GREAT LAKES RESTORATION

Celebrating our Accomplishments
Celebrating the Future in Southeast Michigan

Rouge River~Detroit River~Clinton River~Saginaw River~River Raisin~St. Clair River~Kawkawlin River~
GREAT LAKES RESTORATION
September 22, 2023
The Henry Ford

September 22, 2023
The Henry Ford

Hosted by:

Alliance of Rouge Communities
OURS TO PROTECT
Working together, restoring the river

Cover photos:

Left column from top to bottom: North Branch of the Clinton River at Wolcott Metropark in Romeo, Michigan; Henry Ford Estate fishway looking upstream on the Lower Rouge River in Dearborn, Michigan; and Blue Heron Lagoon at Belle Isle on the Detroit River in Detroit, Michigan.

Middle column: River Raisin near Manchester, Michigan.

Right column from top to bottom: Birding along the St. Clair River Bridge to Bay Trail in Port Huron, Michigan; Kawkawlin River Mouth at Saginaw Bay, Lake Huron, Michigan (photo credit: Matt Nemode); and banks of the Saginaw River in Saginaw, Michigan (photo credit: Doug Pearsall).

Additional copies of this document can be downloaded from the Alliance of Rouge Communities website. Links to previous Great Lakes Restoration Celebration books can be found on page 68 of this book.

Thank you to our sponsors:

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A special thank you to the Fred A. and Barbara M. Erb Family Foundation for financial support of this event and The Henry Ford for providing meeting space at the Lodge at Christie & Main along with Village admission for those attending.

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Great Lakes Restoration

Celebrating the Accomplishments and Looking to the Future in Southeast Michigan

This book celebrates the remarkable restoration accomplishments that have occurred in the river systems of Southeast Michigan over the past few years and renews our commitment to continuing such efforts into the future. Six areas in Southeast Michigan - the Rouge River, the Detroit River, the Clinton River, the River Raisin, the St. Clair River, and the Saginaw River/Saginaw Bay are designated as Areas of Concern (AOC) because of their history of contamination. The restoration of these historically contaminated areas, as well as efforts on the Kawkawlin River and the region in general, have been led by numerous watershed groups that are being celebrated today. In the pages of this book, these watershed groups and other stakeholders will share information on the variety of ecological restoration efforts that have been completed or are being completed. These stories will emphasize some of the larger-scale Great Lakes restoration projects funded through the U.S. Environmental Protection Agency (USEPA), Great Lakes Restoration Initiative (GLRI), the National Oceanic and Atmospheric Administration (NOAA), the Forest Service and other funding sources.

We welcome our congressional delegation and sincerely thank them for their continued support of the GLRI. By assuring that the resources are available to continue the restoration they have allowed us all to restore our Great Lakes. Our federal and state leaders continue to provide the technical and financial support to be able to complete these large scale restoration efforts. We must also extend a special thanks to the counties, municipalities, non-governmental organizations (NGOs) and other community groups for their continued efforts to restore our region. They are the backbone of this massive effort.

Partners in this endeavor include:

- Alliance of Rouge Communities
- The Henry Ford
- Fred A. and Barbara M. Erb Family Foundation
- Rouge River Advisory Council
- Michigan Department of Environment, Great Lakes and Energy
- Clinton River Watershed Council
- Southeast Michigan Council of Governments
- National Oceanic and Atmospheric Administration
- Great Lakes Restoration Initiative
- Friends of the Detroit River
- Friends of the St. Clair River
- Detroit River Public Advisory Council
- Alliance of Downriver Watersheds
- Friends of the Rouge
- River Raisin Watershed Council
- U. S. Environmental Protection Agency
- USEPA Great Lakes National Program Office
- Wayne County Environmental Services Division
- Wayne County Parks Division
- Kawkawlin River Watershed Association
- The Greening of Detroit
- Partnership for the Saginaw Bay Watershed
- Saginaw Bay Monitoring Consortium
- Great Lakes Commission

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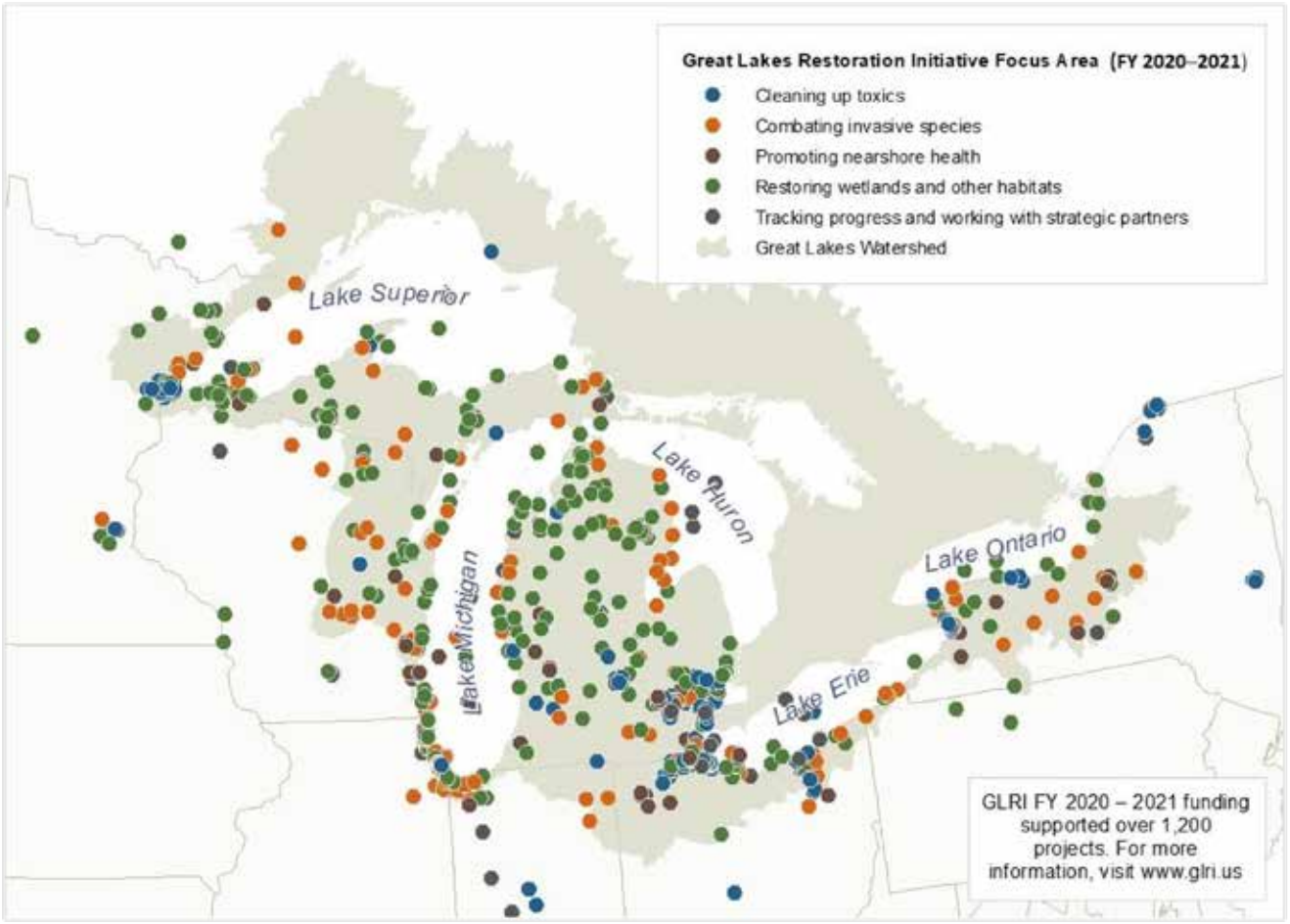


Section 1 – Executive Summary

The Great Lakes Restoration Initiative, or the GLRI, has greatly accelerated efforts to protect and restore the Great Lakes—the largest system of fresh surface water in the world. Since its 2010 inception, the GLRI has continued to address the historically challenging environmental problems and imminent threats facing this indispensable ecosystem.

Under the U.S. Environmental Protection Agency's (EPA's) leadership, the GLRI has been a catalyst for unparalleled coordination among the federal agencies or departments that make up the GLRI Interagency Task Force and the GLRI Regional Working Group. Through Fiscal Year (FY) 2021, GLRI has funded over 6,500 projects that focus on the most important Great Lakes environmental issues, including cleaning up highly contaminated Areas of Concern (AOCs), protecting and restoring native habitat and species, and preventing and controlling invasive species.

Section 118 of the Clean Water Act authorizes GLRI funding and directs efforts across five priority areas, including: (i) the remediation of toxic substances and areas of concern; (ii) the prevention and control of invasive species and the impacts of invasive species; (iii) the protection and restoration of nearshore health and the prevention and mitigation of nonpoint source pollution; (iv) habitat and wildlife protection and restoration, including wetlands restoration and preservation; and (v) accountability, monitoring, evaluation, communication, and partnership activities.

The five priority areas correspond directly with the Action Plan III Focus Areas described below. This report provides an overview of progress during FY 2020–FY 2021 for each Focus Area within Action Plan III.

GLRI Action Plan III Focus Areas

1) Toxic Substances and Areas of Concern

During FY 2020–FY 2021, GLRI federal agencies[1] and their partners made significant progress remediating contaminated sediment and restoring habitat in AOCs. A total of 17 Beneficial Use Impairments (BUIs) were removed, bringing the cumulative total of BUIs removed to 106, which surpasses the FY 2021 target set in GLRI Action Plan III (see Appendix A, Table A-1). Two AOCs were delisted: the Lower Menominee River and the Ashtabula River, representing the fifth and sixth U.S. AOCs ever delisted. Through the end of FY 2021, GLRI federal agencies and their partners also completed all management actions necessary for delisting at an additional three AOCs (Manistique River, Eighteen Mile Creek, and Muskegon Lake), bringing the total of AOCs either delisted or with completed management actions to about half of the original number of U.S. AOCs (i.e., 15 out of 31). The GLRI federal agencies and their partners also continued their work to protect human health from contaminants in Great Lakes fish and assess the impacts of chemicals of emerging concern on fish and wildlife populations in the Great Lakes basin.

2) Preventing and Controlling Invasive Species

During FY 2020–FY 2021, GLRI federal agencies and their partners continued efforts to prevent introductions of new invasive species and to control existing invasive species throughout the Great Lakes ecosystem. Ongoing work continued to prevent the migration of silver carp, bighead carp, and black carp into the Great Lakes. Since the GLRI began, federal agencies and their partners have taken actions to control invasive species on over 216,000 terrestrial and aquatic acres, including over 38,000 acres in FY 2020–FY 2021.

3) Nonpoint Source Pollution Impacts on Nearshore Health

During FY 2020–FY 2021, GLRI federal agencies and their partners implemented conservation activities to reduce nonpoint sources of pollution that threaten Great Lakes nearshore regions. These partners worked collaboratively to target nonpoint sources of excess phosphorus runoff that contribute to harmful algal blooms (HABs) around the Great Lakes in priority watersheds, such as the Lower Fox River, Saginaw River, and Maumee River. GLRI federal agencies estimate that GLRI-funded projects implemented since the program's inception have prevented over 2 million pounds of phosphorus (including over 500,000 pounds of phosphorus in FY 2020–FY 2021) from leaving farms and entering the Great Lakes. In addition, GLRI federal agencies and their partners worked collaboratively in urban areas to prevent about 140 million gallons of polluted stormwater from entering the Great Lakes in FY 2020–FY 2021.

4) Habitat and Species

During FY 2020–FY 2021, GLRI federal agencies and their partners protected, restored, and enhanced habitats and native species throughout the Great Lakes basin. Since GLRI began, these efforts have protected and restored over 479,000 acres (including over 37,000 acres in FY 2020–FY 2021) of coastal wetland, nearshore, and other habitats. These efforts benefit native fish, bird, and amphibian species, including actions that significantly protected and promoted recovery of the lakeside daisy and piping plover. Since the start of the GLRI, these actions have increased connectivity for aquatic organisms in more than 6,725 miles (including over 1,200 miles in FY 2020–FY 2021) of streams and rivers.

