Great Lakes Commission
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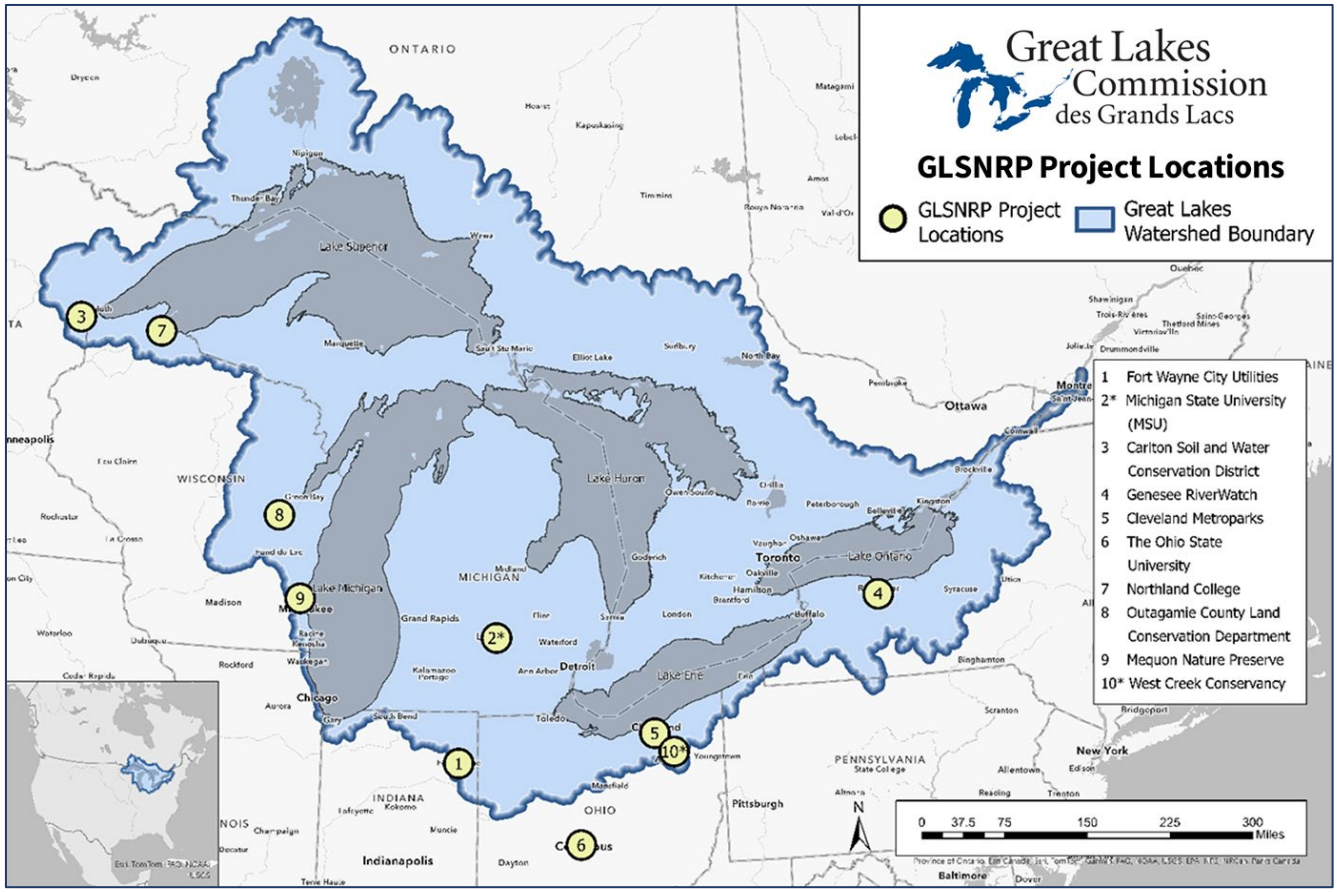
Great Lakes Sediment and Nutrient Reduction Program

REPORT ON AGREEMENT 10 OUTCOMES

The **Great Lakes Sediment and Nutrient Reduction Program** is a state and federal partnership managed by the Great Lakes Commission (GLC) in cooperation with the USDA's Natural Resource Conservation Service (NRCS), U.S. EPA, and the eight Great Lakes states. Through this program, the GLC has provided grants to nonfederal units of government and watershed organizations to install erosion and sediment control practices in the Great Lakes basin for more than 30 years.

