NEW YORK STATE | Department of Environmental Conservation

New York's Great Lakes Report

IMPLEMENTING THE *GREAT LAKES ACTION AGENDA*

2022–2024

Kathy Hochul, Governor | Amanda Lefton, Commissioner

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List of Abbreviations

9E – nine element (plan)

AGM – New York State Department of Agriculture and Markets

AIS – aquatic invasive species

AOC – area of concern

BMPs – best management practices

BUI – beneficial use impairment

B-WET – Great Lakes Bay Watershed Education and Training

CCE – Cornell Cooperative Extension

CSD – Central School District

CSMI – Cooperative Science and Monitoring Initiative

DACs – disadvantaged communities

DEC – New York State Department of Environmental Conservation

EBM – ecosystem-based management

EPA – U.S. Environmental Protection Agency

EPF – Environmental Protection Fund

ESF – SUNY College of Environmental Science and Forestry

FLLOWPA – Finger Lakes–Lake Ontario Watershed Protection Alliance

GLAA – *New York's Great Lakes Action Agenda*

GLEEE – New York's Great Lakes Ecosystem Education Exchange

GLRC – Great Lakes Research Consortium

GLRI – Great Lakes Restoration Initiative

GLWQA – *Great Lakes Water Quality Agreement*

HABs – harmful algal blooms

HWS – Hobart and William Smith Colleges

ITEK – Indigenous Traditional Ecological Knowledge

IWAP – Integrated Watershed Action Plan

LAMP – *Lakewide Action and Management Plan*

LEWPA – Lake Erie Watershed Protection Alliance

NAACC – North Atlantic Aquatic Connectivity Collaborative

NOAA – National Oceanic and Atmospheric Association

NY – New York

NYS – New York State

NYSWRI – New York State Water Resources Institute at Cornell University

PFAS – per- and polyfluoroalkyl substances

SRMT – Saint Regis Mohawk Tribe

SUNY – State University of New York

SWCD – Soil and Water Conservation District

UFI – Upstate Freshwater Institute

USGS – U.S. Geological Survey

WMA – wildlife management area

WQIP – Water Quality Improvement Project

Message from the Commissioner

Amanda Lefton
Commissioner

New York State's Great Lakes lands and waters, including Lake Erie, Lake Ontario, and the Niagara and St. Lawrence rivers, are treasured by residents and visitors alike, supporting renowned angling, boating, and recreational opportunities and providing an essential source of freshwater for millions. New York is a Great Lakes state, and its Department of Environmental Conservation (DEC) continues to advance the agency's mission through effective delivery of interdisciplinary watershed programs like the Great Lakes Program—to conserve, improve, and protect these lands and waters for generations to come. This *2022–24 Great Lakes Program Report* highlights the valuable and important work of DEC's Great Lakes Program and many partner organizations, and underscores the important role that we all have in taking actions to achieve the shared goals of *New York's Great Lakes Action Agenda 2023* (*GLAA*).

Shannon Dougherty

During 2024, DEC's Great Lakes Program welcomed a new director, Shannon Dougherty, who has worked in a watershed management role with the Program since 2011. Under Shannon's leadership, the Program will continue to prioritize holistic, ecosystem-based management (EBM) approaches to achieve sustainable outcomes that attain the best balance of ecological, social, and economic interests and benefits for the public. Key program priorities for the coming year include continuing to expand New York State's Great Lakes research community and capabilities to support science-informed decision-making, promoting innovative, nature-based solutions to address water quality and quantity management challenges and prioritizing meaningful participation by a diverse Great Lakes constituency. DEC plans to emphasize Environmental Justice and the inclusion of disadvantaged communities (DACs) that have experienced disproportionate impacts of environmental pollution, including those communities within and near designated Great Lakes Areas of Concern (AOCs).

Effective partnerships are essential to our shared success in implementing comprehensive watershed action plans like the *GLAA*. Sustaining the accomplishments detailed in this report depends on the ongoing commitment and cooperation of partners at the local, State, and federal levels. The Great Lakes Program will continue to foster new connections and collaborations to implement projects that significantly advance the 115 actions identified in the *GLAA*, while aiming to strategically leverage new opportunities from Governor Kathy Hochul's historic Clean Water, Clean Air, and Green Jobs Environmental Bond Act funding and from the federal Great Lakes Restoration Initiative (GLRI). We welcome all New Yorkers to learn more, get involved, and join us in stewarding the incredible waters and resources of New York State's Great Lakes.

Sincerely,

Amanda Lefton

Commissioner, New York State Department of Environmental Conservation

New York State's Great Lakes Program and Updates

New York State's Great Lakes basin, or watershed, includes all the land that drains to Lake Erie, Lake Ontario, and the Niagara and St. Lawrence rivers. These important lands and waters are vital to the region's quality of life and to those who live, work, and recreate in this region.

Guided by the *GLAA,* DEC's Great Lakes Program works with partners to advance ecosystem-based science, projects, and solutions to restoring and protecting the Great Lakes lands and waters.

GLAA GOALS INCLUDE:

1. Reduce or eliminate releases of persistent toxic substances;
2. Control sediment, nutrient, and pathogen loadings;
3. Prevent and control invasive species impacting waterways and riparian areas;
4. Conserve and restore native fish and wildlife and their habitats;
5. Enhance community resiliency and ecosystem integrity; and
6. Revitalize local communities through sustainable management and stewardship.

Achieving shared goals for NYS lands and waters requires partnerships with many State and federal agencies, Indigenous Nations, universities, nonprofit organizations, and local communities. This report highlights Great Lakes Program and partner efforts from 2022 through 2024.

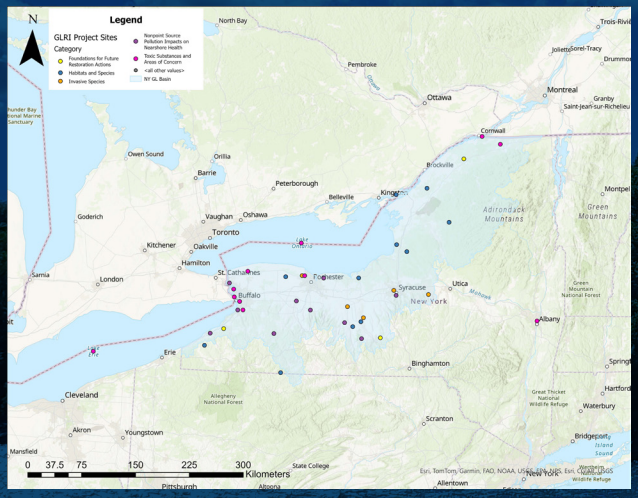
The work featured in this report is supported by the NYS Environmental Protection Fund (EPF) under the authority of the Ocean and Great Lakes Ecosystem Conservation Act; the federal GLRI; and many other local, State, and federal programs and partnerships.

To learn more about DEC's Great Lakes Program and to join our mailing list, visit our website at dec.ny.gov/nature/waterbodies/watersheds/management/great-lakes.

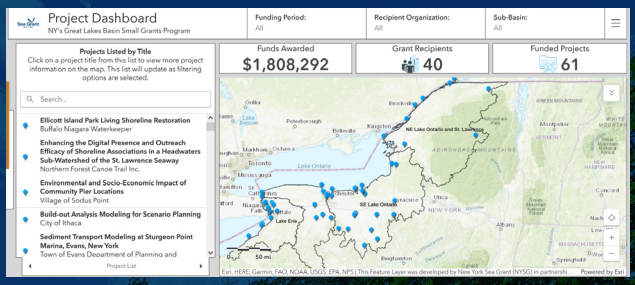
Thank you for your interest in sustaining NYS's Great Lakes lands and waters.