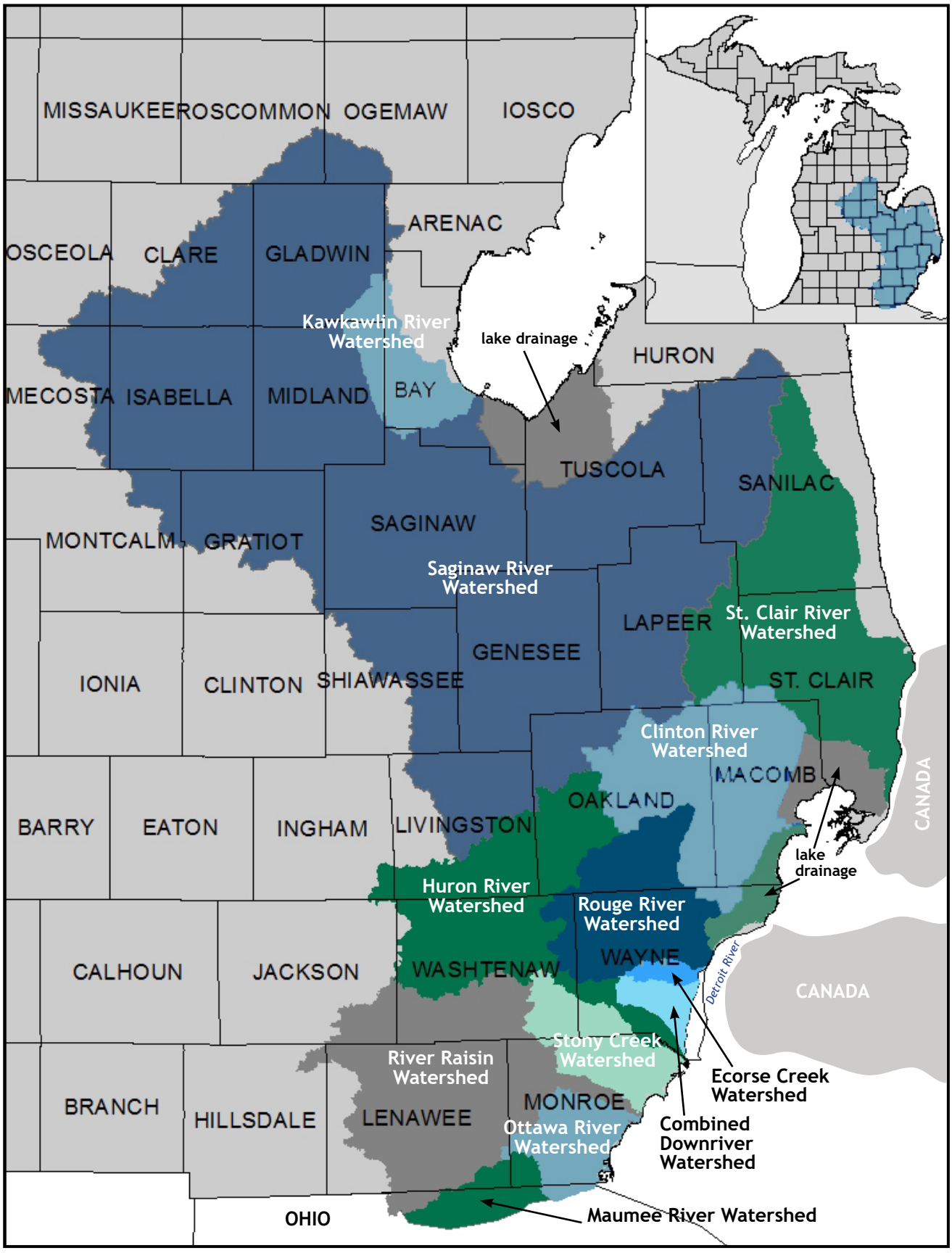
5) Foundations for Future Restoration Actions

During FY 2020–FY 2021, GLRI federal agencies and their partners engaged over 165,000 youth through hands-on education and stewardship projects. GLRI federal agencies and their partners also conducted comprehensive monitoring to assess and collect data on Great Lakes ecosystem status and trends. These data guided plans for projects addressing coastal resiliency and both nuisance and harmful algae.

[1] Includes U.S. Department of Agriculture (Animal and Plant Health Inspection Service, Natural Resources Conservation Service, and U.S. Forest Service); U.S. Department of Commerce (National Oceanic and Atmospheric Administration); U.S. Department of Army (U.S. Army Corps of Engineers); U.S. Department of Health and Human Services (Agency for Toxic Substances and Disease Registry and Centers for Disease Control and Prevention); U.S. Department of State; U.S. Department of Homeland Security (U.S. Coast Guard); U.S. Department of the Interior (Bureau of Indian Affairs, U.S. Fish and Wildlife Service, National Park Service, and U.S. Geological Survey); U.S. Department of Transportation (Federal Highway Administration and Maritime Administration; and EPA (Great Lakes National Program Office).

View the entire report here: *https://www.glri.us/sites/default/files/glri_rtc20-21_2023-03-01.pdf*

Southeast Michigan Watersheds



Everything we do on land **matters**

Everyone lives on waterfront property because everything people do on their land – no matter if it's located on a river or lake or simply dry land – ends up in one of the Great Lakes. Together with The Nature Conservancy, we created a new map of the Great Lakes, color coding every drainage basin (watershed) in our region to demonstrate that, no matter where you are located, you are in a watershed.

Thank you to the region's leaders, organizations, and businesses. Your tireless efforts support restoration of the Great Lakes that improves our communities and watersheds.

Download a high-resolution version of the map or request a free printed copy by scanning the QR code.

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Fred A. and Barbara M.
Erb Family Foundation

Alliance of Rouge Communities

The Alliance of Rouge Communities, or ARC, is a watershed alliance and 501(c)(3) non-profit organization consisting of 35 local municipalities, 3 counties (Wayne, Oakland and Washtenaw), educational institutions and stewardship groups working together to improve the Rouge River.

Founded in 2005, the ARC is funded by membership dues from local governments and supported by grants. The purpose of the ARC is to provide an institutional mechanism to encourage watershed-wide cooperation, mutual support to meet water quality requirements mandated by the state's stormwater permit and restore the Rouge's beneficial uses.

Relating to habitat specifically, the ARC has administered approximately 10 GLRI grants in the last 5 years totaling more than $19 million and resulting in 16 habitat restoration projects. These projects will create over 100 acres of newly restored wetland, wet prairie, in-lake, and riparian habitat; 80 acres of reforestation; and restoration of over 3,200 linear feet of stream. In addition to improving the water quality in the Rouge River, the projects feature inter-related supporting components: creation of floodplain riparian habitat reconnected to stream systems; restored stream systems with barriers and channelization removed; and related ecosystem improvements to restore habitat for fish and terrestrial wildlife.

Stormwater permit activities conducted by the ARC include the development and implementation support of collaborative plans required by the permit:

- **Public Education/Participation:** Develop webinars, presentations and social media posts for the residents; provide watershed education through brochures, giveaways and billboard campaigns; distribute tree seedlings, black-eyed susan seeds to schools and residents; and ensure public can view/ comment on stormwater management plans.

- **Illicit Discharge Elimination Program:** Train municipal staff on pollution prevention good housekeeping and how to identify illicit discharges; complete water quality monitoring to identify illicit discharges, gauge the health of the river and identify areas for illicit discharge investigation; and coordinate and conduct illicit discharge elimination efforts that have successfully eliminated millions of gallons of sewage from the river.
- **Total Maximum Daily Load:** Complete water quality monitoring for *E. coli*, total suspended solids, and dissolved oxygen to assess pollutant levels in the watershed and identify areas for future improvement.

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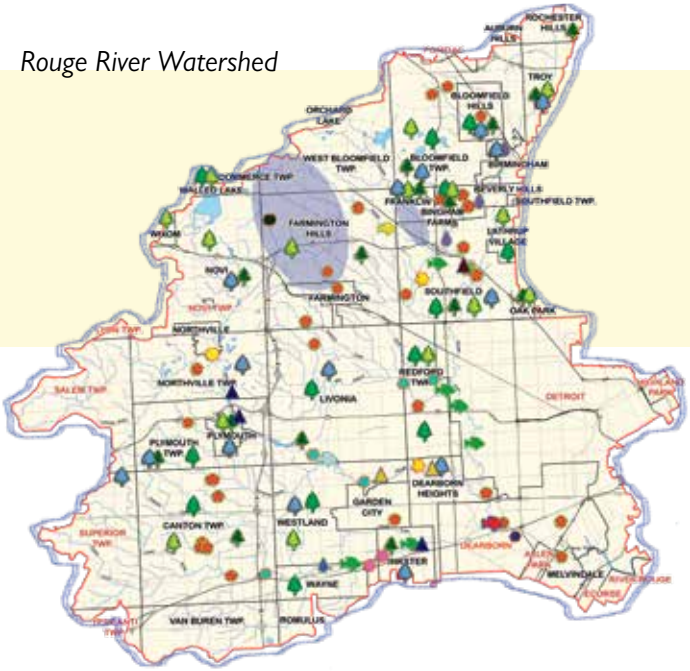
Rouge River Watershed



** Area Of Concern (AOC) project which benefits entire watershed & is a designated project to remove BUIs and eventually delist the Rouge as an AOC*

BLACK TEXT - ARC Members *RED TEXT - Non ARC Members*

Tamarack Creek & Johnson Creek Fish Hatchery

Southfield, Northville, & Northville Twp., MI

FUNDING SOURCE: U. S. Environmental Protection Agency (USEPA) Great Lakes Restoration Initiative (GLRI)

ENTITY RECEIVING FUNDING: Alliance of Rouge Communities (ARC)

BUDGET: Design - $583,220, Implementation - $3.4 Million

START/END DATE: 2018 - 2023

Implementation has been completed on the Tamarack Creek and Johnson Creek Fish Hatchery habitat restoration projects. These projects addressed the Rouge River Area of Concern (AOC) through a USEPA GLRI grant to the ARC, in partnership with City of Southfield, City of Northville, and Northville Township. The project resulted in 1,950 linear feet of stream restored and 4.6 acres habitat area restored at Tamarack Creek and 1,250 linear feet of stream restored and 0.5 acres habitat area restored at Johnson Creek.

Tamarack Creek receives uncontrolled stormwater runoff from a large portion of its drainage area resulting in erosion from excessive channel velocity associated with peak flows. Bank erosion was leading to excessive sediment loading and sedimentation of instream habitat. Sedimentation was also exacerbated by nonpoint sources of sediment delivered to Tamarack Creek via stormwater. Excessive channel velocity was destabilizing large woody debris and gravel/cobble substrates that are important to fish and macroinvertebrate habitat.

To address the habitat impairments, restoration of Tamarack Creek was completed in conjunction with wetland restoration which improved hydrology and in-stream flows, repaired wetland hydrology, managed invasive species, and diversified the flora through native plantings. Stream restoration increased channel and habitat stability by altering the channel cross-section. Streambank grading created a two-stage channel capable of conveying flood flows on stable flood terraces adjacent to the channel. Native plant communities were established along both sides of the channel and on floodplain terraces following construction. Rock riffles were installed in the creek bottom to stabilize the streambed and create habitat diversity. Trees cleared from the corridor for construction were used in large woody debris complexes.

Fish and wildlife habitat associated with Johnson Creek had been lost and impacted by sedimentation, loss or conversion of riparian vegetation, and streambank armoring (concrete walls), reducing its viability as a cold-water fishery; the only remaining cold water fishery in the Rouge River. A spring-fed pond, which flows into Johnson Creek, had been degraded by sediment-laden stormwater runoff from the unimproved parking lot at Fish Hatchery Park. In addition, the earthen wall separating the pond from Johnson Creek was failing. In time, it was understood that the wall would collapse, eliminating the potential cleansing properties of the pond and transferring the accumulated sediment into the creek. Streambanks in the park had been impacted by the removal of native vegetation and the lining with concrete.

To address the ecosystem issues accumulated sediment was removed from the pond to create deeper pools and a bioswale was installed to improve the quality of runoff. The outlet of the pond was modified to create a fish passage channel between the pond and the creek. The concrete wall lining the creek was removed and the streambanks naturalized.

Native plantings flourish along the restored Johnson Creek

Improved floodplain connectivity along the restored Tamarack Creek

Reducing Runoff in the Rouge River AOC

Rouge River Watershed, MI

FUNDING SOURCE: U. S. Environmental Protection Agency (USEPA) Great Lakes Restoration Initiative (GLRI) U. S. Department of Agriculture (USDA) Forest Service

ENTITY RECEIVING FUNDING: Alliance of Rouge Communities (ARC)

BUDGET: $168,125

START/END DATE: 2020 - 2025

In 2020 the ARC was awarded a GLRI-USDA Forest Service grant that sought to restore native trees to the Rouge River watershed. This current project will build on past Forest Service grants by intercepting a total of 1.3 million gallons of annual runoff by planting a minimum of 900 new trees and installation of 2.9 acres of green infrastructure throughout the watershed. The project is expected to treat 9.0 acres (100 trees/acre), with actual watershed coverage greater with trees throughout 16+ communities and 3 counties.

Green infrastructure design and implementation in the form of rain gardens, bio retention installation and expansion, and native plant grow zone areas will complement the tree planting efforts. This green infrastructure will increase the urban canopy and mitigate the effects of stormwater by reducing soil erosion, air pollution, and loss of habitat. The ARC has partnered with Friends of the Rouge, who will coordinate/host volunteer workdays to install plant materials within the proposed bio retention areas.

Tree planting is a priority project in The Rouge River Area of Concern (AOC) BUI Delisting Strategy (2012). In addition to the stormwater benefits, this work helps to mitigate damage done by the Emerald Ash Borer (EAB) over the past decades. The watershed is a high to medium priority area for EAB according to the State Forest Action Plan and this project addresses the plan's Issue 9: Reforestation of Urban and Ex-Urban Areas. The approach for restoration was evolved from merely improving water quality to maximizing ecological integrity within the AOC.

The ARC received three previous USDA Forest Service grants from 2012, 2014 and 2017 with the outcomes allowing 3,850 trees to be planted within the watershed. Lessons learned from previous grants was used to make this project more efficient.

The four grants combined, based on the trees species selected and using I-Tree Design analysis, result in an estimated total benefit of $35,906.49 per year from energy, carbon dioxide (CO_2), air quality, stormwater and aesthetic benefits. In addition, approximately 120,927 gallons of rainfall each year will be intercepted by the trees from the four combined grants reducing stormwater pollution.

Friends of the Rouge volunteer planting day at Plymouth Township Park

Rouge River AOC Habitat Restoration in Wayne County Parkland

Rouge River Watershed, MI

FUNDING SOURCE: U. S. Environmental Protection Agency (USEPA) Great Lakes Restoration Initiative (GLRI)

ENTITY RECEIVING FUNDING: Alliance of Rouge Communities (ARC)

BUDGET: Design - $770,000, Implementation - $5.1 Million

START/END DATE: 2019 - 2024

Implementation is in progress for the Wayne County Parkland habitat restoration projects in the Rouge River AOC. The projects were funded under a grant from USEPA GLRI to the ARC, in partnership with Wayne County. The projects consist of a variety of habitat restoration efforts in the Wayne County, Michigan park system and the Lower Rouge River corridor.

At Sherwood Park, Bell Creek Park, Lola Valley Park, and Riverview/Levan Knoll Park, portions of each park had been routinely mowed and used for active recreation, but are low-lying and experience frequent flooding. Restoration and naturalization of existing wetlands, and creation of new wetlands provides a habitat benefit while reducing maintenance needs. At each park a combination of the following activities were completed or are currently in progress: conversion of mowed turf to native vegetation; excavation for creation of new wetlands; excavation for connection of fragmented wetlands; treatment of invasive species; and native plantings including trees, shrubs, plugs, bulbs, and live stakes.

