2021 Infrastructure Investment and Jobs Act (IIJA) makes money available to these communities to improve their water systems. However, smaller communities with fewer financial resources are unable to pay for the technical assistance needed to create applications for SRF programs and may not be able to access these funds.

This project will identify and engage disadvantaged communities and provide them with loans to pay for the required technical assistance support. These loans will be repaid from the SRF grant or loan. The team expects to make 20 to 30 loans from the fund's initial capitalization, delivering up to \$100 million in SRF support to needy





communities. The program's success will attract additional capital and support its expansion to all Great Lakes states.

**Team Composition:**

Environmental Policy Innovation Center (Fiscal Agent)  
Sand County Foundation  
Greenprint Partners  
Clean Wisconsin  
Moonshot Missions  
Bowman Environmental Consulting

**Commercialize an Innovative Phosphorous Capture Product (\$105,000)**

This team will develop a business plan to commercialize an innovative agricultural phosphorus filtering product (the CAPTURE™ system). This product removes dissolved phosphorus from runoff in agricultural tile drains. It is designed to exceed the USDA's 40% phosphorus reduction target; 2022 pilot testing in Wisconsin has demonstrated over 85% phosphorus capture. The product was developed and successfully tested with Fund support, and the Fund has filed a patent application for it.

Kieser & Associates is working with team members Cimbria Consulting and Global Water Advisors, and these teams will clarify the market size, establish revenue projections, and develop the value proposition for potential investors and customers. They will also expand on the operating side of the business, including how they plan to manufacture, distribute, install, and service the CAPTURE™ systems.

The team will develop a range of options for future business development. This could include the creation of a new company to manufacture, sell and distribute the system. Alternatively, investors or industry partners could license the product from the Fund.

**Team Composition:**

Kieser & Associates, LLC (Fiscal Agent)  
Global Water Advisors, Inc.  
Cimbria Consulting  
Delta Institute

**Identifying the Extent and Impact of Farmer-centered Conservation Networks in the Great Lakes Basin (\$65,000)**

This team will create an inventory of farmer-centered networks within the region. Through interviews with key individuals and organizations, supported by surveys and targeted interviews with existing networks, the team will begin building a database of existing farmer-centered networks to characterize them. This will help supporting organizations better understand what segments of the farming population are currently being served by networks, and which are currently underserved. This inventory, and the collaborative process required to develop it, will provide an important first step in understanding how to scale up network-based approaches to support farmers and increase agricultural practices that improve water quality

**Team Composition:**

National Wildlife Federation (Fiscal Agent)  
American Farmland Trust  
University of Wisconsin – Madison  
Michigan Environmental Council

**Great Lakes People of Color Water Policy Center – Annual Retreat (\$10,000)**

The Fund will provide funding for the Annual Retreat hosted by We the People of Detroit in 2023. 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 provides 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.

**Team Composition:**

We the People of Detroit (Fiscal Agent)

**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.

**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 to transition their land to new owners and operators who have a commitment to conservation.

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 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

#### **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

### **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

#### **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

### **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





### **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 Corporation  
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.

#### **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



Great Lakes  
Protection Fund

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

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