2022–2024 By the Numbers

- **More than $147.9 million** was awarded by DEC's Water Quality Improvement Project (WQIP) for **84** projects within the watershed.
- **Over $34.6 million in GLRI funding was awarded** for **69** habitat restoration, water quality, and other projects consistent with the federal *GLRI Action Plan III*.



- **14 new communities** have pledged to take climate change action under DEC's Climate Smart Communities program.
- **More than $550,000 in EPF funding** supported **17** research and outreach grants through partnerships with the State University of New York (SUNY) College of Environmental Science and Forestry (ESF) and the NYS Water Resources Institute (NYSWRI) at Cornell University.
- **$837,932** was awarded for **11** projects under DEC's Invasive Species Grant Program.
- **$388,289 in EPF funding** was awarded to **8** projects under DEC–New York Sea Grant's Great Lakes Basin Small Grants Program to support *GLAA* implementation.

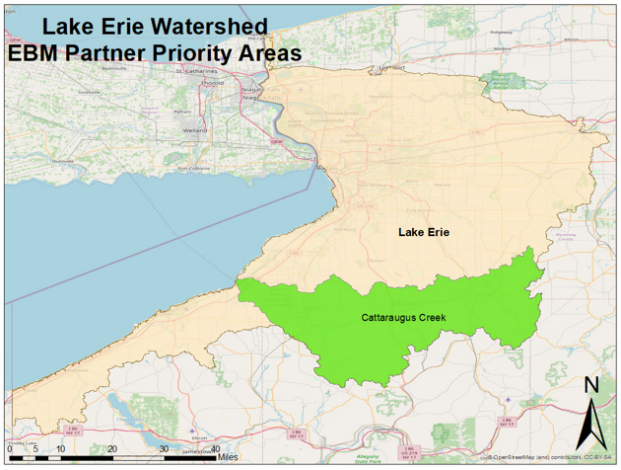


- **5,800 acres** were surveyed for aquatic invasive species (AIS) by regional coordinators.
- **210 participants** attended *GLAA* sub-basin work group meetings.
- **116 teachers** reaching **26,301 students** were engaged through Great Lakes educational training and programming.
- **1,431 culverts** were assessed by partners, identifying **160** severe barriers to aquatic passage.
- **4** nine element (9E) watershed plans were approved: Canandaigua Lake, Owasco Lake, Seneca and Keuka lakes, and DeRuyter Reservoir.
- **34 municipalities** and **1** university participated in the Drinking Water Source Protection Program.
- **1 AOC** was delisted; **5** beneficial use impairments (BUIs) were removed.

Great Lakes Action Agenda Sub-Basin Work Group Progress

DEC's Great Lakes Program coordinates four sub-basin work groups to provide opportunities to engage in collaborative *GLAA* implementation by facilitating partnerships, projects, and research, and by connecting stakeholders to technical and funding resources. Work group meetings were held in fall 2023 to kickoff implementation of the updated *GLAA*, and in spring and fall 2024 to engage partners in sharing perspectives, project work planning, and characterizing watershed conditions.

2022–2024 Accomplishments by Sub-Basin Work Group



Lake Erie Sub-Basin

The Lake Erie sub-basin encompasses the Buffalo River, Cattaraugus Creek, and Tonawanda Creek watersheds, spanning more than 1.5 million acres with a population of 1.2 million people across 8 counties. The lands are dominated by forests and cultivated crops.

- **Lake Erie Watershed Protection Alliance (LEWPA) Supports Water Quality Projects:** LEWPA works throughout NYS's Lake Erie watershed to implement water quality improvement and protection projects and conduct watershed planning and monitoring. In this report term, LEWPA implementation efforts have prevented 188,013 pounds of nutrients and 62,279 tons of sediment from entering Lake Erie waterways. In addition, LEWPA has planted 2,675 feet of streamside buffers, treated 42 acres for invasive species, and conducted outreach to 34,000 people within the Lake Erie and Niagara River watersheds. LEWPA's Septic Smart for Lake Erie program is reducing waste at the source by promoting proper maintenance of septic systems and providing funding for replacements. For more information from LEWPA, visit erie.gov/environment/lake-erie-watershed-protection-alliance.

- **Lake Erie Watershed Partners Make Progress on 9E Plan:** Within the Lake Erie watershed, partner updates on clean water planning to support projects that will improve and sustain water quality include:

  — 13 sub-watersheds had 10% of the sub-watershed area mapped using ecological assessment protocols from the U.S. Department of Agriculture that will guide ecological restoration projects.

  — The U.S. Geological Survey (USGS) completed a watershed model to quantify and target implementation practices that will benefit water quality by reducing nutrient loading. A paper was published that can be accessed at pubs.usgs.gov/publication/sir20245022.

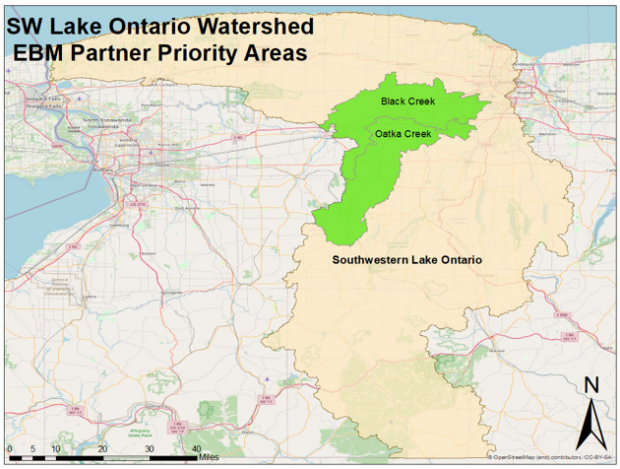
- ***Smokes Creek Habitat Connectivity and Improvement Opportunity Assessment* Available:** Impacted by decades of industrial activity, Smokes Creek is the most urbanized and industrialized sub-watershed in the Niagara River watershed, entering Lake Erie at the southern end of the Niagara River AOC in Lackawanna. The watershed suffers from extreme streambank erosion, flooding problems, and riparian buffer degradation. DEC developed a habitat connectivity and improvement opportunity assessment for 12 focus areas across 700 acres within the sub-watershed to identify, evaluate, and prioritize habitat restoration opportunities and flood mitigation alternatives that will improve natural stream hydrology, habitat connectivity, and flood resiliency. The assessment is available at dec.ny.gov/nature/waterbodies/lakes-rivers/great-lakes.

Dunkirk's constructed wetland was supported with $620,000 in funding from the Great Lakes Restoration Initiative.

- **Dunkirk Constructed Wetland is Recognized Basin-Wide:** Chautauqua County Soil and Water Conservation District (SWCD), the City of Dunkirk, and LEWPA secured $620,000 in GLRI funding to construct two projects that will prevent polluted stormwater from impacting Lake Erie. A 0.7-acre stormwater-treatment wetland was constructed along the Dunkirk waterfront to capture and treat over 100,000 gallons of stormwater. Additionally, a portion of the urbanized Hyde Creek corridor was restored through the construction of wetlands, flood benches, and rock check dams. These projects improved conditions at Main Street Beach, and reduced stream velocity and trapped debris and sediment that would otherwise impact Lake Erie water. In 2024, the City of Dunkirk was recognized by the Great Lakes and St. Lawrence Cities Initiative for the constructed stormwater wetland project along Dunkirk's waterfront and won a "Wege Small Cities Sustainability Best Practices Award" that included a $3,750 prize.