The Lower Rouge River habitat restoration project improved fish and wildlife habitat along a 6-mile stretch of the Lower Rouge River. This project created habitat for benthic organism colonization and fish habitat in the project area by removing problematic in-stream debris jams. Non-problematic logjams and large woody debris pieces will remain in place to conserve fish and wildlife habitat. Also, replanted native trees in open canopy areas of the forested corridor will significantly improve wildlife habitat within the riparian forest along the Lower Rouge River.

The completion of these projects will result in over 120 acres of new and restored wetland, riparian, wet meadow, prairie, and reforestation habitat:

- Sherwood Park Habitat Restoration - 6.8 acres of wetland/wet meadow
- Bell Creek Park Habitat Restoration - 10.0 acres of wetland/wet meadow/riparian/invasive species
- Lola Valley Park Habitat Restoration - 8.8 acres of wetland/wet meadow/prairie
- Riverview Park Habitat Restoration - 16.5 acres of wetland/wet meadow/riparian/prairie/invasive species
- Lower Rouge River Habitat Restoration - 80 acres of riparian forest habitat, 20 log jams removed for fish connectivity with 600 logs used for floodplain structural habitat

Created wetland areas at Bell Creek

Created wetland areas at Lola Valley Park

Rouge River AOC Colonial & Venoy Parks Habitat Restoration

Inkster & Westland, MI

FUNDING SOURCE: U. S. Environmental Protection Agency (USEPA) Great Lakes Restoration Initiative (GLRI)

ENTITY RECEIVING FUNDING: Alliance of Rouge Communities (ARC)

BUDGET: $1.8 Million

START/END DATE: 2020 - 2024

As water quality in the Rouge River continues to improve, the restoration at Colonial and Venoy Parks in the Lower Rouge River has built on past efforts to restore some of the damage done during the last century. Tributaries of the Rouge River have suffered from loss and impairment of aquatic habitat and increased frequency and magnitude of flood flows, primarily due to increasing urbanization within the watershed. Both parks were routinely mowed and used for active recreation. The flat river slope and the meandering channel cannot pass the large flows associated with rain events. Upstream urbanization continues to exacerbate this problem as runoff from increased amounts of impervious surfaces culminates in flooding within the river system, bank erosion, and continued habitat degradation.

Degraded areas in these parks were restored and mowed areas were converted to native habitat and floodplain restoration zones, providing more diverse habitat for birds, amphibians and pollinators, while also providing stormwater storage, and filtration to aid in the reduction of flood flows within the river system. This project resulted in:

- 9 acres of wetland habitat created or improved
- 150 feet of streambank stabilized
- 5 acres of tree plantings/reforestation
- 0.5 acres of meadow habitat created
- 4.0 acres of invasive species treated

The Colonial Park project in Inkster created wetlands in maintained lawn areas by establishing wet meadow habitat and depression wetlands to provide habitat and manage floodwater. Additionally, invasive species were managed in the proposed wetland enhancement areas. Maintained lawn areas were converted to wetlands through excavation of shallow depressions and planting of a diverse native wet-meadow seed mix. The wet meadow community contains diverse flowering forbs that provide food for pollinators. Small mammals and birds benefit by the increased habitat diversity and cover. Wetland diversity was achieved in the maintained lawn areas increase through the excavation of shallow depressions in low lying areas that store floodwater. The more diverse topography allows for increased plant diversity by creating varying hydrological conditions. Outcomes included increased wetland habitat and improved floodwater storage, water quality and increased plant diversity.

The Venoy Dorsey Park project, with sections in the cities of Inkster and Westland, had some areas in the park that were forested wetlands but many wetlands were not hydrologically connected. This project created and restored wetlands in the park by establishing depression wetlands which hydrologically connected the existing wetlands. Additionally, a section of failing streambank was stabilized using bioengineering methods. Lastly, invasive species was treated and managed in a portion of the existing riparian and wetland habitat. Outcomes included more diverse and intact riparian habitat, improved stormwater management and water quality and increased plant diversity.

Native flowers in bloom at Colonial Park

Created wetland at Venoy Dorsey Park

Rouge River AOC Habitat Restoration at Wilcox & Phoenix Lake

Plymouth, MI

FUNDING SOURCE: U. S. Environmental Protection Agency (USEPA) Great Lakes Restoration Initiative (GLRI)

ENTITY RECEIVING FUNDING: Alliance of Rouge Communities (ARC)

BUDGET: Design - Approximately $515,000, Implementation $5 Million

START/END DATE: 2022 - 2026

The ARC received grant funding from the USEPA GLRI to design habitat restoration at Wilcox Lake, Phoenix Lake, and Inkster Park within the Rouge River Watershed and in 2022 received grant funding to implement habitat improvements for Wilcox and Phoenix Lakes. The project will result in 6 acres of restored/enhanced in-lake habitat; 6.5 acres of invasive species control and approximately 6,000 cubic yards of sediment removal at Wilcox and Phoenix Lake.

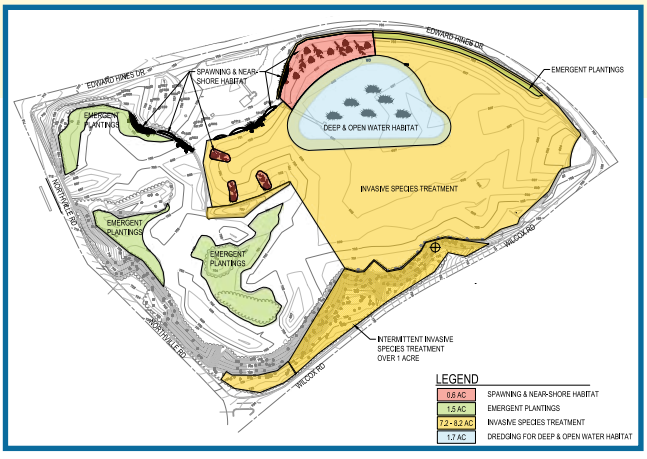
Tributaries of the Rouge River have suffered from loss and impairment of aquatic habitat and increased frequency and magnitude of flood flows, primarily due to increasing urbanization within the watershed. The flat river slope and the meandering channel cannot pass the large flows associated with rain events. Upstream urbanization continues to exacerbate this problem as runoff from increased amounts of impervious surfaces culminates in flooding within the river system, bank erosion, and continued habitat degradation.

Project goals at Wilcox Lake are to enhance the in-lake and riparian habitat at the site through:

- Removal of sediment and re-shaping of the lake to create habitats for fish spawning, nursery, and cover habitat.
- Restoration of aquatic benthic substrates submerged and emergent aquatic vegetation and riparian habitat. New substrates to include sandy gravel, cobbles, and boulders to provide spawning areas, attachment points, and cover for fishes, insects and fauna.
- Placement of woody debris along the shoreline to increase habitat diversity. Boulder clusters will be added offshore to add cover and feeding areas.
- Conducting invasive species management and planting of native shrubs and trees.
- Improvements to reduce direct non-point source pollution with bioswales and native plants.

Project goals Phoenix Lake are to enhance the in-lake habitat value through:

- Installation of new substrates that include sandy gravels, cobbles, and boulder clusters providing spawning substrate, attachment points, and cover for fishes, insects, crustaceans, and fauna. Submerged, emergent, and floating aquatic vegetation will be planted in shallow water to create lacustrine wetland habitat for waterfowl feeding, fish spawning and nursery habitat, and nutrient sequestration.
- Placement of woody debris along the shoreline and placed offshore to increase habitat diversity. Boulder clusters will be added offshore to add cover and feeding areas.



Wilcox Lake Concept Plan

Existing conditions at Phoenix Lake

Rouge River Advisory Council

The Rouge River Advisory Council (RRAC), formerly the Rouge River Remedial Action Plan (RAP) Advisory Council, was founded in 1993 to advise the Rouge River Remedial Action Plan Team on RAP issues. Work on "The Rouge River Strategy" was started in October 1985. It later became the Rouge River RAP, and was completed and adopted by stakeholders in 1989. The RAP describes actions needed to clean up and preserve the Rouge River. The mission of the RRAC is to assist in the attainment of the goals of the RAP by enhancing public awareness and education concerning RAP issues, providing a mechanism for the participation of all interested parties, seeking broad-based support for the RAP, assisting in implementation of the Rouge RAP, and evaluating progress toward the goal of restoring designated uses and delisting the Rouge River watershed as an Area of Concern (AOC).

Responsible for advising the Michigan Department of Environment, Great Lakes, and Energy (EGLE) on the update and implementation of the Rouge RAP, the RRAC formed a number of subcommittees to deal with more specific issues such as habitat destruction, nonpoint source pollution (such as stormwater runoff), on-site sewage disposal, public education, contaminated sites, and headwater land use. They also act as liaison with the public at large and with interest groups to ensure that there is adequate public participation in the RAP process.

In 2008, the RRAC developed the Delisting Targets for Fish and Wildlife Habitat & Population Beneficial Use Impairments (BUIs) for the Rouge River Area of Concern (Delisting Document). Since that time, RRAC continues to support and advocate for activities in the Rouge AOC that will benefit the AOC and the large population within it boundaries. RRAC is a visible member at the annual AOC and SPAC meetings, sharing its lessons learned. RRAC focused time and effort on developing the final management action Rouge AOC Habitat Project list for the removal of the Habitat BUIs that was approved by EGLE and USEPA in 2018. In 2022 the RRAC Bylaws were updated to better serve the mission and goals of the RRAC. RRAC is currently focused on expanding membership to continue to provide a place for interested parties to get involved in the RAP process.

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RRAC Website

Volunteers conducting a bug hunt on the Rouge River

Rouge River Watershed Initiatives

Rouge River Watershed, MI

FUNDING SOURCE: GLRI, Michigan Department of Environment, Great Lakes, and Energy Areas of Concern Program

ENTITY RECEIVING FUNDING: Alliance of Rouge Communities (ARC)

BUDGET: $154,500

START/END DATE: 2022 - 2025

Rouge River Advisory Council (RRAC) Facilitation

Alliance of Rouge Communities (ARC) staff facilitate and support the activities of the RRAC. This includes:

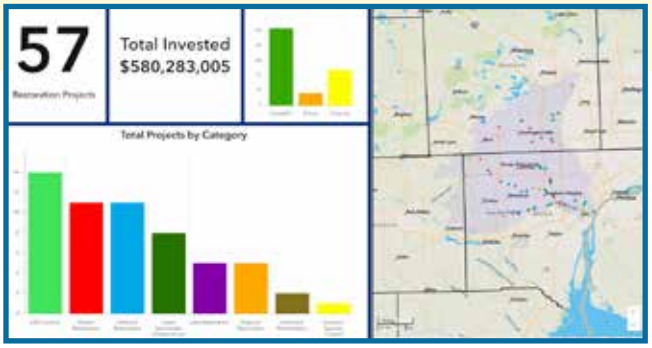
- General business activities including the support and facilitation of RRAC meetings, maintaining the RRAC website and develop additional content to the website based on the habitat work being done within the AOC, and conducting other administrative duties of the RRAC.
- Continued development of Area of Concern (AOC) habitat project descriptions/lists as needed by EGLE and USEPA. The RRAC formally developed the Rouge River AOC Habitat Restoration Projects List. This list includes projects that have been completed and ones that will need to be completed in order to achieve the associated goal of fish and wildlife habitat and fish and wildlife population's beneficial use impairments (BUI) removal.
- An interactive dashboard was developed under a previous grant. This dashboard, found on the RRAC's website (follow QR code), allows for an easy understanding of the location and status of projects and supports watershed restoration, in an easy-to-understand geospatial format for use by the general public and agencies. The dashboard takes a comprehensive view of watershed restoration efforts. This will continue to be maintained and updated with projects that are happening.

RRAC Business & Monitoring

Friends of the Rouge (FOTR) provides the following activities for the RRAC:

- PAC Business including social media support boosting AOC projects happening in the Rouge River watershed.
- RRAC member targeted recruitment, skills matrix, asset mapping and development of recruitment welcome package.
- Coordination with SPAC EJ-DEI subcommittee to implement EJ-DEI goals into the Rouge PAC.
- Develop of QAPP for benthic macroinvertebrate monitoring and fish surveys.
- Conduct fish sampling using seine nets at 20 sites in the spring/summer 2023, 2024, 2025. Analysis of the fish community and how it relates to restoring the fish BUIs.
- Conduct benthic macroinvertebrate monitoring with trained volunteers and staff to collect benthic macroinvertebrate data at a minimum of 25 stream sites in the Spring and Fall of 2023, 2024, 2025.
- Prepare report for all monitoring data.

scan to view project dashboard



RRAC project dashboard

FOTR staff conducting fish sampling

Wayne County Environmental Services Division & Parks Division

The mission of the Wayne County Department of Public Services (WCDPS) is to provide roads, buildings and park maintenance services; recreational opportunities; as well as high quality, cost-effective storm water, wastewater, and solid waste services to Wayne County residents, municipalities, businesses and visitors so they can experience safe, convenient and reliable travel, abundant recreational opportunities, proficient and well-managed drains and environmentally sound solid waste disposal.

The WCDPS Parks Division (WCP) and the Environmental Services Division (ESD) have been collaborating, together with the Alliance of Rouge Communities (ARC), the Alliance of Downriver Watersheds (ADW) and SEMCOG as well as other municipal and non-profit partners (e.g. FOTR, FDR, HRWC) to restore and protect the land and water resources in Wayne County and the region. Wayne County was the grant recipient and WCDPS staff managed the County's Rouge River National Wet Weather Demonstration Project, a 20+-year national demonstration of the watershed approach to pollution control and natural resource management. Wayne County DPS staff have participated in the Rouge AOC's Public Advisory Council (PAC), the Rouge River Advisory Council (RRAC) since its formation, and coordinates Wayne County's current GLRI grant projects.