Since 2010, funding for the program has been provided by the Great Lakes Restoration Initiative. The funding has been directed to innovative projects that help address sources of nutrient and sediment losses within the basin. The program is directed by a Task Force that includes representatives from the states, NRCS, and U.S. EPA; the Task Force identifies priorities for funding and reviews proposals to award funding each year.



Locations of Agreement 10 grantees. Overall, 10 projects were funded through this agreement. Each number corresponds to a project description below.

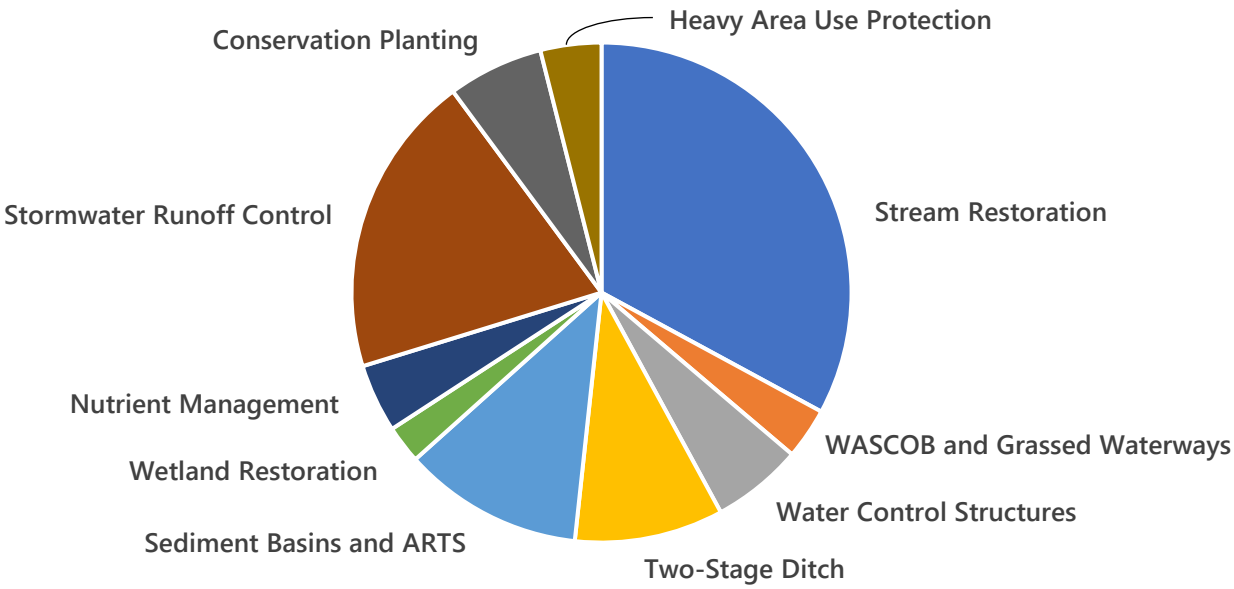
Great Lakes Sediment and Nutrient Reduction Program
BY THE NUMBERS

10 GRANTS, $1,549,981 IN TOTAL FUNDING

State	Number of Grants	Total Funding
Minnesota	1	$200,000
Michigan	1*	$31,538
Wisconsin	3	$526,550

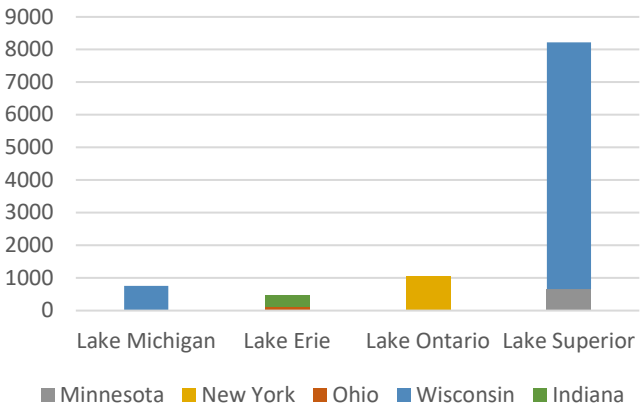
State	Number of Grants	Total Funding
Ohio	3*	$393,600
New York	1	$198,293
Indiana	1	$200,000

AGREEMENT 10 GLSNRP PRACTICES



Under Agreement 10 the Great Lakes Sediment and Nutrient Reduction Program funded a variety of best management practices.