- **Cattaraugus Creek Integrated Watershed Action Plan (IWAP) Assessment Available:** DEC and partners have made progress developing a pilot EBM action plan for the Cattaraugus Creek watershed to identify actions and strategies that restore, protect, and maintain important ecosystem functions and benefits. Public and stakeholder meetings were held by DEC and partners to share the ecosystem and risk assessment and to get input on project recommendations, including wetland restoration, improvement of riparian buffer coverage, in-stream habitat enhancements, invasive species control and prevention, implementation of agricultural best management practices (BMPs), and protection of open space to support stakeholder-driven goals for the watershed. View the StoryMap at storymaps.arcgis.com/stories/369d69e8344a4856ac9729b178445eb0.

A 9E watershed plan is a type of clean water plan that details a community's water quality concerns and a strategy to address these concerns. Learn more about clean water planning at https://dec.ny.gov/environmental-protection/water/water-quality/clean-water-plans.



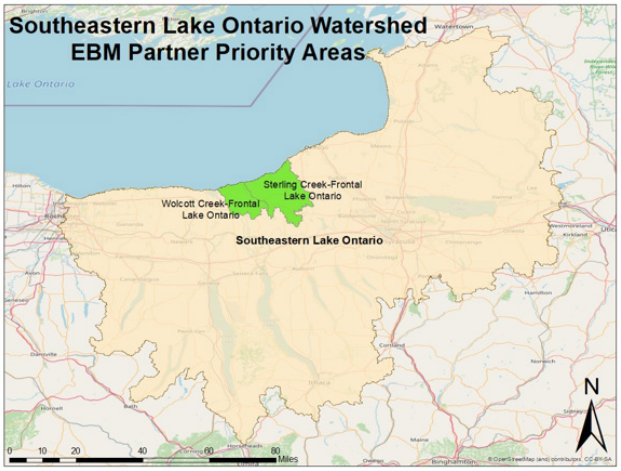
Southwest Lake Ontario Sub-Basin

The Southwest Lake Ontario sub-basin includes the Genesee River and Twelve Mile Creek–Oak Orchard Creek watersheds; it spans more than 2.1 million acres across 11 counties with a population of 1.2 million people. Dominant land types are cultivated crops and forest.

A watershed advisory committee kickoff meeting was held in fall 2024.

- **Developing a Watershed Implementation Plan for the Genesee River Basin:** DEC and the Genesee/Finger Lakes Regional Planning Council are working in collaboration with the Genesee River Watershed Coalition of the Conservation Districts, Southern Tier Central Regional Planning & Development Board, and Southern Tier West Regional Planning & Development Board to develop a watershed implementation plan that will enhance and accelerate implementation of the 2015 Genesee River Basin Nine Key Element Watershed Plan to reduce sediment and phosphorus loading. The Genesee River watershed includes the Oatka Creek and Black Creek EBM Partner Priority areas, and partners in these areas have been engaged in the development of this plan. A watershed advisory committee of federal, state, and local stakeholders has been established by the Planning Council. To learn more about this effort, visit the Planning Council's website at engage.gflrpc.org/genesee-river-wip.

- **Expanding Aquatic Connectivity in Wiscoy Creek:** Wiscoy Creek is the premier wild brown trout fishery in Western New York, offering angling opportunities for wild brown and brook trout and boasting over 12 miles of public fishing rights along its main stem. Wiscoy Creek is important for floodwater retention, and to support aquatic connectivity and resiliency in this watershed, Trout Unlimited staff surveyed 99 culverts using North Atlantic Aquatic Connectivity Collaborative (NAACC) protocols and identified 30 aquatic organism barriers disconnecting over 20 miles of habitat. Trout Unlimited is working with the Town of Pike, Town of Eagle, and the Wyoming County SWCD to submit grant applications to enhance multiple road–stream crossings that would reconnect approximately 4.75 miles of habitat in the Wiscoy Creek watershed, including waters with documented brook trout presence. Trout Unlimited and DEC are coordinating with municipalities to identify and pursue additional project priorities.



Southeast Lake Ontario Sub-Basin

The Southeast Lake Ontario sub-basin includes five sub-watersheds—the largest of which is the Finger Lakes sub-watershed—and spans more than 4.3 million acres across 19 counties with a population of 1.7 million people. The dominant land types are forest and cultivated crops.

- **Sandy Creeks Engagement in Clean Water Planning:** A 9E watershed plan is being developed in coordination with DEC by the SWCDs of Jefferson, Oswego, and Lewis counties, and with support from Upstate Freshwater Institute (UFI) and the Tug Hill Commission, to address water quality issues, including harmful algal blooms (HABs), in the bays within the Sandy Creeks watershed. The plan will discover potential water quality impacts, inform management decisions, and improve grant funding opportunities. For more information, visit tughill.org/services/natural-resource-management/sandy-creeks-clean-water-planning/.

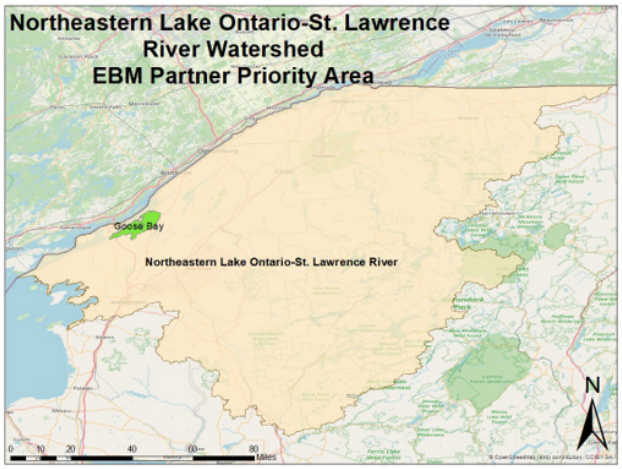
- **Skaneateles Lake Engagement and 9E Watershed Planning:** A 9E plan for phosphorus is being developed for the Skaneateles Lake watershed in coordination with the City of Syracuse, Onondaga County, local SWCDs, local municipalities, a modeling team led by Ramboll, and the Central NY Regional Planning Board. When complete, the 9E plan will help stakeholders understand watershed approaches that reduce nutrient loads to offset projected climate change impacts to the lake and will improve grant funding opportunities. The 9E plan is expected to be complete and approved by DEC in 2025. For more information, visit skaneateles9e.cnyrpdb.org/.

- **Sterling–Wolcott IWAP:** DEC and partners have made progress developing a pilot EBM action plan for the Sterling and Wolcott creeks watershed. Management strategies and projects have been identified that maintain, protect, and restore key ecosystem services and the many benefits they provide, such as clean drinking water, fish and wildlife habitat, natural flood storage and mitigation capacity, viable agricultural lands, and sustainable recreational opportunities. Plan recommendations include wetland protection, streambank restoration, infrastructure improvements, invasive species control and prevention, and the development of new trails. View the StoryMap at storymaps.arcgis.com/stories/7a4c9700cda1482e90adb6e795c3fed9. More information is available at dec.ny.gov/nature/waterbodies/lakes-rivers/great-lakes/action-agenda.

Sunset at a Lakeview Wildlife Management Area boat launch, providing boaters access to 3,641 acres of coastal wetlands.