WCDPS works to protect and restore Wayne County's rivers, lakes, streams and the parks through the advancement of a holistic management approach to protect the region's natural heritage and provide outdoor recreational and educational experiences that inspire a personal connection with our natural areas and recreational amenities. This includes working in partnership with communities, businesses, residents and others to reduce discharges of stormwater, combined sewer overflows (CSOs), and sanitary sewer overflows (SSOs) to the County's waterways. Activities include detection and correction of illicit sewer connections, public education, sanitary sewer operations, soil erosion and sedimentation control, drains maintenance, Parks planning, design and maintenance as well as habitat protection and restoration efforts. The WCP vision is to be the conservation leader of a vital, active, nature-based community that encourages wise recreation uses of our park lands for the general welfare of the public.

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Wayne County Green Schools tree planting at Commerce Elementary School

ESD staff assisting volunteers with FOTR bug hunt

Henry Ford Estate Dam Fishway

Dearborn, MI

FUNDING SOURCE: U. S. Environmental Protection Agency (USEPA) Great Lakes Restoration Initiative (GLRI)

ENTITY RECEIVING FUNDING: Wayne County Department of Public Services (WCDPS)

BUDGET: $4.04 Million

START/END DATE: 2016 - 2023

The Henry Ford Estate (HFE) Dam is located 8 miles upstream of the Rouge River's confluence with the Detroit River. It is the first dam on the Rouge River upstream from the Great Lakes system. Therefore, providing fish passage at the HFE Dam has been identified by the Rouge River Advisory Council (RRAC) as one of the highest priority projects within the watershed to address the habitat and population BUIs within the AOC.

The primary goal of the project was to restore and improve fish and wildlife habitat to promote healthy populations of desirable native fish, wildlife and benthos populations within the Rouge River Watershed. The Project objectives were to:

- Construct passage around the HFE Dam and hydrologically reconnect the Rouge River and its tributaries to the Great Lakes system.
- Create riparian corridor along both sides of the fish passage channel and along the west bank of the Rouge River.
- Optimize passage characteristics (depth, velocity, discharge) during the spring migration season (March through May).
- Contain quality aquatic habitat for wildlife, aquatic insects, crayfish, and fish.
- Control invasive species through implementation of integrated pest management strategies and best management practices.

To achieve these objectives a natural channel fishway was constructed as follows:

- Channel slope of approximately 0.8% and length of 850 feet.
- 20-foot wide, two-stage flood channel constructed of native stone and cobble with a series of riffles and pools to create deep water habitat, shorten high velocity flow fields, dissipate energy, and increase habitat diversity.
- The fishway channel banks and floodway over-bank areas and slopes were planted with a variety of grasses, forbs, shrubs, and trees to establish native vegetation that provides habitat, shades the fishway, stabilizes the banks, and reduces flow velocity.

The outcome of the HFE Fishway Project reconnects approximately 44 river miles and 123 miles of Rouge River tributary stream to the Great Lakes system. This provides passage for native fish species such as walleye, white sucker, gizzard shad, channel catfish, white bass, smallmouth bass, smallmouth bass, largemouth bass, rock bass, northern pike, emerald shiner and spotted sucker, as well as for nonnative, stocked steelhead and chinook salmon. This access, to upstream spawning area, has not existed for over 100 years. The HFE Fishway also provides a natural channel for improved habitat diversity within the passage channel for macroinvertebrates, mussels, and other aquatic life as well as provides improved riparian corridor habitat with the planting of native grasses, forbs, shrubs, and trees.

Fishway channel construction

Fishway channel nearing completion

Completed fishway looking downstream

Nankin Lake Restoration

Livonia, MI

FUNDING SOURCE: U. S. Environmental Protection Agency (USEPA) Great Lakes Restoration Initiative (GLRI)

ENTITY RECEIVING FUNDING: Wayne County Department of Public Services (WCDPS)

BUDGET: $3.5 Million

START/END DATE: 2016 - 2023

Over the years, Nankin Lake, an impoundment located in Livonia, Michigan, along the Middle Branch of the Rouge River, had slowly filled in with sediment. Due to this buildup, the lake was very shallow and had visible depositional areas and islands, decreasing the total acreage of water and habitat present by approximately 1.5 acres. Sedimentation had also degraded shallow water habitat in the littoral zone. Invasion of phragmites and narrow-leaf cattail had further degraded the aquatic habitat. Overall, fish productivity and the carrying capacity of the lake had declined dramatically. As a result, the Nankin Lake Restoration Project was a priority project for the Rouge River AOC as approved by the Rouge River Advisory Council (RRAC) to address the fish and wildlife habitat and population-related, beneficial use impairments (BUIs). The Project restored the ecosystem services of the lake by providing valuable spawning, nursery, and forage habitat for fishes and other aquatic species of all life stages. Restoration project elements included:

- Removal of 35,000 yds^3 of sediments from within the lake and re-shaping of the reservoir basin morphology to create more open water area, shallow water habitats, littoral zone aquatic bed wetlands, structured drop-offs, and over-wintering deep water habitat.
- Diversification of the aquatic benthic substrates through the addition of new substrates including sandy gravels in strategic locations to provide spawning substrate, attachment points, and cover for fishes, aquatic insects, crustaceans, and other aquatic fauna.
- Planting native submerged, emergent, and floating aquatic vegetation in shallow water areas around the lake to create habitat for waterfowl feeding, fish spawning and nursery habitat, and nutrient sequestration within the lake.
- Woody debris in the form of felled trees placed offshore to increase habitat diversity and provide cover for forage fish and spawning fish, basking sites for waterfowl and turtles, and attachment surfaces for aquatic insects. Boulder clusters were also added off-shore for spawning fish that require deeper water, and to add cover for small fish, and feeding areas for adult fish.
- Riparian habitat was accomplished through implementation of invasive species management within the lake/riparian corridor (approximately 50-foot on the north and south shorelines). Target invasive species included buckthorn, honeysuckle, autumn and Russian olive, privet, Siberian elm, tree of heaven, and garlic mustard. In addition, native fruit- and nut-bearing shrubs and trees were planted.
- Improvements to impervious surfaces to reduce direct non-point source pollution to the lake were also implemented. This included vegetative upland buffers (no-mow zones) and bioswales near the parking lots to collect and filter surface drainage.

To enhance the park site, additional amenities were added with funding from a Wayne County park millage. These included a bike rack, bike service station, kayak rack, and kayak launch and dock. Recreators were eager to get back into the park once construction activities were completed.

Sediment removal in progress

Completed rock shelf in use

Shaping the Future of the Great Lakes

Environmental Consulting & Technology, Inc. (ECT) is a water and natural resource management consulting firm that leads policy, planning, and implementation projects across the Great Lakes basin. We've established close working relationships with public and citizen advisory councils in the Areas of Concern (AOC) and offer strong technical capabilities, committed staff, and proven experience executing Great Lakes Restoration Initiatives (GLRI) projects.

ECT serves as trusted advisors to many local communities, nonprofits and other NGOs, as well as state and federal agencies. Leveraging opportunities presented by the GLRI, ECT staff assists our clients on habitat restoration projects.

Our staff assists stakeholders and the public with delisting targets and restoration blueprints for AOC located in Minnesota, Wisconsin, Illinois, Indiana, Michigan, and Ohio. ECT also serves as part of Jacobs team under contract to the U.S. Environmental Protection Agency on the Superfund Great Lakes Architect and Engineering Services (SFGLAES & GLAES II) contract vehicles.

ECT EXPERIENCE

- Ecosystem habitat restoration
- Wetland/avian/bat/fish assessments and studies
- Development of natural resource restoration policy/planning
- Hydraulics, hydrology & water quality modeling
- Green stormwater infrastructure & low impact design
- Grant assistance
- NPDES stormwater compliance

$200M+

GRANT FUNDS ECT HAS SECURED FOR CLIENT PROJECTS

30+

GLRI HABITAT RESTORATION PROJECTS IN SOUTHEAST MICHIGAN

Celeron Island Restoration

Nankin Lake Restoration

Henry Ford Estate Dam Fishway

Oxbow Restoration

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ECT
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Experts on subjects that matter

Friends of the Rouge

Friends of the Rouge (FOTR) is an environmental non-profit organization whose mission is to restore, protect, and enhance the Rouge River watershed through stewardship, education, and collaboration. FOTR envisions a future where a clean and vibrant Rouge River is the center of our community; where individual and community actions protect and improve the health of the Rouge River, assuring that its natural, economic, and recreational value enhances the quality of life in the Rouge River ecosystem. The entire Rouge River watershed is an Area of Concern located in metropolitan Detroit, Michigan.

Since 1986, FOTR has been encouraging Rouge River Watershed community members to take action and become directly involved in cleaning up and restoring their rivers. FOTR stands at the forefront of providing residents of the Rouge River Watershed with the opportunity to achieve a sense of "ownership" of their local streams, as well as the Rouge River as a whole. With multiple education and stewardship programs, the FOTR has engaged over 80,000 public volunteers and educated over 100,000 students in the watershed.

FOTR meets their mission through a variety of public engagement, education and stewardship activities, programs and approachable materials that aim to provide effective, accessible and inclusive outreach and engagement opportunities. These include a snapshot of the following programming:

1. Education Programs - including the Rouge Education Project, legislative outreach, and many public education and outreach events and marketing campaigns.
2. Restoration Programs - including Rain Gardens to the Rescue, Master Rain Gardner Certification, Rain Gardens 101, RainSmart, consultations/fee-for-service, and contract work.
3. Monitoring Programs - includes stonefly search, fall and spring bug hunts, fish monitoring, Rouge Frog & Toad Listening Survey and aquatic invasive surveys (European frog bit, and red swamp crayfish), emerging contaminant research (PFAS in fish), and culvert inventories.
4. Recreation Programs - includes the Lower Rouge River Water Trail, bisection of blueways and greenways in the Rouge, hosting bike, paddling and walking tours, and other outdoor recreation marketing campaigns.
5. Advocacy - includes consideration of various environmental issues or legislation that protects or harms the Great Lakes and the Rouge river. Increasingly weaving in environmental justice issues in regard to overall programming as a priority.

FOTR open water birding paddle trip

FOTR proudly serves as a trusted local clearinghouse for information about the Rouge River, readily collaborates with other organizations on projects and research, and actively promotes equitable access to recreation on the river.

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FOTR team

Monitoring Program

Rouge River Watershed, MI

FUNDING SOURCE: U. S. Environmental Protection Agency (USEPA) Great Lakes Restoration Initiative (GLRI) through Alliance of Rouge Communities (ARC), Michigan Department of Environment, Great Lakes and Energy (EGLE), U. S. Fish & Wildlife Service, Michigan Department of Natural Resources (MDNR), Michigan Invasive Species Grant, Michigan Association of Environmental Professionals, Waste Management, Bosch Community Foundation

ENTITY RECEIVING FUNDING: Friends of the Rouge (FOTR)

BUDGET: $200,000 annually

START/END DATE: 2001 - ongoing

Friends of the Rouge (FOTR) has been monitoring the Rouge River watershed for 25 years, developing and maintaining programs to meet the changing needs of the community including monitoring the success of Great Lakes Restoration Initiative projects. Biological indicator species are a focus for much of the monitoring as the ability for these organisms to thrive in the system reflects the long term health of the river and its ecosystem. FOTR engages local residents in collecting the data when at all possible as this has the added benefit of developing environmental stewardship. These community volunteers are provided with training and support to ensure that high quality reliable data can be shared and submitted to the local and state communities and regulatory agencies. FOTR monitors benthic macroinvertebrates, calling amphibians and fish communities.

Over the past few years, FOTR has expanded the monitoring to include invasive species, fish contaminants and culvert inventories, all due to local need and through partnerships. FOTR began surveying local waterbodies for the invasive aquatic plant European frogbit in 2020 and red swamp crayfish in 2023 in response to a request for more monitoring of recent invasions in the Rouge River watershed from the state of Michigan. In 2022, FOTR began engaging local anglers and the FOTR fish survey team in collecting fish for PFAS testing in partnership with the Ecology Center and Wayne State University. In 2023, FOTR began an inventory of road/stream crossings on the Lower Rouge River using the Great Lakes Road Stream Crossing Inventory protocol and app in response to a Michigan Department of Natural Resources request.

Volunteers at the FOTR Stonefly Search

River Science participants

Lower Rouge Reforestation

Lower Rouge River, MI

FUNDING SOURCE: U. S. Environmental Protection Agency (USEPA) Great Lakes Restoration Initiative (GLRI)

ENTITY RECEIVING FUNDING: Alliance of Rouge Communities (ARC)

BUDGET: Grant amount - $5.1 Million; FOTR contracted amount - $136,730

START/END DATE: 2019 - 2024

Friends of the Rouge (FOTR) has worked to inform and involve residents of Southeast Michigan about threats to the health of the Rouge River and actions that can be taken by individuals to minimize threats and improve river conditions as well as protecting and improving critical habitat for people and wildlife to enjoy. Research overwhelmingly supports health benefits associated with human connections to nearby nature in urban and suburban neighborhoods. Green infrastructure practices such as rain gardens and tree plantings help reduce flooding and the transport of pollutants to the Rouge River while providing people with connections to nature in their own backyards or in their community.

Through the GLRI-funded Rouge River AOC Habitat Restoration in Wayne County Parkland project, awarded to the Alliance of Rouge Communities, FOTR was contracted to complete the Lower Rouge reforestation. FOTR engaged 621 volunteers who contributed 2,350 hours to support the installation of 13,000+ bare-root tree seedlings across an 80 acre stretch of corridor along the Lower Rouge River in Southeast Michigan. Nine species of trees were added to diversify the riparian floodplain and upland areas in the Lower Rouge Parkway from Canton to Dearborn during the spring of 2022 and 2023. Forty-two (42) workdays have been organized to complete the work to date. Additional work days will be held to install weed mats and to monitor the seedlings survivability rate.

The public has been very receptive to planting trees in the Parkway. Individuals of all ages and demographics, families, university students, K-12 school groups and corporate volunteers have participated. Many people participated for multiple workdays. The news media were also attracted to the project. Multiple news stories aired on Fox 2 and WXYZ newscasts.