TOTAL PHOSPHORUS REDUCTIONS AGREEMENT 10



For Agreement 10, practices were installed in five states with total phosphorus reductions occurring in the watersheds of four Great Lakes. Over one-third of funds were spent in the Lake Erie basin for this award.

Phosphorus reductions were estimated using the Region 5 model and STEPL/PLET and are presented here as annual reductions in pounds. Estimated total phosphorus reductions amount to 10,502.74 pounds per year. For more information, see Appendix 7. The average lifespan for practices installed under this agreement is 10.2 years.

1. Colonial Heritage Water Quality Stormwater Improvements

Fort Wayne City Utilities (Indiana)

The Colonial Heritage Water Quality Stormwater Improvements project addressed water quality within a tributary of Trier Ditch, a watershed identified for its need for sediment and nutrient reduction within Fort Wayne, Indiana. The project installed 990 linear feet of two-stage ditch and enhanced 0.36 acres of wetland to address water quality. This was accompanied by the installation of 1,200 linear feet of vegetated swales and 2.42 acres of critical area plantings to increase stormwater capacity at the site. The neighborhood in which the project was installed also received benefits of 600 linear feet of walking trails.

This project will ultimately prevent 272.63 tons of sediment and 352.8 pounds of phosphorus from entering the Western Lake Erie Basin each year. The project was well received by the community and signage at the project site will educate the public on the different best management practices which were installed.

Great Lakes Sediment and Nutrient Reduction program staff were a pleasure to work with. The staff was always available to help with questions. Having the program host an event in person was also very beneficial to understand the program and all the available resources out there.

Anne Marie Smrchek, PE
Manager of Sewer & Stormwater Engineering, Fort Wayne City Utilities

Fort Wayne City Utility's stormwater improvement project in Indiana improved the water quality of a Lake Erie tributary through wetland enhancement and two-stage ditch design while also improving the local neighborhood with walking trails and plantings.

3. Little Net River Phosphorus Reduction Project

Carlton County Soil and Water Conservation District (Minnesota)

Carlton County Soil and Water Conservation District (SWCD) aimed to target erosion affecting the Little Net River and Elim Creek, tributaries of the Nemadji River and Lake Superior near Carlton, Minnesota. These high-quality trout streams were impacted by stormwater runoff, so the project focused on installing 1.73 acres of grade stabilization structures and restoring 500 linear feet of streambank across the two sites.

The original GLSNRP grant proposal only included work on the Little Net River, but Carlton County SWCD was able to add additional work at the Elim Creek site when the first project was completed with funds remaining. In total, the project will prevent 668.05 tons of sediment and 662.45 pounds of phosphorus from entering local waterways and Lake Superior each year.

These GLSNRP funds and the partnership [with Carlton County SWCD] will allow our department to reduce sediment loading to the Little Net River while at the same time strengthening our infrastructure and improving public safety along county roads. The long-term reductions in future maintenance costs for the county and for downstream residences will also be great.

Will Bomier
Carlton County Transportation Department

Conservation practices installed by Carlton County SWCD addressed stormwater runoff to prevent pre-project erosion (left) and ultimately protect and stabilize the Little Net River (right) and Elim Creek near Carlton, Minnesota.

4. Jaycox Creek Watershed Agricultural BMPs

Genesee RiverWatch Inc. (New York)

Working to address a New York state priority watershed, Genesee RiverWatch engaged seven agricultural producers across five project sites in the Jaycox Creek-Genesee River watershed to reduce nutrient loading through agricultural best management practices.

Through their GLSNRP grant, the project ultimately implemented 23 total best management practices: 11 Water and Sediment Control Basins, four underground outlets totaling 7,960 feet, two subsurface drainage systems totaling 7,500 feet, one grassed waterway totaling 1,400 feet, one heavy use protection area, one retention pond, one open channel totaling 3,000 feet, one catch basin, and contour farming totaling 53 acres. Overall, the project will decrease the pollutant load to Lake Ontario by 1,921 tons of sediment and 1,053 pounds of phosphorus annually.