Restoring Aquatic Habitat and Connectivity at Lakeview Wildlife Management Area (WMA): DEC partnered with the National Oceanic and Atmospheric Association (NOAA), Great Lakes Commission, National Audubon Society, Audubon New York, and Ducks Unlimited to construct a wetland enhancement technique, known as "channeling and potholing," to restore 180 acres of coastal wetland habitat within the 3,641-acre Lakeview WMA. The project improved wetland hydrology; created a variety of water depths to expand and diversify aquatic vegetation; and connected habitat to benefit spawning northern pike and other fish, as well as nesting black terns, migrating marsh birds, and waterfowl. For more information on Lakeview WMA, visit dec.ny.gov/places/lakeview-wildlife-management-area.

A culvert on Cellar Brook in DEC's Moose River Plains Complex



Northeast Lake Ontario–St. Lawrence River Sub-Basin

The Northeast Lake Ontario–St. Lawrence River sub-basin includes the Chaumont Perch, Black River, and St. Lawrence River watersheds, spanning more than 5 million acres with a population of 350,000 people across 9 counties. The sub-basin is dominated by forests and wetlands.

- **Black River Initiative Evaluates Outcomes:** Partners in the Black River watershed, including DEC; SWCDs in Jefferson, Lewis, Oneida, Herkimer, and Hamilton counties; the Tug Hill Commission; Ramboll; and UFI, worked together to understand changing watershed management needs after 10-plus years of progress. Partners reviewed existing water quality data to support a gap analysis, completed training for water quality monitoring that meets DEC standards, and completed additional monitoring to fill gaps. The team plans to coordinate evaluation of water quality data to determine where to implement additional water quality best practices, update the *Black River Nine Element Watershed Management Plan*, consider additional modeling, and seek funding sources for additional implementation. More information and a recently developed DEC planning tool for comparing sub-watersheds at different scales is available on the Tug Hill Commission website at tughill.org/projects/black-river-projects/watershed-initiative/.

A perched and undersized culvert in the Moose River Plains is evaluated by DEC and Trout Unlimited partners for rightsizing.

- **South Branch of Moose River Culvert Assessments and Monitoring Identifies Aquatic Connectivity Opportunities**: Trout Unlimited, with support from DEC, completed 45 culvert assessments in the South Branch of Moose River, an important waterway for floodwater retention, brook trout spawning, and recreation. Using NAACC protocols, Trout Unlimited identified 32 aquatic organism barriers that disconnected 27 miles of habitat. Trout Unlimited coordinated with Hamilton County SWCD and the Town of Arietta to develop grant proposals to enhance several high priority culverts for fish passage in Otter Brook. Additional monitoring is underway in coordination with DEC Region 5 to further prioritize and plan culvert enhancements to sections of the Moose River Plains Complex that fall within the South Branch Moose River watershed.

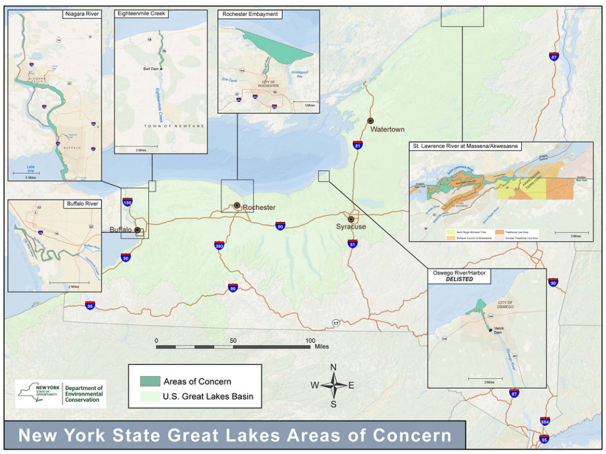
- **Partners are Restoring the St. Lawrence River Watershed:** Partners within the St. Lawrence River Watershed Project are restoring the watershed to benefit the ecosystem and communities with $1,594,651 in funding from NYS grant programs. Actions implemented have included assessing and enhancing undersized culverts, implementing agricultural BMPs with funding from the NYS Department of Agriculture and Markets (AGM), managing flood risks by completing a DEC Resilient NY study for the Little Salmon River in Franklin

County, managing invasive species through grant funding from DEC's Invasive Species Grant Program (including studying Eurasian watermilfoil biocontrol within the Goose Bay Partner Priority Area), and improving water quality with funding from DEC's WQIP. For more information, visit fcswcd.org/partnerships/st-lawrence-river-watershed-partnership-slrwp/.

WQIP is a competitive statewide reimbursement grant program that funds projects that directly improve water quality, restore fish and wildlife habitat, improve aquatic connectivity, promote flood risk reduction, enhance flood and climate resiliency, and protect drinking water sources. For more information, visit dec.ny.gov/get-involved/grant-applications/wqip-program.

Areas of Concern Updates and Accomplishments

Significant progress has continued in restoring environmental conditions and removing BUI designations in New York State's AOCs, identified under the *Great Lakes Water Quality Agreement* (*GLWQA*) as the most degraded areas around the Great Lakes basin.



New York State Great Lakes Areas of Concern

To learn more about AOCs and to get involved, visit DEC's updated AOC website at dec.ny.gov/nature/waterbodies/lakes-rivers/great-lakes/areas-of-concern.

ROCHESTER EMBAYMENT AOC DELISTED

In October 2024, DEC, Monroe County, the U.S. Environmental Protection Agency (EPA), and many other AOC partner organizations celebrated a watershed moment as decades of work led to the formal delisting of the Rochester Embayment AOC. The Rochester Embayment had 14 BUIs when it was first listed as an AOC in 1987, and removing each BUI took years of dedication, remediation, restoration, monitoring, and adaptive management to achieve. The last of the 14 BUIs, Loss of Fish and Wildlife Habitat, was removed in October 2023. In June 2024, DEC published a draft report, prepared in collaboration with its partners, that summarized the remedial and restoration efforts in the area and recommended removal from the list of Great Lakes AOCs. Following public review and submission of a final delisting report to EPA in September, the delisting process was completed on Oct. 3, 2024. This significant accomplishment and the many partners involved were acknowledged during a public ceremony in Rochester five days later. DEC and partners developed a video highlighting the work that went into the delisting process, available at youtube.com/watch?app=desktop&v=meslP_RTyus.


A ceremony held at Braddock Bay celebrated the delisting of the Rochester Embayment Area of Concern.

Buffalo River

In 2022–24, DEC, Buffalo Niagara Waterkeeper, and partners successfully removed the following BUIs from the Buffalo River AOC, benefiting fish and wildlife habitat and improving the fishery:

- July 2023: Loss of Fish and Wildlife Habitat
- September 2023: Degradation of Benthos
- September 2024: Fish Tumors or Other Deformities

Niagara River

From 2022 through 2024, DEC and partners made progress in the Niagara River AOC, including:

- Identifying and addressing sources that contribute to the impairments, with a heavy focus in recent years on contaminated sediment;
- Adding portions of four additional Niagara River tributaries to the AOC in 2023 to make those areas eligible for federal assistance for assessing and, where necessary, cleaning up contaminated sediment; and
- Completing 7 of the 12 *Niagara River AOC Habitat Restoration Plan* projects, with three additional projects underway.

Eighteenmile Creek

The following progress was made to restore the Eighteenmile Creek AOC from 2022 through 2024:

- The Degradation of Fish and Wildlife Populations BUI was removed in September 2024.
- EPA announced the record of decision to provide the cleanup plan selected to address contaminated sediments and floodplain soils along a roughly 5.3-mile section of the creek under the federal Superfund program.
- Remediation will continue to mitigate contaminant releases to the creek and allow for the future removal of the four remaining BUIs.