Boy Scout Troop #647 stop for a quick pic while planting trees in Inkster

University of Michigan-Dearborn students help plant trees along the Lower Rouge River

Rouge Recreation & Access: Blueways & Greenway Development in an Urban Watershed

Rouge River Watershed, MI

FUNDING SOURCE: Ralph C. Wilson Jr. Foundation, Community Foundation for Southeast Michigan, National Kidney Foundation, Center for Disease Control, Gilbert Family Foundation, Marathon Foundation, MDNR Trust Fund, ARAPA Funding and Congressional Appropriations

ENTITY RECEIVING FUNDING: Friends of the Rouge (FOTR)

BUDGET: $3 Million

START/END DATE: 2003 - ongoing

Friends of the Rouge is committed to creating meaningful and equitable access to the greatly restored Rouge River. FOTR is spearheading the community-led effort to establish a water trail and network of connected greenways on the Lower Branch of the Rouge River. The 29-mile Lower Rouge River Water Trail connects 10 cites and intersects with Wayne County Parks' assets. The Rouge Gateway Greenway will parallel the water trail and extend from the University of Michigan Dearborn, to Fort Street Bridge Park in Detroit. Friends of the Rouge's trails vision is part of a larger network of blueway and greenway trails that includes the Iron Belle Trail, Joe Louis Greenway, Downriver Linked Greenways, and the Great Lakes Way.

FOTR began paddling the Rouge in 2003 as interest in reclaiming the Rouge for recreation and enjoyment grew due to improving river health conditions. The Water Trail Strategic Plan, developed in 2019, incorporates community-informed recommendations for capital improvement, and fosters the development of key relationships, and coalitions that provide a vehicle for ongoing community engagement and ownership.

The Lower Rouge Water Trail Leadership Committee is the vehicle that connects people and communities to this vision to be champions in their community to do the heavy lifting to advance built environment projects. FOTR chairs the Lower Rouge Water Trail Leadership Committee, and the committee includes Municipalities, community organizations, businesses, passionate individuals, and Wayne County Parks. Much of the trail runs through Wayne County property. The committee meets bi-monthly and leverages its collective resources and capacity, to seek state, federal, and private grant funding to advance this effort.

FOTR coordinates paddle trips, promotional and educational events, and meets people where they are to uplift the community and health benefits of trails. Blueways and greenways can help improve health and quality-of-life by providing places for exercise, recreation, and community gatherings. Through the trail's lens, people and communities are the beneficiaries of our collective restoration, monitoring, and education efforts. The goal is to restore this undervalued asset back to the people and back to communities for their recreation and enjoyment. Research shows that people are healthier when there is meaningful access to outdoor recreation and nature in their community. 8 of the 9 strategically planned trailheads with universal access launches are 100% shovel ready with several being planned for construction within the next 12-24 months.

A rendering of the multi-purpose trailhead with a universally accessible boat launch at Kessey Fieldhouse in Melvindale.

Paddlers gather on the water for the FOTR Outdoor Afro Paddle Trip on the Rouge in the City of Dearborn.

Rouge Education Project

Rouge River Watershed, MI

FUNDING SOURCE: National Oceanic and Atmospheric Administration (NOAA) Bay Watershed Education & Training Program (B-WET)

ENTITY RECEIVING FUNDING: Friends of the Rouge (FOTR)

BUDGET: $235,000

START/END DATE: 2019 - 2024

The Rouge Education Project (REP) is a 35+ year long school-based environmental education program involving elementary, middle, and high schools from across southeastern Michigan. Students learn about the Rouge River in their classroom, and then perform hands-on scientific exploration of the river on a field trip to its banks. They assess chemical, biological, and physical parameters of water quality to determine overall stream health, and report their results to FOTR. Students are further encouraged to take action to restore and protect the river based on their results.

Primary goals are to:

1. Provide opportunities for schools to engage students in hands-on, real-world science, through water quality monitoring of the Rouge River
2. Increase participants' awareness of the Rouge River watershed by showing them how they impact the river, and how its health impacts them
3. Empower participants to apply knowledge and awareness gained through the REP to identify and address environmental issues in the Rouge River watershed and beyond.

The REP is coordinated and facilitated by FOTR, who trains K-12 teachers how to monitor surface water quality through a series of workshops. Resources are provided to help them plan the Rouge River watershed unit and field trip for their classroom(s), along with monitoring equipment. The Project began its relationship with the NOAA B-WET in 2019. The goal is to provide ongoing training and support for ~30 schools annually, while building on a program framework that has been extremely successful engaging students with their local river. Throughout the course of three grants, FOTR has deepened their relationship with Earth Force, an organization that empowers youth to take action in their community based on the information they learn through monitoring their river. This allows students to make important connections between their classroom's "monitoring project", community organizations, and their local connection to the Great Lakes.

Project highlights in 2023 include:

- 4,267 students visited the banks of the Rouge River for hands-on river science
- 79 teachers trained through 19 professional development opportunities
- Seven schools new to the program
- 141 participants took 1,496 actions in our online Explore the Rouge activity
- 43 students from 3 schools participated in a Student Symposium where they interacted, shared, reflected, and explored
- Partnership with the GLOBE and NASA-hosted Aerokats & Rover Education Network, to provide new technology for additional data-collection

Students and Friends of the Rouge representatives gather around a 3D model of the Rouge River Watershed at the Student Symposium

LaNita's Pollinator & Rain Garden Pocket Park

Detroit, MI

FUNDING SOURCE: National Fish and Wildlife Foundation (NFWF)

ENTITY RECEIVING FUNDING: Friends of the Rouge (FOTR)

BUDGET: $75,000 with $20,000 in match from Mercedes Benz Financial Services

START/END DATE: 2021 - 2023

FOTR has worked to inform and engage Detroiters in stormwater management practices since 2011. This focused effort is in support of Detroit's green stormwater infrastructure initiative to reduce combined sewer overflows (CSOs) into the Rouge and Detroit Rivers through the use of rain gardens, bioswales, permeable pavers, and stormwater harvesting, rather than creating additional large-scale gray infrastructure (very expensive storage facilities and pipes). If goals of this initiative are achieved, the City and its residents will save millions of dollars in reduced construction costs needed to manage rainwater and protect local rivers.

LaNita's Pollinator and Rain Garden Pocket Park is a wonderful example of the community coming together to solve a neighborhood street flooding problem while also reducing stormwater flowing into the sewer system; creating a pocket park where neighbors can gather; providing habitat for pollinators and memorializing a pillar of the community.

LaNita was a neighborhood care-giver and mom to all. She loved the artist formerly known as Prince and butterflies. A unique and beautiful little pocket park was created in her memory. Twelve hundred (1,200) sq. ft. of pollinator gardens flank a crushed stone walking path in the shape of the Prince symbol. An 850 sq. ft. rain garden was constructed to receive runoff from 6,000 sq. ft. of roadway – keeping up to 6,000 gallons of rainwater out of the system every time it rains and preventing neighbors from having to walk through 4 – 8 inches of water just to get from their car to their home. Annually, the rain garden has the potential of preventing 116,000 gallons of rainwater from flowing into the combined sewer system. This helps to prevent CSO discharges that contain a slurry of dilute raw sewage, chemicals, oils, road salt, sediment and other pollutants from entering the Rouge and Detroit Rivers.

LaNita's pollinator garden surrounds the Prince love symbol walking path in Detroit

The rain garden in LaNita's pocket park prevents 116,000 gallons of rain water from flowing into Detroit's combined sewer system annually

Detroit River Public Advisory Council/Friends of the Detroit River

The Friends of the Detroit River (FDR) is a grass roots citizen's organization dedicated to improving the quality of life for people, plants and animals along the Detroit River and within the communities of the Detroit River watershed in southeastern Michigan and southwestern Ontario. FDR is a community-based advocacy, educational, and environmental group whose mission is to protect, defend, and improve the Detroit River through community-based stewardship and restoration, now and for future generations. Since 1992, FDR has focused on Detroit River issues and has endeavored to protect the river through grass roots activism, educational programs, environmental stewardship, research and partnerships.

The Detroit River Public Advisory Council (PAC) was established in conjunction with the Great Lakes Areas of Concern (AOC) Program to facilitate public involvement in cleanup efforts due to legacy contaminants and environmental issues. Since 2005, Friends of the Detroit River has been acting fiduciary for the Detroit Public advisory Council (PAC) who is responsible for implementing the Detroit River Remedial Plan for the Detroit Area of concern. One of the goals of the PAC is to address contaminated Legacy sediments in the Detroit River. Working closely with USEPA and EGLE the PAC has provided support, input and outreach efforts towards a number of ongoing sediment remediation projects. To date over a dozen projects have been completed or are in the process of being completed, with over 320,000 cubic yards of material remediated and approximately 4-5 million yet to be addressed.

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Paddlers enjoying Humbug Marsh

Construction of Celeron Island shoals on the Lower Detroit River

Celeron Islands Habitat Restoration- Post Construction Habitat & Wildlife Improvements

Detroit, MI

FUNDING SOURCE: U.S. Environmental Protection Agency (USEPA) Great Lakes Restoration Initiative (GLRI), National Oceanic and Atmospheric Administration (NOAA)

ENTITY RECEIVING FUNDING: Friends of the Detroit River (FDR)

BUDGET: $7.5 Million

START/END DATE: 2013 - 2019

In 1815, the Detroit River shoreline included coastal wetlands up to a mile wide. Since then, the shoreline development and hardening, industrial and combined sewer contamination, and deep shipping channel excavation has destroyed all but a few acres of this life-rich environment. The completion of the Celeron Island habitat restoration project is a significant step toward removing the fish and wildlife related Beneficial Use Impairments (BUI's) in the Detroit River Area of Concern (AOC).

FDR received GLRI funding through NOAA for the Celeron Island habitat restoration project. Activities included data gathering and analysis, engineering, permitting and construction, monitoring and habitat assessment. Restoration of Celeron Island was completed in 2019.

The Celeron Island habitat restoration project created 2,800 linear feet of rock shoals that support vegetation and aquatic habitat, while protecting and promoting growth of over 68 acres of backwater habitat - a calm, vegetated water zone suitable for fish spawning and nursery activity. Over 70 new habitat structures provide homes for fish, turtles, snakes and amphibians. Access to the restoration site also greatly benefit birders, anglers and hunters using the island and surrounding waters for recreation.

Since the completion of the project, post-construction habitat observations continue to be made each year, showing increased weed bed growth behind the shoals, bird and waterfowl use, and fish spawning on the gravel spawning areas installed behind the shoals.

Celeron Island before restoration

Celeron Island after restoration

South Hennepin Marsh Habitat Restoration

Detroit, MI

FUNDING SOURCE: U. S. Environmental Protection Agency (USEPA) Great Lakes Restoration Initiative (GLRI) National Oceanic and Atmospheric Administration (NOAA)

ENTITY RECEIVING FUNDING: Friends of the Detroit River (FDR)

BUDGET: $4.5 Million

START/END DATE: 2022 - 2023

Friends of Detroit River, through the implementation of the Hennepin Marsh habitat restoration project, is working to remove the beneficial use impairments (BUIs) associated with Degraded Fish and Wildlife Populations and Loss of Fish and Wildlife Habitat for this Area of Concern (AOC). South Hennepin Marsh, an emergent wetland in the Trenton Channel is one of the most important remaining habitats for fish and wildlife in Michigan waters of the Detroit River. Historically, it contained exceptional fish habitat that provides forage for shore birds, waterfowl, turtles, and amphibians. The marsh encompasses approximately 20 acres of submerged macrophyte beds that are now being protected by new habitat shoals resulting in excellent warm water fish nesting areas, in addition to new bird, reptile and amphibian habitat.

Specific considerations that needed attention during the design included: adjacent shipping routes in the Trenton Channel; site-specific hydrologic pressures and ice flow patterns; engagement with the riparian property owners along the marsh; one-on-one engagement with the property owners of which easements were required; and determination of native vegetation.

The project was completed in 2023 and constructed two habitat shoals that resulted in 1220 liner feet of new shoals. These shoals included the incorporation of 12 turtle log bundles and 6 mudpuppy structures. This has resulted in immediate use by several adult Longnose Gar using the marsh for foraging or spawning. Numerous largemouth bass have been observed including multiple active spawning nests in the open marsh and along the east side of both shoals near large woody debris. In general, the marsh and shoal habitat are being used extensively by fish and wildlife.

Aerial of Hennepin shoals just after construction

Native plants growing on the shoals of South Hennepin Marsh

Ecorse Creek Support Effort

Ecorse Creek Watershed, MI

FUNDING SOURCE: Michigan Department of Environment, Great Lakes, and Energy (EGLE)

ENTITY RECEIVING FUNDING: Friends of the Detroit River (FDR)

BUDGET: $40,000

START/END DATE: 2022 - 2023

With years of urbanization, much of the Ecorse Creek's historical floodplain and wetland areas have been filled in and lost. As a result, with substantial stormwater flows, the creek's water quality has declined, and flooding has increased. As a conduit of potential contaminated sediments, excessive stormwater and combined sewer overflow (CSO) constituents, there is clear evidence that Ecorse Creek is impacting the water quality of the Detroit River at its discharge point, and in turn is impacting the ability to remove several of the Detroit Area of Concern Beneficial Use Impairments (BUIs), which Friends of the Detroit River (FDR) and Detroit River Public Advisory Council (PAC) are working to address.

With this concern in mind, FDR worked with the Alliance of Downriver Watersheds (ADW) in developing and implementing the Ecorse Creek Watershed Management Plan. FDR received a grant through EGLE's Nonpoint Source Program to help identify and implement projects that can be done to improve water quality and coastal wetland habitat, reduce flashy flows and flooding conditions, address public access, and expand recreational opportunities on the north and south branches of the creek. FDR brought its years of habitat restoration and water quality improvement experience to help the Ecorse Creek Committee develop organizational capacity and expand its stewardship capabilities to implement what needs to be done to begin tackling many of these problems within the Ecorse Creek watershed.