Our experience with the Great Lakes Sediment and Nutrient Reduction Program has been excellent. Their staff is always available, very responsive, and flexible. The grant submittal, contracting, and reporting processes are relatively easy to navigate. We were particularly pleased with GLSNRP's willingness to consider modifications to our original contract as the project progressed. This allowed us to complete one extra project.

George Thomas
Genesee RiverWatch, Inc.

Genesee RiverWatch, Inc. utilized grant funding to address erosion from farm fields (left) with the installation of agricultural best management practices such as WASCOBs and grassed waterways (right).

5. Euclid Beach Park Green Infrastructure

Cleveland Metroparks (Ohio)

Cleveland Metroparks' Euclid Beach Park, located within the city of Cleveland and directly on Lake Erie, had an expansive, impermeable parking area with stormwater issues affecting the nearby lake and contributing to the Cuyahoga River Area of Concern.

To address these issues, Cleveland Metroparks' GLSNRP grant focused on the installation of 11,900 square feet of bioswales and beach containment structures for stormwater runoff control. These practices will capture 2,554,914 gallons of stormwater each year. Through the control of this first flush volume of stormwater, 35.025 tons of sediment and 50 pounds of phosphorus will be prevented from entering Lake Erie each year, along with an unknown amount of plastics and other litter often found in urban stormwater.

The funds from GLSNRP allowed Cleveland Metroparks to complete this exciting and beneficial project. As an organization with a mission rooted in conservation, the Park District strives to protect its natural resources, including Lake Erie, and this project now captures over two million gallons of stormwater before it is flushed into Lake Erie.

Kristen Trolio
Cleveland Metroparks

The parking area of the Cleveland Metroparks Euclid Beach Park before (left) and after (right) construction of stormwater retention bioswales.

6. Improving Phosphorus Placement by Composting Solid Manure

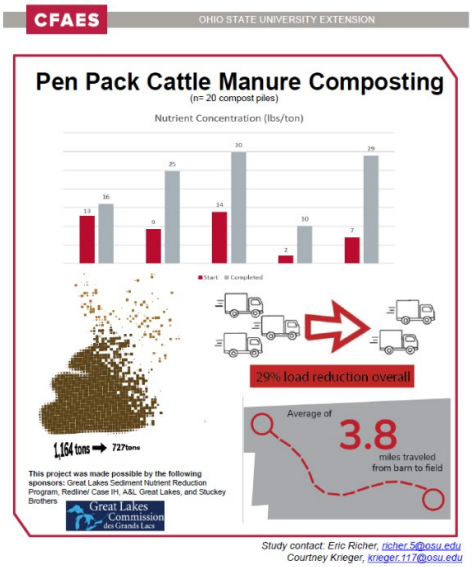
Ohio State University (Ohio)

The unique GLSNRP project managed by Ohio State University was initiated to help farmers better manage cattle manure nutrients. This was done by reducing manure volume and weight through composting. Efforts aimed to produce a more stable and nutrient dense agent for use as a fertilizer, which could be more efficiently transported for application where it was most needed.

The GLSNRP grant allowed me to work closely with Ohio farmers to utilize the composting process to manage manure for improved phosphorus transport and agronomic value.

Eric Richer
Ohio State University

Throughout the project, nine farmers collaborated to manage 20 unique compost piles and produced 726.73 tons of finished compost. This compost provided nutrients to 145.3 acres of farmland. 362 analyses of the compost provided key insights into the effectiveness of the practice including that manure weight was reduced by 53%, volume was reduced by 29%, key nutrient concentrations increased, and the composted manure was able to travel on average 3.8 miles from barn to field. In total, this project reduced the pollutants entering Lake Erie by 145.1 tons of sediment and 123.5 pounds of phosphorus annually. However, the findings of the project have the potential for larger impact through an increased understanding of cattle manure management.



A local farming partner is applying alternating strips of manure, light brown strips of fresh manure and dark brown strips of composted cattle manure, to demonstrate whether compost would improve crop yields (left). An infographic developed to explain the benefits of the project (right).