St. Lawrence River at Massena/Akwesasne

DEC and the Saint Regis Mohawk Tribe (SRMT) hold a co-coordination partnership to implement the *St. Lawrence River at Massena/Akwesasne Remedial Action Plan*. The following progress has been underway:

- Habitat assessments to inform the Fish and Wildlife Habitat BUI and identify possible habitat restoration/enhancement projects have been mostly completed, resulting in a number of potential restoration projects being identified.
- The Technical Subcommittee has been formed and meetings are ongoing to assess BUI removal criteria, identify possible BUI assessment needs, and determine actions needed to remove BUIs.
- DEC and SRMT are working closely to inform, educate, and engage the public in ongoing restoration efforts and AOC progress, which is an essential part of the delisting process.
- SRMT is leading efforts to integrate Indigenous Traditional Ecological Knowledge (ITEK) into BUI removal criteria, management actions, and assessments in the St. Lawrence River AOC.

Beneficial use impairment (BUI): a change in the chemical, physical or biological integrity of the Great Lakes system sufficient to cause significant environmental degradation.

—"Beneficial Use Impairments for the Great Lakes AOCs," EPA, www.epa.gov/great-lakes-aocs/beneficial-use-impairments-great-lakes-aocs

Beneficial Use Impairement Status Within New York's Great Lakes Area's of Concern						
	Area of Concern					
Beneficial Use	**Buffalo River**	**Eighteenmile Creek**	**Niagara River**	**Rochester Embayment**	**St. Lawrence**	**Oswego River**
1 - Restrictions on Fish and Wildlife Consumption						
2 - Tainting of Fish and Wildlife Flavor						
3 - Degradation of Fish and Wildlife Populations						
4 - Fish Tumors or Other Deformities						
5 - Bird/Animal Deformities or Reproductive Problems						
6 - Degradation of Benthos						
7 - Restrictions on Dredging Activities						
8 - Eutrophication or Undesirable Algae						
9 - Restrictions on Drinking Water Consumption or Taste and Odor Problems						
10 - Beach Closings						
11 - Degradation of Aesthetics						
12 - Added Costs to Agriculture or Industry						
13 - Degradation of Phytoplankton or Zooplankton Populations						
14 - Loss of Fish and Wildlife Habitat						
Status summary	6 of 9 BUIs removed	2 of 5 BUIs removed	1 of 7 BUIs removed	AOC Delisted	1 of 7 BUIs removed	AOC Delisted

Legend	
	Not Impaired
	Beneficial Use Impaired
	Beneficial Use Restored

Managing The Lakes

New York's Great Lakes Action Agenda is strategically aligned with key priorities of the binational Lake Erie and Lake Ontario *Lakewide Action and Management Plans* (*LAMPs*) to maximize opportunities to leverage partnerships, funding, research, and tracking capabilities.

Access to and Collection of Science Under the Cooperative Science and Monitoring Initiative

The Great Lakes Cooperative Science and Monitoring Initiative (CSMI) is a binational effort to coordinate Great Lakes research and monitoring activities to support management decisions under the *GLWQA*. For more information, visit greatlakescsmi.org/.

Great Lakes Cooperative Science and Monitoring Initiative five-year planning process for each Great Lake, with a field year in year one, data analysis in year two, reporting out in year three, priority setting in year four, and planning in year five.

CSMI 2023 Field Year Completed for Lake Ontario: In 2022, researchers and managers identified research priorities for the 2023 field year, a coordinated effort to collect environmental data used to inform management priorities in the *Lake Ontario LAMP*. Data from the field year were analyzed in 2024 and results will be shared with the public during the reporting out year in 2025. Key research priorities and associated projects for Lake Ontario included:

- Improve whole-lake phosphorus load and productivity estimates: DEC provided input on monitoring locations and parameters for the USGS-led *Lake Ontario Nearshore Nutrient Study*, a long-term study designed to help characterize the impacts and connection between tributary nutrient inputs and nearshore water quality to support development and improvement of Lake Ontario nutrient models.
- Increase understanding of the physical drivers of fish habitat and impacts on fish recruitment and production: in 2023, DEC; the U.S. Fish and Wildlife Service; the Ministry of Northern Development, Mines, Natural Resources and Forestry; and other partners initiated a 10-year collaborative for acoustic telemetry that will identify lake trout spawning areas and model lake-wide spawning areas.
- Characterize critical and emerging pollutants with a focus on chemicals that have potential for contaminants to move through the food web in nearshore and offshore ecosystems, and evaluate how climate change will impact the uptake of chemicals by organisms: UFI and Syracuse University characterized organic micropollutants and microplastics in Lake Ontario embayments in nearshore areas.
- NOAA, in partnership with EPA and SUNY University at Buffalo, led a whole-lake quagga mussel body condition assessment, through which NOAA and partners investigated changes in quagga mussel tissues, shells, and reproductive status over time.-

DEC's Great Lakes Program presentation on Cooperative Science and Monitoring Initiative activities at the 2023 North American Lake Management Society Conference

Lake Erie CSMI Planning Underway: In 2023, DEC, EPA, and other partners collaboratively identified science priorities for the 2024 field year. Key research priorities for Lake Erie included:

- Identify and assess suitable habitat for Lake Trout spawning: DEC's Great Lakes Program partnered with the agency's Lake Erie Fisheries Unit to map substrate near Barcelona Harbor in Eastern Lake Erie, which will determine the suitability of spawning habitat for lake trout and inform future restoration efforts.
- Evaluate benthos (substrate) conditions to understand the health of the food web, the impacts from invasive species such as quagga mussels, and the contaminants in the aquatic ecosystems, and examine how HABs and hypoxia (lack of oxygen) are driving changes in the lake.
- Study the relative importance of nutrient drivers and the influence of climate trends on fish productivity to develop resilient fishery management policies.
- Track the pathways and impact of contaminants, nutrients, and microplastics in fish and how these variables move through the food web.

For more information, visit epa.gov/great-lakes-monitoring/surveys-conducted-lake-guardian-2019.

DEC staff conducting Lake Erie Sonar Mapping to determine lake bottom habitat for Lake Trout.

DEC Great Lakes Fisheries Section Updates

From 2022 through 2024, DEC's Lake Ontario and Lake Erie Fisheries Units, in coordination with the Great Lakes Fishery Commission, implemented management plans, performed research, and supported sustainable fisheries in New York State's Great Lakes. DEC Great Lakes Fisheries Units also completed angler surveys and conducted outreach activities to engage stakeholders. In 2024, DEC, the angling community, and other stakeholders celebrated exceptional walleye and Chinook salmon fishing, with reports of record-breaking catches and fishing opportunities exceeding expectations. Read the full press release at dec.ny.gov/news/press-releases/2024/8/dec-highlights-outstanding-great-lakes-fishing-opportunities.

Advancing Cross-Cutting Priorities

The following progress highlights accomplishments to advance cross-cutting priorities, which apply across all *GLAA* goals.

Promoting Diversity, Equity, and Inclusion

Opportunities for engagement and outreach with communities within designated Environmental Justice areas and DACs were provided through semiannual *GLAA* work group meetings. Meetings were hosted in Environmental Justice areas and DACs, including Massena, Rochester, Buffalo, Syracuse, Auburn, Gouverneur, and Ogdensburg, and provided opportunities for attendees to connect with over 300 work group members. Community members and organizations were invited to share their perspectives, learn about funding opportunities that can support *GLAA* implementation in these areas, and connect with work group members who may offer technical assistance and other support. Within AOCs, DEC and partners continue to engage impacted communities with Environmental Justice concerns to enhance existing and planned AOC projects while providing opportunities for the public to participate in decision-making processes. Through these programs, DEC will continue pursuing expanded opportunities to remove barriers to

engagement and more fully involve underserved communities in the benefits of Great Lakes restoration projects.