The main objective for this project was the identification of potential restoration sites. This was done using a suite of environmental, social, and recreational factors determined by a variety of available data sources, holding public meetings, and conversations with community stakeholders. FDR focused on sites that will result in the creation of things such as stream bank restoration, fishery improvements, recreational access, and improvements in in-stream water quality. FDR understands the challenges that environmental justice (EJ) communities face when it comes to tackling water quality related issues due to a higher percentage of burdens that exist in these communities. To determine where these communities are located, allocate appropriate attention, and ensure proper benefits are received, FDR utilized available demographic data and EJ mapping sources to target potential restoration sites in these areas.

Aerial Confluence of Ecorse Creek into Detroit River

Flooding in Dearborn Heights from Ecorse Creek

The Greening of Detroit

The Greening of Detroit's mission is to guide and inspire the sustainable growth of a healthy urban community through trees, green spaces, healthy living, education, training and job opportunities.

The Greening of Detroit accomplishes its mission through three major programs:

- Green Infrastructure (including Community Forestry to restore the tree canopy in Detroit, Highland Park and Hamtramck)
- Workforce Development (Detroit Conservation Corps adult job training and Green Corps summer youth employment)
- Nursery Operations and Landscape Services (Tree nursery and fee for service operations)

Founded in 1989, The Greening works with many partners to transform landscapes and lives by supporting productive, multi-functional green spaces that improve the environment, provide employment opportunities, and promote social outcomes that nurture a vibrant and revitalized Detroit. Over the last 34 years, The Greening has led the collaborative effort to restore Detroit's urban forest, planting over 141,000 trees throughout the city that manage stormwater runoff to the Great Lakes, address air quality and heat island impacts, remediate soil pollutants, and mitigate for climate change. Efforts to rebuild Detroit's urban tree canopy and support residents to repurpose vacant land into healthy green spaces are supported by thousands of community volunteers each year.

Our organization works to address the needs of the most vulnerable in our community with equitable, inclusive forestry programs. The Greening serves as a key partner of the Detroit Tree Equity Partnership (DTEP), a coalition of public and private entities working to develop long-term strategies to create equitable access to trees for all city residents. As the only DTEP partner with on-the-ground expertise and experience, The Greening of Detroit is significantly expanding its core programs to take the lead role for the coalition's tree planting and urban forestry workforce training in order to support a three-fold increase in annual tree planting over the next five years, and create hundreds of new tree care industry jobs for Detroit residents.

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The Greening of Detroit's Green Corps - Summer Youth Employment Program providing maintenance to over 1,000 trees annually each summer.

The Greening of Detroit's Planting Crew Leader demonstrating tree planting techniques at Littlefield Playfield.

The Greening of Detroit's Detroit Conservation Corps graduates and planting crew.

Emerald Ash Borer Mitigation & Urban Canopy Restoration

Detroit, MI

FUNDING SOURCE: Great Lakes Restoration Initiative (GLRI), U. S. Department of Agriculture (USDA) Forest Service

ENTITY RECEIVING FUNDING: The Greening of Detroit

BUDGET: $199,930 with match of $50,860 in volunteer installation labor and $31,100 in Green Corps maintenance

START/END DATE: 2021 - 2022

The Littlefield neighborhood was identified as one of the top 20 most vulnerable census tracts lacking tree canopy by the University of Michigan in 2019. With the generous GLRI funding award, The Greening of Detroit was able to engage with residents, block clubs, and community groups to plant a total of 200 trees during four planting events in Fall 2022.

Kicking off the first two planting events were 100 community streets trees that surround Littlefield Playfield along Indiana, Kentucky, Grand River and Cloverlawn Avenue. The Greening's community engagement team worked with the Littlefield Community Association and their block club members to help identify planting locations and participate in species selections.

An additional 100 trees were planted in the park itself and with the immediately adjacent Noble Elementary school. All 200 trees were balled and burlapped (1.5" caliper). Tree species included Ivory Silk Lilac, Autumn Brilliance Serviceberry, Crabapple 'Royal Raindrops', Sweetgum, Tulip Tree, Hackberry, Swamp White Oak, Eastern Redbud, Blackgum, and American Hornbeam.

The Greening of Detroit was pleased to engage 339 volunteers and another 141 residents to help plant these trees. Collectively 500 community residents and volunteers contributed 2,000 hours of sweat equity back into the neighborhood. In addition to tree planting, Greening's team engaged the principal, teachers, and staff to engage 200+ students in environmental education.

With the completion of this 2021 GLRI award, we sought to build on our community connections and expand tree planting efforts in one of the top 20 most vulnerable census tracts in Detroit. We applied and were awarded 2022 GLRI project funds to continue working with residents and block clubs of the Littlefield neighborhood, as well as expand to the nearby Midwest neighborhood to address community tree planting applications. That project will plant 200 balled and burlapped trees (1.5" caliper) with local community groups, residents, and another local school beginning this Fall 2023.

Students participating in environmental education

Volunteers planting trees in Littlefield neighborhood

Increasing Green Infrastructure to Build Climate Change Resiliency in Southwest Detroit

Detroit, MI

FUNDING SOURCE: U. S. Fish and Wildlife Foundation, Southeast Michigan Resilience Fund

ENTITY RECEIVING FUNDING: The Greening of Detroit

BUDGET: $245,788 with match of $15,000 from Michigan Department of Natural Resources (MDNR), $85,620 in volunteer installation labor, $30,000 in Green Corps maintenance, $18,750 from Freudenberg, and $53,755 of in-kind services from The Greening of Detroit

START/END DATE: 2022 - 2023

The Southwest Detroit community is a majority-Latino community affected by high rates of poverty and public health concerns due to nearby oil and manufacturing industry and vehicle traffic pollution, with the high rates of asthma. The Greening of Detroit proposed to plant 318 new trees in six parks located in Southwest Detroit to offset the massive tree loss caused by the devastating emerald ash borer infestation during the last two decades and help to create greater tree equity in underserved neighborhoods.

Prior to the Fall 2022 and Spring 2023 planting seasons, The Greening conducted outreach to solicit community planting applications and to recruit volunteers in cooperation with long-established and new partners in the community, including Friends of Patton Park, Hubbard Richard Residents Association, Urban Neighborhoods Initiative, Cesar Chavez Upper Elementary School, Saint Hedwig Catholic Church, Southwest Solutions, and Historic Fort Wayne.

Through our community volunteer tree planting program, our team of technical tree experts and community connectors engaged with residents, block clubs, faith-based organizations, schools, and community groups to identify tree locations, choose species, and install and maintain trees. Throughout the process, The Greening's forestry staff assessed prospective planting sites for suitability, provided native and urban tolerant, non-invasive species options for a diverse and resilient urban tree canopy, and handled all the logistics of procurement and placement of balled and burlap and container tree stock, mulch, tools, and water to the planting sites for each planting day event.

Each park was the hosting site for one to two planting day events. These parks already serve as the center of recreation, respite, and celebration for their respective neighborhoods. On planting morning, volunteers arrived to register, and were provided a welcome by the community, and all instructions, tools, light refreshments, and staff support to ensure a happy, successful community tree planting. To date, The Greening has hosted 274 volunteers who have contributed 1,096 hours in planting 232 trees in the parks and the surrounding neighborhoods, with the remainder to be completed through additional planting events in Fall 2023.

The trees planted for this project will intercept 69,521 gallons of stormwater annually (per i-Tree calculations); increase tree canopy by 4.6%; sequester 93,640 pounds of CO_2; and complement and enhance park development activities currently underway, planned or needed at each site.

In October 2022, The Greening of Detroit received a $365,235 grant from the Sustain Our Great Lakes grant program to expand our tree planting program in Southwest Detroit.

Trained Citizen Foresters provide tree planting demonstration for day of volunteers.

Local students volunteer to plant at their local park.

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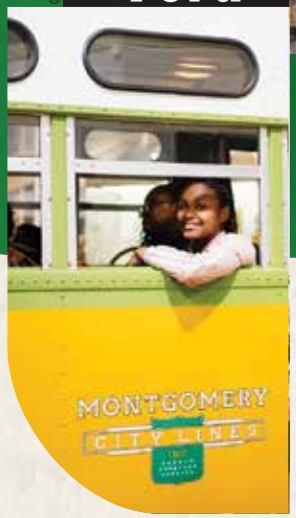

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River Raisin Watershed Council

The River Raisin Watershed Council (RRWC) was formed in 1974 under the state of Michigan's Local River Management Act and is governed by a Board of Directors appointed by member municipalities. RRWC is a public service, non-profit, 501(c)(3) organization.

The mission of RRWC is to inspire behaviors that promote stewardship, improve water quality, and encourage public participation to protect, preserve and enhance the River Raisin Watershed. The organization meets these goals by working with partners on various activities, including classroom and public education, outreach to farmers, water quality monitoring, volunteer cleanups, and encouraging recreation on the river. Through these actions, RRWC strives to promote and foster an understanding of the connection between our quality of life and the health and well-being of the plants and wildlife living in the watershed.

The RRWC applies for and participates in many grants that are available to help achieve our goals. These grants are often in partnership with other nonprofits, agencies, and businesses, all of which are eligible to become associate members. Local residents can also support the RRWC by becoming individual members. Associate and individual members contribute to the strength of the RRWC through membership dues, volunteer activities, and participation in various committees that make recommendations to the Executive Committee regarding RRWC activities.

RRWC has three full-time staff, two part-time staff, two current interns, and over 100 members, including individuals, families, nonprofit organizations, and businesses. Members come from all over southeast Michigan including the Western Lake Erie Basin. Municipal Members represent 54 of 63 potential members including cities, villages & townships.

We envision a healthy and vibrant watershed that is resilient to environmental stressors and provides benefits to its communities, businesses, and ecosystems.

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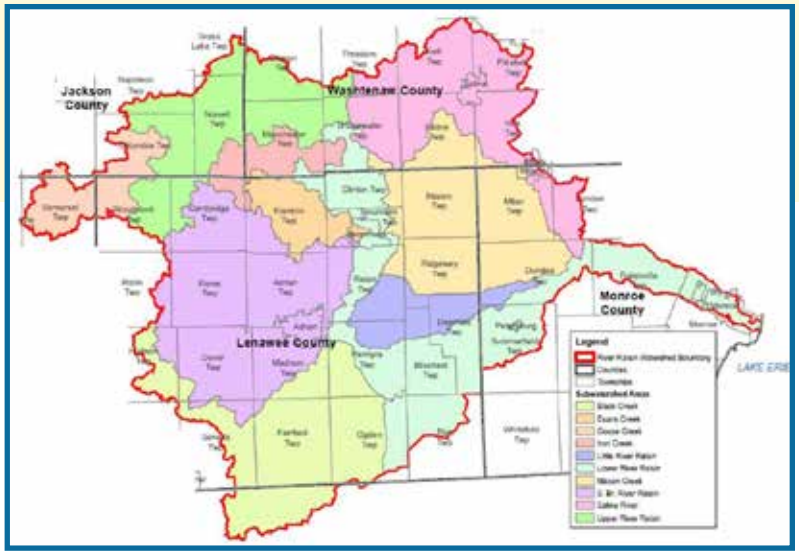

River Raisin watershed

Adopt-A-Stream

River Raisin Watershed, MI

FUNDING SOURCE: River Raisin Watershed Council (RRWC) Membership Dues

ENTITY RECEIVING FUNDING: River Raisin Watershed Council

BUDGET: $500 Annually, with match provided by Adrian College and Lenawee Intermediate School District

START/END DATE: 2002 - Ongoing

River Raisin Watershed Council's Adopt-A-Stream is a volunteer based programs, where community members work together to play a vital role in assessing the health of our streams and rivers through the study of macro-invertebrates, also known as aquatic bugs.

Research efforts are focused on these bugs as they are critical indicators of water quality. Different species have varying tolerances to pollution and oxygen levels, so when we find specific species dominating a stream, it provides valuable insight into its overall health. By understanding this, we can prioritize conservation efforts and allocate resources where they are needed the most.

The Adopt-A-Stream program is compromised of three key events: Training Day, Stream Search, and Bug I.D. Day. Volunteers from across the watershed come together to collect macro-invertebrates from twenty sites, helping us gauge the water quality of each location. These collections occur in both spring and fall, allowing us to assess seasonal variations.

Training Day: Volunteers meet with our team of scientists and staff to prepare for the upcoming Stream Search day. They receive valuable guidance on collection methods and safety protocols.

Stream Search Day: In this exciting event, two collectors venture into the stream at each site equipped with special nets to carefully collect the macro-invertebrates. On the stream's bank, sorters sift through the nets to isolate these bugs, placing them in jars for further analysis during Bug ID Day.

Bug ID Day: During this portion of the program, experts collaborate with volunteers to identify the macro-invertebrates up to the family level. The data is then quantified and analyzed to generate a comprehensive report that ranks each site's water quality as poor, fair, good, or excellent. This report is shared with the Michigan Department of Environmental Quality, contributing to broader efforts to safeguard our waterways.

By focusing on the fascinating world of macro-invertebrates, we gain a deeper understanding of our streams and rivers, working together to ensure a healthier, more sustainable environment for everyone.

Adopt-A-Stream bug identification

Adopt-A-Stream bug identification

Upper River Raisin Connectivity

Upper River Raisin, MI

FUNDING SOURCE: U. S. Fish and Wildlife Service (FWS), National Fish Passage Program under the Bipartisan Infrastructure Act, Michigan Department of Natural Resources (MDNR)

ENTITY RECEIVING FUNDING: River Raisin Watershed Council (RRWC)

BUDGET: $1.05 Million ($800,000 from FWS and $252,000 from MDNR)

START/END DATE: 2021 - 2024

River power in the River Raisin watershed was harnessed often during the twentieth century, with frequent dams and mills altering the original course of the river. Dams completely changed the river sediment balance. Rivers like the Raisin naturally move water and sediment to varying degrees. Dams disrupt this natural movement and act as sediment traps on one side and a force for erosion on the other.

The Brooklyn Dam is one of the remaining dams still left on the Raisin. The Brooklyn Dam is regulated by the Department of Environment, Great Lakes, and Energy (EGLE) due to its height and size of the associated mill pond. EGLE classifies the dam as a High Hazard Potential Dam, and notes that loss of life and severe impacts are expected if a dam failure were to occur. The dam was constructed in 1939 and was originally used to supply hydroelectricity for the adjacent manufacturing plant. However, it is no longer used to supply hydroelectric power.