7. Phase 2: Targeted Phosphorus and Sediment Reduction to North Fish Creek and Chequamegon Bay, Lake Superior

Northland College (Wisconsin)

In northern Wisconsin, the Chequamegon Bay portion of Lake Superior experiences water quality issues and nearshore habitat degradation caused by excess sedimentation. The Fish Creek watershed is the primary source of this sediment and phosphorus loading to the bay. Northland College's GLSNRP project aimed to address this sedimentation through the restoration of a large, eroding bluff which had been severely damaged during a flooding event and which was estimated to achieve up to 28% of the annual sediment reduction goal for the watershed.

Throughout the project, 630 linear feet of the streambank toe were stabilized. The completed project will save 8,888 tons of sediment and 7,555 pounds of phosphorus annually to protect the Lake Superior watershed.

The GLSNRP program has been wonderful to work with and we are excited to embark on our third project starting this fall. The staff at GLSNRP are very professional and provide exceptional response and flexibility to grantees like us to facilitate smooth implementation of our projects. The structure of the GLSNRP program, with Task Force representatives from each Great Lakes state, provides a great way for us to work with someone directly informed about issues affecting water quality in our part of the Great Lakes and how we can effectively propose projects that will help address those issues.

Matt Hudson
Northland College

Northland College's facilitated stream restoration of North Fish Creek shown before (left) and after (right) construction.

8. Building the Water Storage Capacity of the Lower Fox

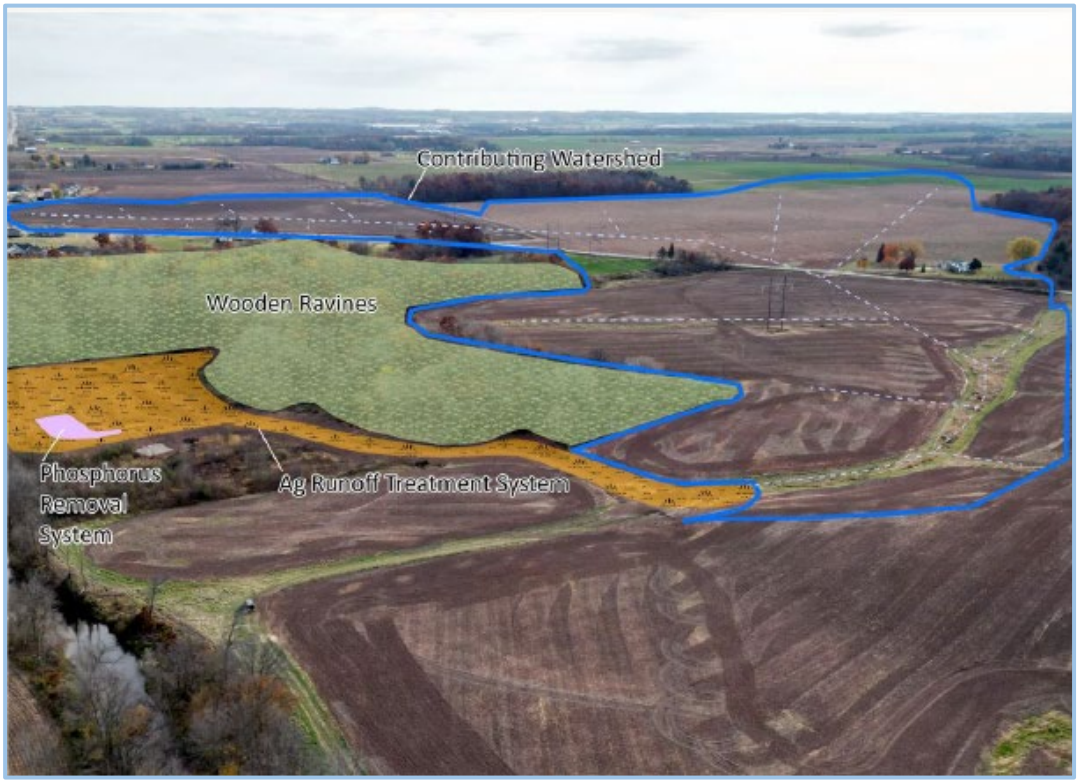
Outagamie County Land Conservation Department (Wisconsin)

Outagamie County's goal for their GLSNRP project was to develop a roadmap for watershed-scale implementation of Agricultural Runoff Treatment Systems (ARTS) by fine-tuning design and permitting workflows for effective, rapid deployment. ARTS combine sediment basin, constructed wetland, and urban stormwater detention methodologies to capture and treat surface runoff adjacent to farm fields. Runoff water is designed to be held within the system and slowly released to reduce peak flows while also specifically treating phosphorus with removal systems.