Educating the Next Generation of Great Lakes Stewards

Delivering Teacher Workshops Focused on Climate Change Adaptation

In 2023 and 2024, in support of NY's Great Lakes Ecosystem Education Exchange (GLEEE), DEC and NY Sea Grant worked with a Great Lakes education council of 6 teachers to identify resources and professional development opportunities needed to support *GLAA* priorities for K–12 education and engagement. Four of these six teachers represent schools that serve Potential Environmental Justice Areas. To support teachers, climate change impacts and adaptation workshops were held at Woodlawn Beach and Fair Haven Beach State parks, and 29 teachers learned from experts, toured shorelines, and practiced hands-on learning activities that can be used in their classrooms, with the potential to reach up to 4,047 students. For more information, visit seagrant.sunysb.edu/articles/t/new-york-s-great-lakes-ecosystem-education-exchange.

DEC and NY Sea Grant worked with the Finger Lakes Institute, the Adirondack Watershed Institute, The Wild Center, and teachers throughout the state under a NOAA Great Lakes Bay Watershed Education and Training (B-WET)-funded program to plan for teacher professional-development and student-summit events for the "Youth for Water and Climate Action" project. Teachers participated from the following schools:

- Auburn Enlarged City School District in Cayuga County
- Edward-Knox Central School District (CSD) in St. Lawrence County
- Geneva City School District in Ontario County
- Indian River CSD in Jefferson County
- Romulus CSD in Seneca County
- Saranac Lake CSD in Franklin County

For more information on NOAA Great Lakes B-WET funding, visit sanctuaries.noaa.gov/bwet/greatlakes/.

Day in the Life of Lake Ontario–St. Lawrence River Engages Additional Students and Expands to New Watershed

In 2023, the Day in the Life of Lake Ontario–St. Lawrence River watershed project, with support from EPA; GLRI; NY Sea Grant; NYS Office of Parks, Recreation and Historic Preservation; and over 20 additional partners collaborated to promote the next generation of Great Lakes stewards and environmental professionals. By working with 7 teachers from 6 schools to plan and hold student summit events, 379 students were engaged in environmental monitoring and stewardship activities. In 2024, with support from Rochester Institute of Technology, the Day in the Life program expanded into the Oswego River–Finger Lakes watershed and worked with 5 teachers to engage 130 students in these activities. For more information, visit dec.ny.gov/get-involved/education/teacher-information/day-in-the-life-statewide-events.

Students from HW Smith Pre-K-8 School learn biomonitoring at Limestone Creek.

Integrating Indigenous Traditional Ecological Knowledge

DEC continues working to build relationships and trust with Indigenous Nations to facilitate partnerships and promote a shared understanding and stewardship of the Great Lakes basin, in accordance with DEC Commissioner Policy 42: Contact, Cooperation, and Consultation with Indian Nations. In the Lake Erie sub-basin, DEC has worked closely with members of the Seneca Nation to develop the Cattaraugus Creek IWAP. The fall 2024 Southeast Lake Ontario sub-basin work group meeting was held at the Skä•noñh Great Law of Peace Center, where participants enjoyed a tour hosted by Onondaga Nation members that included information on Indigenous history, values, and ITEK. In the Northeast Lake Ontario region, DEC continues to effectively partner with the SRMT to coordinate

shared management of the St. Lawrence River AOC at Massena/Akwesasne. This partnership will help to advance planning, engagement, and projects needed to restore this multinational AOC. In the past year, Indigenous Nation members participated in and shared information related to ITEK at several Great Lakes program meetings and events, including the Great Lakes Coastal Symposium, AOC meetings, and GLEEE teacher workshops.

Strengthening Capacity, Engagement, and Partnerships

Finger Lakes–Lake Ontario Watershed Protection Alliance (FLLOWPA) Supports Multicounty Planning and Water Quality Projects

FLLOWPA is a coalition of 25 counties in the Lake Ontario watershed that fosters coordinated watershed management based on local needs. Working with more than 175 partners across the Lake Ontario basin, FLLOWPA leverages State and federal funding to address water quality concerns relating to agriculture, septic systems, erosion, stormwater, invasive species, habitat protection, drinking water, and more. Highlights over the past two years include:

- Within the Black River watershed, FLLOWPA funding was used to support water quality monitoring, invasive species management, watershed management, outreach and education, hydroseeding, culvert assessments, and project planning.
- Within the Southeast Lake Ontario sub-basin, FLLOWPA funding was used to support stormwater retention ponds; culvert rightsizing, stabilization, and replacement; vineyard stormwater control; manure compost facilities; water and sediment control structures; and agricultural BMPs.
- Within the Southwest Lake Ontario sub-basin, FLLOWPA funding was used to support a range of activities, including implementation of agricultural BMPs and other nonpoint-source control projects, water quality monitoring, streambank stabilization, hydroseeding, technical assistance, habitat enhancements, invasive species management, road-ditch stabilization, and public/municipal education.

For more information and to connect with FLLOWPA members, visit fllowpa.org/.

Streambank stabilization and restoration along Wiscoy Creek in the Upper Genesee River

Formation and Funding of the Eastern Finger Lakes Coalition

In 2024, DEC, AGM, and the 11 SWCDs in the Eastern Finger Lakes announced $1.2 million in funding for the Eastern Finger Lakes Coalition to accelerate watershed protection and restoration measures to improve water quality and combat HABs. This key investment builds professional capacity and accelerates on-the-ground actions necessary to address HABs and promote resiliency. Funding will support farmers in planting more cover crops and improving culverts to reduce erosion; funding will also support other investments to improve soil health and reduce water quality impairments in the region. In addition, Governor Kathy Hochul announced $42 million to protect and enhance water quality in the Eastern Finger Lakes region, fulfilling her 2024 State of the State commitment to address the root causes of HABs and significantly reduce their prevalence while supporting projects that help prevent runoff into lakes and also improve climate resiliency.

Great Lakes Basin Small Grants Program Supports Capacity Building and Project Planning

Under the DEC–NY Sea Grant New York's Great Lakes Basin Small Grants Program, 15 projects received grants totaling $726,384 from 2022 through 2024. The projects apply EBM approaches to implement community-identified actions that benefit local economic, social, and natural systems:

Braddock Bay

- Coastal resiliency and shoreline stewardship engineering project; City of Dunkirk;
- RestoreCorps: community-based ecosystem management; Buffalo Niagara Waterkeeper;
- Streambank restoration and protection demonstration; Genesee RiverWatch;
- Sugar creek shoreline restoration; Cornell Cooperative Extension (CCE) of Yates County;
- Fuller Bay grasslands restoration project; Thousand Islands Land Trust;
- "Community Driven Restoration for Butler Mill Pond"; Atlantic States Legal Foundation;
- Restoring and enhancing wetlands at the Margery Gallogly Nature Sanctuary; Western New York Land Conservancy;
- "Odessa Green Infrastructure Initiative"; Finger Lakes Institute at Hobart and William Smith Colleges;
- "Protection of Lake Ontario Water Quality Through Consumer Education"; CCE of Jefferson County;
- "Build-Out Analysis Modeling for Scenario Planning"; City of Ithaca;
- "Environmental and Socio-Economic Impact of Community Pier Locations"; Village of Sodus Point;
- "Sediment Transport Modeling at Sturgeon Point Marina"; Town of Evans Department of Planning and Community Development;
- "Lake Erie Watershed Regulation Review"; Erie County Department of Environment and Planning;
- "Ellicott Island Park Living Shoreline Restoration"; Buffalo Niagara Waterkeeper;
- "Enhancing the Digital Presence and Outreach Efficacy of Shoreline Associations in a Headwaters Sub-Watershed of the St. Lawrence Seaway"; Northern Forest Canoe Trail.