The MDNR River Raisin Assessment highlights the importance of the high gradient reach of the River Raisin directly around the dam as being significant for the health of the river and associated aquatic life. Fish and other aquatic animals are typically most diverse and productive in high gradient habitat. The report states that only 5% of the Raisin is classified as high gradient habitat, and that habitat is only found in the headwaters and localized in Brooklyn and small reaches in Manchester and Tecumseh. Much of the high gradient habitat has been inundated by dams and their impoundments, thus eliminating this unique and productive habitat and fragmenting the river.

Modification of the High Hazard Potential dam and restoration of a functioning stable river channel, alongside replacement of Mill Street bridge and construction of natural rock rapids over Nooney Dam will permanently eliminate risk and liabilities associated with the dam, improve public safety, and restore habitat and resiliency in the river. Project activities will provide up to 44 miles of connectivity to headwater reaches of the River Raisin allowing for daily, seasonal and annual fish movement to access habitat necessary to live out their lives once completed.

The cost of doing business along the River Raisin once resulted in chronic pollution problems, but despite these historic challenges the Raisin still has many beautiful natural wonders. The mainstem of the river has some of the richest mussel beds in the state of Michigan. Twenty-one species of mussels have been identified along with eighty species of fish – most of the original fishery. High quality, mesic hardwood forests, riparian and floodplain forests, prairie fens and remnant oak barrens in the upper watershed support rare species such as the eastern massasauga rattlesnake, Blanchard's cricket frog, Indiana bat, spotted turtle and the Karner Blue butterfly. These same upper watershed areas are also among the most significant inland migratory bird stopover areas in the Western Lake Erie Basin. With projects like the Upper River Raisin Connectivity Project keeping the river and its inhabitants healthy, the natural wonders of the River Raisin will continue to enrich the lives of watershed residents for decades to come.

Mussel found near Brooklyn Dam

Farmer Led Watershed Conservation Group

Western Lake Erie Basin

FUNDING SOURCE: Fred A. and Barbara M. Family Foundation

ENTITY RECEIVING FUNDING: Michigan Association of Conservation Districts

BUDGET: $500,000

START/END DATE: 2023 - 2026

The River Raisin watershed is a major producer of corn and soybeans in the state of Michigan. Over 75% of the watershed is in agricultural production. But the River Raisin is caught in the middle of the great dilemma of modern, industrialized agriculture. The RRWC works hard to support farmer leaders who promote sustainable practices, often referred to as "Best Management Practices" (BMP's) which benefit the farmer and water quality alike.

The Farmer Led Watershed Environmental Working Group (FLC) will continue and expand farmer-led activities to increase farmer adoption of conservation practices to protect water quality in the Western Lake Erie Basin through farmer leadership to encourage neighbor action. Building upon the accomplishments of farmer leaders thus far, we will build and strengthen networks and relationships by continued focus on farmer-led leadership and expansion of efforts, targeting three specific farming sub-group audiences to increase adoption of conservation practices within the basin.

Of the estimated 1 million acres of cropland in Michigan's part of the Western Lake Erie Basin (WLEB), approximately 15% are now MAEAP verified. In order to move forward, beyond the innovators and early adopters, this project seeks to build relationships and trust to address the chasm between early adopters and the early majority. Through MAEAP, the "low hanging fruit" has been secured, the challenge now is to build understanding, support and engagement with more farmers within the basin to reach the water quality objectives set out in the Domestic Action Plan (DAP) to reduce phosphorus by 40% by 2025.

The FLC Leadership Committee has hosted a multitude of shop talks, semi-annual meetings, and recruited neighbors to engage in conversations about conservation. We learned that farmers can get meeting-ed out and that one large group meeting is a better fit for the audience and timing, instead of the semi-annual large group meetings. Having the farmers run the meetings, with conservation staff available in the back of the room led to more discussion back and forth about farmer experiences with each practice or equipment that was demonstrated. Farmer leaders represented a range of attitudes and geographic areas, and brought concerns to the table for discussion. We heard from our farmer leaders a lot about trust and relationships and learned how quickly and drastically conservation practices can change when trust is lost with a federal partner.

Farmers participating in FLC

We have learned that the experience of the farmer leaders provides outstanding insight and guidance so critical to successfully working with farmers within the watershed. Additionally, the farmer leaders are trusted community members and have been able to foster conversation and interest within the farming community, resulting in expanded understanding of the environmental issues and the need for the adoption of conservation practices. This trust will continue to help us promote BMP's on our agricultural lands to benefit all residents of the River Raisin Watershed.

Upper Wolf Creek Watershed Management Plan

Adrian, Village of Blissfield & Village of Deerfield, MI

FUNDING SOURCE: Michigan Department of Environment, Great Lakes and Energy (EGLE)

ENTITY RECEIVING FUNDING: River Raisin Watershed Council (RRWC)

BUDGET: EGLE - $100,967 with match of $33,000 from Loch Erin Property Owners Association

START/END DATE: 2021 - 2023

The River Raisin (Riviere Aux Raisin – River of Grapes), known as "Nummasepee" (River of Sturgeon) by its American Indian inhabitants, drains to the Western Lake Erie Basin. The watershed covers most of Lenawee County and smaller portions of Monroe, Washtenaw, Jackson and Hillsdale counties in Michigan along with a piece of Fulton County in northeastern Ohio. The watershed covers about 1,072 square miles and drains from the north and west, entering Lake Erie at Monroe Harbor.

Recent water quality sampling of Loch Erin (Lake Erin) in the Irish Hills and its drains in the immediate watershed have revealed significant water quality concerns such as the presence of high nutrients, E. coli bacteria, and cyanobacteria blooms. This is of great concern as Loch Erin is a tributary to Lake Adrian via Wolf Creek. Lake Adrian serves as a drinking water source to the City of Adrian in Lenawee County, Michigan and the connected River Raisin serves the villages of Blissfield and Deerfield.

The RRWC and its partners for this proposed upper Wolf Creek watershed management plan recognize that conflicts with land use may arise with the intended plan development and future improvements, given the prevalence of abundant agricultural lands and activities within this subwatershed. The partners further recognize that collaboration and parity will be key to the success of future watershed protection. This project is proposed to develop an upper Wolf Creek watershed management plan so that future implementation of BMPs to reduce nonpoint source pollutants to Wolf Creek, Loch Erin, Lake Adrian, and Lake Erie can be realized.

The RRWC and its partners plan to develop and complete a detailed upper Wolf Creek watershed management plan that supports primary goals within the larger River Raisin watershed including the attainment of water quality standards, achieving all designated uses, and protecting source water supply for Adrian, Blissfield and Deerfield. We also plan to identify specific Critical Source Areas (CSAs) that are contributing to elevated E. coli bacteria, nutrients, and cyanobacteria blooms within Loch Erin and Lake Adrian via Wolf Creek. This could include but is not limited to leaking septic fields, farm runoff, stormwater drainage pipes, and tile drains. Finally, we will develop a GIS story map to highlight the watershed management plan project and assist with community outreach and involvement efforts. The final product will be shared on the River Raisin Watershed Council's website and used as a tool at stakeholder meetings to help educate the public concerning watershed health and potential improvement projects.

Once the project is completed, the partnering Loch Erin Property Owners Association (LEPOA) will continue monitoring Loch Erin and its tributary drains to assure that improvements are maintained. Continued water quality monitoring will help assess the impacts of future BMP implementation on water quality for the benefit of all residents who rely on this water for recreation and as a drinking water source.

Sampling tributary stream of Loch Erin in Irish Hills, MI

Discover the Raisin & Poster Contest

River Raisin Watershed

FUNDING SOURCE: River Raisin Watershed Council (RRWC) Membership Dues and Donations

ENTITY RECEIVING FUNDING: River Raisin Watershed Council

BUDGET: $2,000 Annually

START/END DATE: Annually from March to May

The RRWC hosts an annual poster contest and "Discover the Raisin" scholarship program aiming to engage the community in artistic and educational initiatives focused on the conservation and protection of the River Raisin watershed.

The poster contest provides an excellent opportunity for school-aged individuals to showcase their creative talents while raising awareness about the significance of safeguarding our local environment. The RRWC will award prizes to the top three posters, judged based on their creativity, artistic merit, relevance to the theme, and the strength of the environmental message conveyed. The winning posters, along with select honorable mentions, will be showcased at community events, local schools, libraries, and other public spaces within the River Raisin Watershed to raise awareness about the importance of preserving our natural resources.

The "Discover the Raisin" is a RRWC sponsored scholarship award. This program is a opportunity for teachers in grades 5th-8th to apply for a $250 award to implement or maintain environmental education activities in their classroom related to the River Raisin Watershed or Water Quality. Five awards are given out annually to the teachers who submit projects that best implement engaging environmental education and reach the largest number students each year.

Additionally, for both programs, the RRWC will promote the winning entries on its website and social media platforms to reach a broader audience and inspire further environmental consciousness.

Discover the Raisin program

RRWC Poster contest winner

Clinton River Watershed Council

Home to heron, trout, mink, and other wildlife, the Clinton River watershed is comprised of thousands of lakes, ponds, wetlands, and hundreds of miles of clear, cold streams. The Clinton River watershed is the most populous in Michigan, spanning 760 square miles over four counties: Oakland, Macomb, Lapeer, and St. Clair. The Clinton River Watershed encompasses more than 70 communities and 1.5 million people.

The Clinton River Watershed Council (CRWC) is a nonprofit organization that has been dedicated to the protection, enhancement, and celebration of the Clinton River, its watershed, and Lake St. Clair for more than 50 years.

One of the primary objectives of CRWC is environmental education and volunteer stewardship. They collaborate with local governments, educational institutions, and individuals to implement projects aimed at improving water quality, restoring wetlands and natural habitats, and mitigating pollution. Through the Keeping-It-Clean Program, Weekly Clean, Trash Runs, private clean-ups, the RiverSafe LakeSafe program, and education on native plants, CRWC works to protect the watershed.

CRWC actively engages residents, schools, and businesses in restoration and conservation efforts. They organize wildlife surveys, invasive species removals, restoration projects, habitat installation projects, and facilitate the Adopt-A-Stream water quality monitoring program. CRWC works to enhance watershed health and access to clean water.

In addition to ecological projects, CRWC also provides programs like River Day, the Clinton River Quest, Crafts on the Clinton, and Nourished by Nature that celebrate local lakes, rivers, and streams. By actively participating in and hosting these programs, CRWC advocates for the recreational use of the Clinton River and its tributaries.

Recognizing the complexity of watershed management, CRWC engages various community partners, including government agencies, associations, environmental organizations, individuals, and private businesses. By forging strong partnerships, CRWC leverages resources, expertise, and collective efforts to achieve more significant positive impacts on the environment. CRWC is committed to the health and preservation of the Clinton River watershed. Through research, education, community engagement, and advocacy, CRWC continues to work to protect, enhance, and celebrate the Clinton River to ensure surrounding ecosystems thrive, providing clean water and enriching the lives of both people and wildlife in Southeast Michigan.

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Clinton River spillway

Paddlers enjoying Black Creek

Bald Mountain Pond Dam Removal

Oakland, MI

FUNDING SOURCE: Michigan Department of Natural Resources (MDNR) and U. S. Fish & Wildlife Service (USFWS)

ENTITY RECEIVING FUNDING: Clinton River Watershed Council (CRWC)

BUDGET: $26,000 MDNR Grant, $13,000 USFWS Grant, $3,000 from local donor

START/END DATE: 2021 - 2023

Located in Paint Creek subwatershed in the ecologically important upper reaches of the Clinton River, the Bald Mountain Pond Dam once served as a recreational stream crossing within the Bald Mountain Recreation Area. However, degrading conditions and safety concerns led to its abandonment as a pedestrian passageway across Trout Creek. In addition to its lost function, the Bald Mountain Pond Dam was identified as a barrier to fish passage and a restriction to natural flow, thermal regimes, and sediment transport—making it a primary target for removal.

After close collaboration with both agencies on potential solutions, in 2021, CRWC was awarded grant funding from MDNR and USFWS to address this issue. CRWC subsequently performed pre-dam removal stream monitoring, ecological surveys, and planned the dam removal process. In January 2023, the Bald Mountain Pond Dam was successfully removed, restoring approximately 1.25-miles of fish passage within Trout Creek. In addition to enhanced connectivity for fish species, native mussel communities (including the state-threatened slippershell) are expected to benefit from this stream restoration project.

This project pairs with an earlier GLRI-funded dam removal effort to reconnect 16-miles of fish passage by CRWC on downstream Paint Creek, a coldwater-designated trout stream for which Trout Creek is a tributary. In the larger scheme, both dam removal projects build on CRWC's Clinton River Coldwater Conservation Project (CRCCP). The CRCCP is a collaboration between CRWC, four Trout Unlimited chapters, EGLE, MDNR, and local municipalities whose mission is to enhance and restore coldwater stream habitat within the watershed. Ultimately, these projects collectively work to benefit the health of the Clinton River watershed as a whole.

In the fall of 2023, CRWC will further site restoration by planting native vegetation at the former dam site to help stabilize the streambanks and enhance the riparian buffer zone. Post-dam removal monitoring, ecological surveys, and road-stream crossing evaluations will help quantify the benefits of the dam removal on Trout Creek and the greater Clinton River watershed.

Deconstruction of the Trout Creek Dam took place in January of 2023.

In July of 2023, the stream banks now are covered in vegetation and it has become difficult to tell that a dam stood here at all.