GLSNRP has given us the opportunity to introduce and expand the adoption of innovative BMPs, connect with peers across the Great Lakes, and provide efficient grant reporting.

Jeremy Freund
Outagamie County Land Conservation Department

As a result of this project, both Outagamie County and local partners are better equipped to design and implement future ARTS within Wisconsin to improve Lake Michigan water quality. The project was able to install 4.5 acres of ARTS which will collect runoff from 140 acres of agricultural watershed. This will prevent 55.97 tons of sediment and 212.95 pounds of phosphorus from entering local waterways each year.



The final constructed ARTS, which will collect the runoff from nearby farm fields, is shown here with labeled components including the contributing watershed and phosphorus removal system.

9. Restoring Agricultural Land to Native Vegetation to Reduce Nutrient Loads in Little Menomonee and Milwaukee River Watersheds

Mequon Nature Preserve Inc. (Wisconsin)

As part of Mequon Nature Preserve's long-term master plan to restore agricultural lands to wetlands and mesic forests, their GLSNRP project focused on improving water quality for the Menomonee River by restoring a 40-acre parcel through the removal of tile drains, planting of native prairie habitat, reforestation of upland areas, and restoration of riparian zones.

In total the project restored eight acres of wetland, planted riparian herbaceous cover across eight acres, established trees on 15 acres, plus planted native conservation cover and managed invasive species on 40 acres. The completed restoration will remove 502 tons of sediment and 540 pounds of phosphorus from the Lake Michigan system annually. The project also increased community engagement by inviting local youth to plant wetland plugs and improved the connectivity of green spaces within the wider City of Mequon, further improving the existing green corridor.

Thanks to the fantastic partnership of Great Lakes Sediment and Nutrient Reduction Program we were able to restore this critical piece of land to a beautiful mesic hardwood forest here in southeastern Wisconsin.

Kristin Gies
Mequon Nature Preserve, Inc.

Ponding conditions which led to nutrient pollution downstream (left) were addressed through wetland construction and native prairie plantings on restored agricultural lands (right).

2*. Michigan State University (Michigan)

10*. West Creek Conservancy (Ohio)

Please note that in a rare occurrence for the GLSNRP, the Michigan State University award titled *Michigan State University Riverbank Restoration Phase II* was terminated due to inability to complete project deliverables. The project was awarded funding to stabilize 700 linear feet of the Red Cedar River which runs through campus and has been experiencing erosion. The restoration would have utilized toe-wood and stone within the stream and would stabilize the bank using a bioengineered method and native plantings. The Michigan State University grant team frequently communicated with GLC staff regarding difficulty in securing the necessary state permits. In August 2024, the grant was terminated as no work had been completed and the needed permits were not in hand after several project extensions.

After securing a no-cost extension of time for the prime agreement with NRCS, Great Lakes Commission staff were able to re-obligate $119,000 in unspent funds from this project to a 2024 recipient of a GLSNRP grant, West Creek Conservancy. The re-obligated funding was used for the design, engineering, and initial construction of a stream restoration in Ohio benefiting Lake Erie, with 2024 funding also awarded to complete the work. The final results of the West Creek Conservancy project will be included with the GLSNRP Agreement 14 report as a final report was submitted for the entirety of the project in July 2025.

Disclaimers

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The Great Lakes Commission is a binational government agency established in 1955 to protect the Great Lakes and the economies and ecosystems they support. Its membership includes leaders from the eight U.S. states and two Canadian provinces in the Great Lakes basin. The GLC recommends policies and practices to balance the use, development, and conservation of the water resources of the Great Lakes and brings the region together to work on issues that no single community, state, province, or nation can tackle alone.

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USDA United States Department of Agriculture
Natural Resources Conservation Service

Great Lakes RESTORATION