Since its inception in 2015, New York's Great Lakes Basin Small Grants Program has awarded more than $1.8 million to projects addressing the needs and issues identified in the *GLAA*. Funding is provided by the EPF under the authority of the New York Ocean and Great Lakes Ecosystem Conservation Act. More information on the program and funded projects is available at nyseagrant.org/glsmallgrants.

Expanded Surveillance and Management of Invasive Species in the Basin

DEC and NYSWRI have continued to support capacity for AIS monitoring and management in DEC regions 7 and 9. AIS coordinators have conducted macrophyte surveys across 1,500 acres in Region 7 and 4,300 acres in Region 9, piloted an underwater drone program and used sonar to assess plant biomass, assisted with hand pulling over 16,000 pounds of water chestnut, and assisted with mechanical harvesting. For more information and to learn how you can help prevent the spread of AIS, visit dec.ny.gov/nature/invasive-species/aquatic/prevent-spread-of-aquatic-invasive-species.

Innovating and Elevating Great Lakes Restoration

Great Lakes Coastal Symposium Engages Practitioners and Stewards

In October 2024, DEC partnered with the Great Lakes Coastal Assembly to host the Great Lakes Coastal Symposium. The symposium featured plenary, invited, and submitted presentations and networking opportunities, workshops, and field trips for conservation practitioners, scientists, students, coastal wetland stakeholders, and community members under the theme "Great Lakes, Greater Resilience: Conserving Coasts and Sustaining Communities." Over the course of three days, participants learned about efforts to restore resilient coastal systems across all the Great Lakes while highlighting restoration project successes along the

The Great Lakes Coastal Symposium in Rochester was widely attended by partners throughout NYS and the Great Lakes basin.

heavily impacted coastline of Lake Ontario, with a spotlight on Braddock Bay. For more information, visit greatlakescoastalassembly.org/.

Great Lakes Commission Meeting Held in Rochester

In fall 2024, the Great Lakes Commission Annual Meeting was held in Rochester and offered an opportunity for stakeholders to convene with colleagues and share perspectives on important Great Lakes issues, including engagement in AOC and watershed restoration and planning, preventing AIS through importation and trade, youth environmental steward programs, and managing sediment for coastal resilience. More information about the Great Lakes Commission is available at glc.org/meetings/annual.

Accelerating the Collection of and Access to Science

Competitive Grants to Promote Great Lakes Research and Outreach

NYSWRI supports robust science and dialogue between researchers, managers, policymakers, and the public to improve water management. In coordination with DEC's Great Lakes Program and with support from the EPF, NYSWRI offers research and outreach grants to support statewide and *GLAA* priorities. From 2022 through 2024, 14 studies totaling $467,586 were funded as follows:

- Hydrodynamic and Sediment Transport Modeling in Support of Fisheries Sustainability in Eastern Lake Erie; University at Buffalo partnership with DEC and USGS;
- Tolerance of aquatic macrophytes to water quality indicators in the Finger Lakes watershed; Hobart and William Smith Colleges (HWS), Finger Lakes Institute;
- FLX PFAS Project: Targeted Water Sampling to Identify Sources of Per- and Polyfluoroalkyl Substances (PFAS) in the Finger Lakes; Cornell University;
- Isolation of Benthic Cyanobacteria and Investigation into their Toxin Production from the Finger Lakes and Embayments of Lake Ontario; ESF partnership with HWS and Finger Lakes Institute;
- Lake Ontario mercury sampling; ESF;
- Assessing and mitigating PFAS contamination risks in surface water due to biosolids land application in the Great Lakes basin; University at Albany;
- Understanding the Impacts of Tile Drain Density on Watershed-Scale Nutrient Concentrations across New York State; Cornell University;
- Sources of bioavailable mercury along the shoreline of Lake Ontario; Cornell University;
- New York Drought Summit: Building Resilience Through Partnership and Citizen Science; Cornell University;
- Decolonizing riparian wetland relationships along *Kaniatarowanenneh* (St. Lawrence River) at Akwesasne; Clarkson University;
- Emerging contaminants science ambassadors: student-driven research and outreach on PFAS; ESF in partnership with Syracuse University's Environmental Finance Center;
- "Evaluation of benthic cyanobacteria in shoreline habitats of the Lake Ontario watershed"; ESF in partnership with HWS;
- Parasites as indicators of environmental change in the Oneida Lake Watershed; SUNY Oneonta;
- Advancing Dam Removal Science in the Hudson Estuary and Great Lakes Basins Through Research and Dissemination; Cornell University (with support from DEC's Hudson River Estuary Program).

To access reports and publications from NYSWRI, visit cals.cornell.edu/water-resources-institute/resources/wri-research-reports.

Great Lakes Research Consortium (GLRC) Small Grants for Projects on Lake Ontario and the St. Lawrence River

GLRC is an organization of 18 colleges and universities in New York State, with 9 affiliate campuses in Ontario, Canada, dedicated to collaborative research and education on the Great Lakes. Under the DEC–GLRC Small Grants Program, 3 projects totaling $90,000 were awarded in 2022 as follows:

- Natural reproduction of lake trout after stocking in Lake Ontario; University at Buffalo;
- The role of round goby in the transfer of legacy and emerging contaminants; ESF;
- Distribution, abundance, and concentrations of organic micropollutants and microplastics in the Lake Ontario basin; UFI.

For more information, visit esf.edu/glrc/grants.php.

Five-Year Water Management and Water Conservation Efficiency Program Review

New York State is a party to the *Great Lakes–St. Lawrence River Basin Water Resources Compact* and the *Great Lakes–St. Lawrence River Basin Sustainable Water Resources Agreement*, formal agreements between the states and Canadian provinces to collectively manage, conserve, and prevent diversions of Great Lakes water. The agreement calls for each state and province to review water conservation and efficiency programs every five years. In 2024, DEC submitted the program review for New York State, which highlights the State's water management and water conservation and efficiency programs. For more information, visit glslcompactcouncil.org/.

Great Lakes Shore Viewer

DEC's Great Lakes Program has launched the "New York Great Lakes Shore Viewer," an interactive map that allows users to explore approximately 850 miles of New York State's Great Lakes shorelines, including Lake Erie, the Niagara River, Lake Ontario, the St. Lawrence River, and many of the larger embayments. The viewer includes coastal oblique aerial imagery of the New York State Great Lakes shorelines collected annually by citizen volunteers with the New York Wing of the Civil Air Patrol, in partnership with DEC. Routinely updated and publicly accessible coastal oblique imagery is intended to support State resilience programs, promote shoreline EBM, and assist with shoreline-change monitoring. To access the Shore Viewer, visit gisservices.dec.ny.gov/gis/glv/.

Preparing for and Adapting to a Changing Climate

Resilient NY Projects

The overall goal of the Resilient NY program is to improve community resiliency to extreme weather events that result in flooding and ice jam formations. The program develops state-of-the-art studies to reduce flooding and ice jams and improve riparian ecology on flood-prone watersheds throughout New York State. Four Resilient NY projects are nearing completion in the Great Lakes basin:

- Shotwell Brook: Skaneateles Lake watershed
- Keuka Inlet: Keuka Lake watershed
- Upper Genesee River
- Ninemile Creek

These studies will benefit communities by giving them a blueprint or path forward to abate the worst effects of future flooding. Proposed flood mitigation projects are identified and evaluated using hydrologic and hydraulic modeling to quantitatively determine which proposed recommendations will likely result in the greatest flood reduction benefits.

Projects being advanced in Resilient NY studies have included land acquisitions, streambank stabilization, culvert rightsizing, and installing flood benches and stormwater detention basins. For more information, visit dec.ny.gov/environmental-protection/water/water-quantity/resilient-ny.

Resilient NY studies evaluate how infrastructure interacts with waterways, as shown here at a Genesee River bridge.

Lake Ontario Sediment Budget and Coastal Resilience Assessment

In 2023, DEC initiated a comprehensive Lake Ontario sediment budget and coastal resilience assessment to assess conditions and natural protective features in nearshore areas of Southeast Lake Ontario. By conducting extensive field research and developing high resolution hydrodynamic and regional sediment budget models, this effort aims to identify key sediment sources, quantify their contributions, and understand their role in shoreline dynamics. Once completed, the findings will offer crucial insights into coastal processes and identify opportunities for conserving and restoring sediment supply to natural protective shoreline features.

Looking Ahead

The 2022 through 2024 period has brought unprecedented change, growth, and opportunity for expanding and elevating the restoration work of Great Lakes partners in New York State. We look forward to continued progress in applying new ecosystem-based restoration approaches; scaling up successful efforts; and growing a broader, more diverse partnership to sustain this important work. In the next two years, we envision the following accomplishments:

- Updating *LAMPs* using the latest science from CSMI and *State of the Great Lakes* reports, integrating priorities of local partners, and identifying shared goals across Lake Ontario and Lake Erie. These updated plans will continue to support binational commitments under the *GLWQA*.
- Finalizing and sharing the results of a comprehensive baseline-conditions characterization of NY's Great Lakes watershed to better understand ecosystem health throughout the watershed and to promote science-informed, stakeholder-driven project planning, implementation, and adaptive management.
- Building relationships with Indigenous Nations to explore preferred methods of engagement to participate in collaborative implementation of the *GLAA* and how Indigenous values, perspectives, priorities, and recommendations can be appropriately integrated into *GLAA* sub-basin work group efforts to develop work plans and project priorities.
- Maximizing benefits of *GLAA* implementation for Environmental Justice and DACs to ensure that everyone, regardless of their race, gender, income, or location, can access clean water and a healthy, safe environment where they can learn, grow, and connect with nature.
- Leveraging the historic Clean Water, Clean Air, and Green Jobs Environmental Bond Act and GLRI funding to support implementation of *GLAA* actions. By supporting State and federal priorities and using funds to fill critical capacity gaps, we can strengthen investments within New York State's Great Lakes basin, provide meaningful environmental career opportunities, and advance *GLAA* implementation.

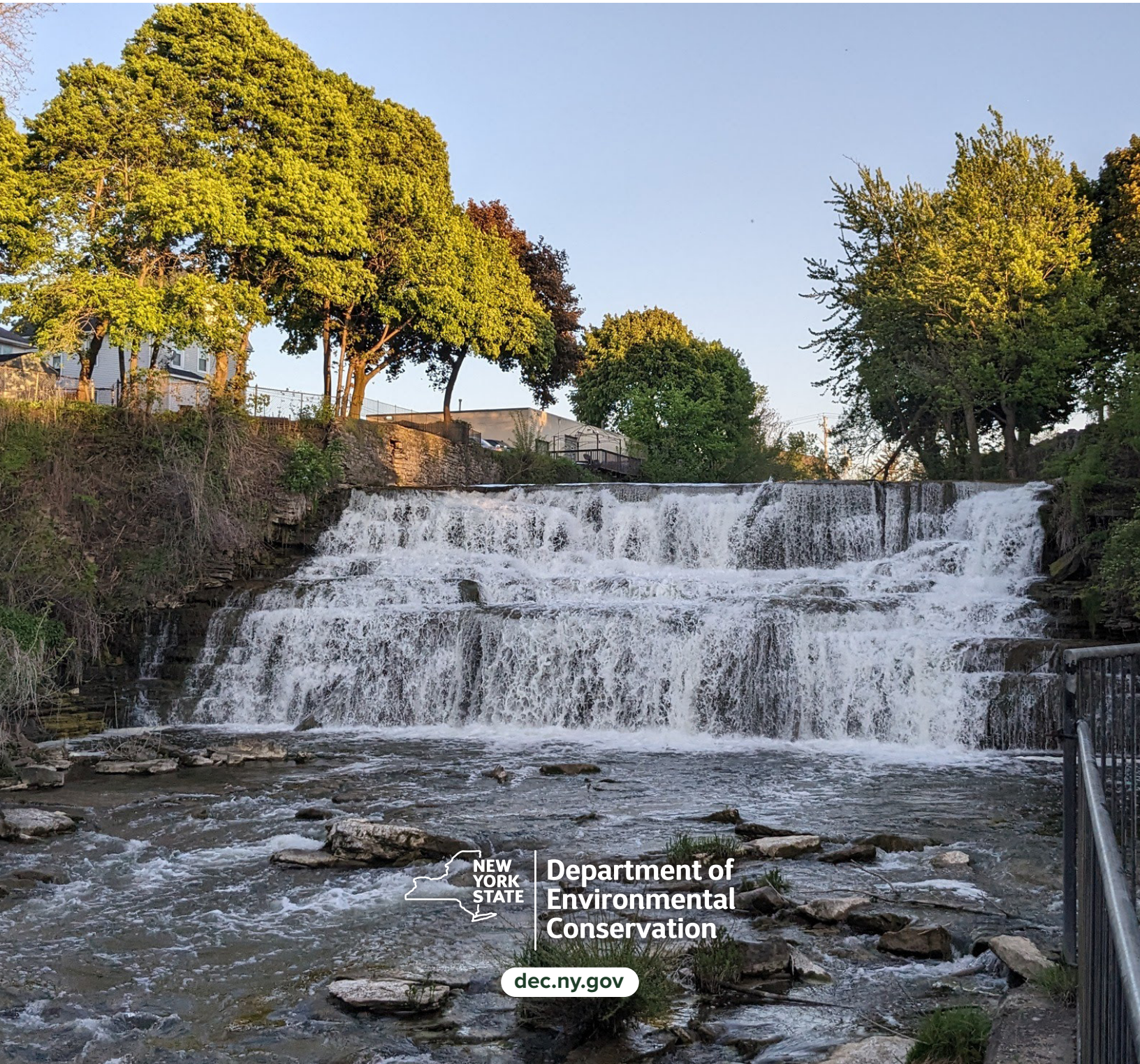
We look forward to making lasting connections and achieving these outcomes to sustain restoration progress and protect New York State's Great Lakes!

How to Get Involved

We welcome all who are interested to get involved in supporting these efforts, and we encourage the following:

- Participate in the *GLAA* work group survey to connect with the *GLAA* sub-basin work-group network and share your information with key partners: visit forms.office.com/g/Li0S7mwJ9k or scan the QR code;
- Attend work group meetings—they're open to anyone who's interested;
- Get involved in your community to support implementation of *GLAA* goals and related actions;
- Support local efforts to steward, monitor, and restore the NYS Great Lakes lands and waters;
- Connect with a Great Lakes Watershed Coordinator to share your stories and to learn more by emailing greatlakes@dec.ny.gov.

The GLAA Southeast Lake Ontario Fall 2024 work group meeting being held at the Skä•noñh Great Law of Peace Center. Photo by Jillian Lee, Tug Hill Commission.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