Southeast Michigan Red Swamp Crayfish Early Detection Collaborative

Macomb, Oakland & Wayne, MI

FUNDING SOURCE: Michigan Department of Natural Resources (MDNR) & Oakland County

ENTITY RECEIVING FUNDING: Clinton River Watershed Council (CRWC) and Friends of the Rouge (FOTR)

BUDGET: $53,400 MDNR Grant, plus $7,000 match from Oakland County

START/END DATE: 2023 - 2025

The Red Swamp Crayfish Collaborative is an ongoing partnership between CRWC, FOTR, and the MDNR focused on the early detection of Red Swamp Crayfish (Procambarus clarkii) within the Clinton River and Rouge River watersheds. Red Swamp Crayfish (RSC) are an aquatic invasive species to Michigan, known to cause habitat degradation and negatively impact both aquatic organisms and communities. The presence of RSC has been confirmed in both the Clinton River (2019 & 2023) and Rouge River (2017) watersheds.

As a part of the Michigan Invasive Species Grant Program (MISGP), with funds directly linked to the Great Lakes Restoration Initiative (GLRI), the Red Swamp Crayfish Collaborative was developed with four primary goals:

1. Identify the distribution/potential spread of RSC in the Clinton River and Rouge River watersheds.
2. Expand the current knowledge of crayfish distributions, both native and invasive.
3. Expand awareness of RSC and the impacts of invasive species in Southeast Michigan.
4. Grow and maintain partnerships revolving around RSC and invasive species early detection efforts.

To achieve these goals, CRWC and FOTR have begun early detection surveys and crayfish monitoring in sites across the two watersheds. By the conclusion of the grant period, over 10 linear miles of waterways will have been monitored for RSC and overall crayfish distribution. In addition to monitoring, CRWC is committed to developing accessible and multi-lingual public education materials aimed at increasing awareness surrounding RSC and the impact of these aquatic invasive species on our waterways and ecosystems.

While surveying for Red Swamp Crayfish, CRWC identified many native crayfish species.

Crayfish traps consist of metal enclosures and mesh bait bags. After being assembled in the field, the traps are baited with dog food.

Crayfish traps are secured to metal rods in the various locations throughout the watershed, and periodically checked, baited, and reset.

Clinton River - Yates Mill Bypass

Rochester Hills, MI

FUNDING SOURCE: Great Lakes Fisheries Commission (GLFC) Infrastructure Funds

ENTITY RECEIVING FUNDING: Great Lakes Fisheries Commission

BUDGET: $700,000

START/END DATE: 2020 - 2024

The Clinton River - Yates Mill Bypass Project is an ongoing collaboration between CRWC, GLFC, Michigan Department of Natural Resources (MDNR), Michigan Department of Environment, Great Lakes and Energy (EGLE), US Fish and Wildlife Service (USFWS), Yates Cider Mill, City of Rochester, City of Rochester Hills, Berry Global, and Green Watershed Restoration. It is the second project that CRWC has collaborated on at the Yates Cider Mill in recent years, as CRWC has a deep relationship with Yates Cider Mill and MDNR that allowed for successful habitat restoration of ~500 feet of Clinton River habitat in 2020.

The Yates Dam serves as the lowermost barrier on the Clinton River, an important feature for preventing the spread of invasive species such as Sea Lamprey from Lake St. Clair upstream into the greater Clinton River watershed. These upstream connecting waterways span hundreds of miles and include our highest quality watersheds (Paint Creek and Stoney Creek) and the headwaters of the Clinton River. In 2015, a bypass channel began to naturally form upstream of Yates Dam, and in 2020 the channel completed its route—thus creating a "bypass" to the dam and redirecting the river's flow from the historical route to the newly formed channel. This redirection of flow provided direct passage to invasive species, migratory fishes, and decreased the water supply to Yates Dam. In response to this threat, CRWC, Hubbell, Roth, & Clark (HRC), DNR, and the GLFC worked to design and implement a project to stabilize the streambanks and redirect flow from the bypass channel back to Yates Dam. After the design was successfully implemented in 2020, a sustained storm event in 2021 caused the design to fail—allowing the bypass to reform and establish a direct connection once again.

CRWC is actively working with the GLFC and partners to design and implement a long-term solution for Yates Dam with updated site assessments planned for summer of 2023. Potential solutions include re-meandering the river upstream of the dam site in order to restore balance, connectivity, and reduce sedimentation. This evolving project showcases CRWC's role in providing on the ground expertise and partner collaboration focused on implementing complex ecological solutions to protect and enhance the Clinton River and its watershed.

In February of 2023, sea lamprey were examined by stakeholders at a site visit to the Yates bypass.

A section of the river now bypasses the dam that served as a natural barrier to invasive species.

Sterling Relief & Red Run Drain Confluence Habitat Restoration & Regional Trail Connector

Sterling Heights, MI

FUNDING SOURCE: Southeast Michigan Resilience Fund (SEMiRF) through the National Fish and Wildlife Foundation (NFWF), Macomb County Department of Roads (MCDR) Non-Motorized Trail funding, Red Run Inter-County Drain Board (RRICDB)

ENTITY RECEIVING FUNDING: Macomb County Planning & Economic Development on behalf of the RRICDB

BUDGET: $300,000 SEMiRF grant, $313,000 MCDR funds, $500,000 from RRICDB

START/END DATE: 2021 - 2023

From 2018-2020, a collaborative group worked to plan and execute the Sterling Relief Drain daylighting project—an effort focused on "daylighting" 2.5 miles of underground drains, installing Green Stormwater Infrastructure (GSI), and restoring ecosystem services within the Sterling Relief Drain of Sterling Heights. Building on the success of the initial project, the Sterling Relief & Red Run drain confluence habitat restoration and regional trail connector project focuses on restoring natural resources and improving access to green spaces for the community. To achieve this goal, work is currently in progress to enhance connectivity between Freedom Hill County Park, the Red Run Drain, and the Sterling Relief Drain — both for human recreation and for wildlife passage. Furthermore, habitat restoration on site through invasive species removal and establishment of native plant communities will help decrease erosion and cut stormwater runoff by an estimated 200,00 gallons per year.

The ecosystem services provided by the regional trail connector project build on those from the initial Sterling Relief Drain daylighting project, which include annual reductions of nitrogen (3,488lbs), phosphorus (600lbs), and sediment (233,317lbs) as well as the capture and filtration of over 156.5 million gallons of stormwater/year. Together, these two GLRI-funded projects work towards addressing beneficial use impairments within the Clinton River Area of Concern by increasing flood resiliency, habitat availability, & nutrient filtration, restoring aesthetics, and improving connectivity within the Clinton River watershed.

Currently, CRWC is collaborating with Macomb County Planning & Economic Development for further ecological monitoring on the Sterling Relief Drain portion of the regional trail connector project. Our responsibilities are monitoring-focused and include: Anuran (frog and toad) surveys, macroinvertebrate and habitat evaluations according to the Michigan Department of Environment, Great Lakes and Energy's Procedure 51 protocols, and collection of water quality parameters. Paired with earlier monitoring from the Sterling Relief Drain daylighting project, these data will help us assess the ecological impacts of restoration efforts and plan for future site work.

Work on restoration and maintenance of the Sterling Relief Drain does not stop here, as the USEPA has provided funds to protect and enhance the GSI investments made by the GLRI through infrastructure improvements, invasive species monitoring/removal, and establishment of a buffer strip. A Phase 2 of the Sterling Relief drain habitat and daylighting project restoring an additional 1.5 miles of drain at the western terminus has been submitted for funding. Together, these projects work to address stormwater and pollution concerns while simultaneously increasing available habitat, green spaces, and recreational opportunities for all.

The newly restored habitat at Sterling Relief Drain after initial daylighting.

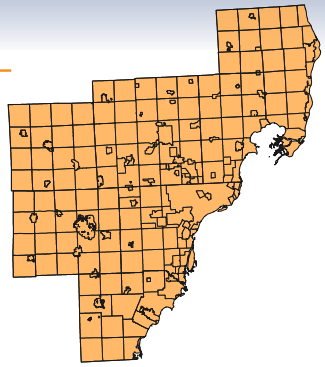
Restoration progress and recreational trail access in 2023.

SEMCOG | *SOUTHEAST MICHIGAN COUNCIL OF GOVERNMENTS*

SEMCOG Vision

All people in Southeast Michigan benefit from a connected, thriving region of small towns, dynamic urban centers, active waterfronts, diverse neighborhoods, premier educational institutions, and abundant agricultural, recreational, and natural areas.

Since its inception in 1968, the Southeast Michigan Council of Governments has acted as a regional planning partner with local member governments. SEMCOG serves the Southeast Michigan region, made up of Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw, and Wayne Counties. Membership is open to all counties, cities, villages, townships, intermediate school districts, and community colleges.



Alliance of Downriver Watersheds

The Alliance of Downriver Watersheds (ADW) is a permanent watershed organization in southeast Michigan and formed under Public Act 517 of the Public Laws of 2004. The ADW formally established themselves in 2007 but have been working together for many years to manage the area's water resources.

The ADW consists of 21 public agencies in the Ecorse Creek, Combined Downriver and Lower Huron River Watersheds within Wayne and Monroe Counties. The ADW is relatively urban in nature consisting of 203.3 square miles. Major watercourses within the ADW that drain to the Detroit River and Lake Erie include the Ecorse Creek, Sexton Kilfoil Drain, Frank and Poet Drain, Blakely Drain, Brownstown Creek, Huron River, Silver Creek and Woods Creek.

The consortium of agencies that make up the ADW meet on a regular basis and work together to cooperatively manage the rivers, lakes and streams within the watershed. Examples of ADW efforts include:

- Long-term water quality monitoring
- Stormwater permit compliance
- Reporting to the State
- Submittal of grant applications for water quality improvements
- Public education on items such as rain barrel use, no phosphorus fertilizer, and proper pet waste management.

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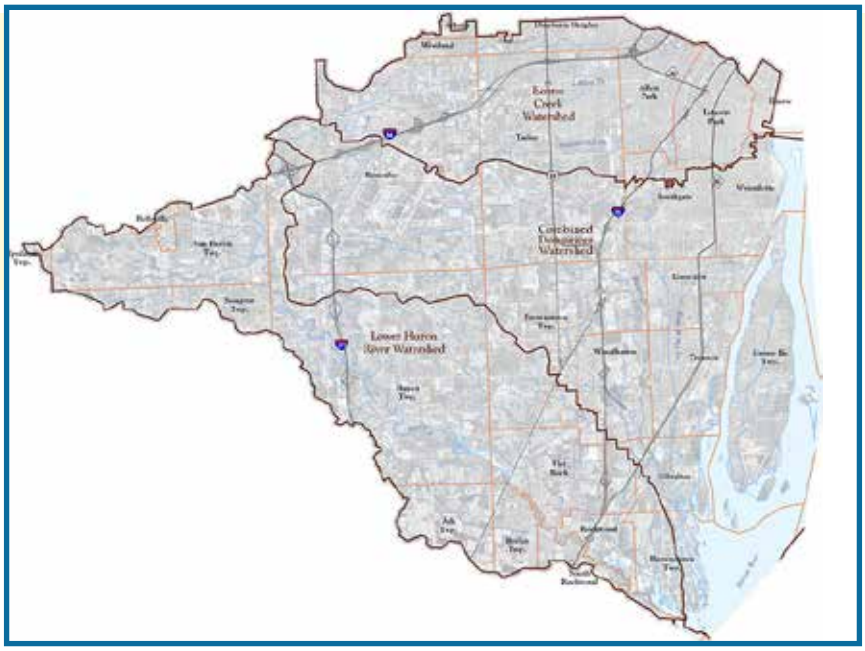
Water quality monitoring efforts



Alliance of Downriver Watershed communities

Chemistry & Flow Monitoring

Southeast MI

FUNDING SOURCE: Membership dues

ENTITY RECEIVING FUNDING: Alliance of Downriver Watersheds

BUDGET: $101,000

START/END DATE: 2012 - Ongoing

The Alliance of Downriver Watersheds Chemistry and Flow Monitoring Program brings together dedicated volunteers and passionate environmentalists to track and safeguard the health of the local watersheds. Taking place annually from April to September, the program focuses on collecting crucial stream health data, engaging Downriver residents, fostering environmental stewardship, and promoting best management practices.

The goal of the program is to evaluate progress toward improving overall water quality of Downriver streams and rivers. ADW collaborates with residents, local organizations, governmental agencies, and academic institutions to ensure the program's success and enhance the accuracy and credibility of the collected data.

During the 6-month monitoring season, volunteers collect water samples, measure stream flow, and record water chemistry measurements. Water is analyzed for dissolved oxygen, pH, nutrients, sediments, bacteria, and temperature, which provides valuable insights into water quality and potential environmental stressors.

In 2022, the Chemistry and Flow Monitoring Program yielded a wealth of data and insights into the health of Downriver waterways. Over 30 volunteers participated, contributing a total of 191 hours to collect 357 water samples, record 595 in-stream chemistry measurements, and monitor flow. ADW used this information to identify areas that require targeted follow up efforts. This included additional monitoring, screening, and investigation as part of the Municipal Separate Storm Sewer System (MS4) Illicit Discharge Elimination Program (IDEP).

By combining the efforts of passionate volunteers, scientific expertise, and collaboration with Downriver stakeholders, the Chemistry and Flow Monitoring Program contributes to the understanding, preservation, and restoration of Downriver waterways. The program, which showcases the power of volunteer stewardship and data-driven conservation, is implemented on an annual basis.

Volunteers collecting water quality samples

Volunteers taking measurements to calculate stream flow

2022 "Focus on Downriver Water" Photo Contest

Southeast MI

FUNDING SOURCE: Membership dues

ENTITY RECEIVING FUNDING: Alliance of Downriver Watersheds

BUDGET: $15,000 biennially

START/END DATE: 2018 - ongoing

Each year, the ADW holds a "Focus on Downriver Water" Photo Contest to celebrate the natural beauty and ecological importance of our precious watersheds! By requesting the public to submit captivating photos based on monthly themes, we aim to raise awareness about the significance of preserving and protecting these vital ecosystems. Our contest showcases the unique charm of water bodies, flora, fauna, and human interactions within the watershed.

In 2022, 71 people submitted 293 photos to the contest. A supporting social media advertising campaign reached more than 108,000 Facebook and Instagram users and brought over 2,000 people to the ADW's website, which helps build brand awareness of the ADW in the Downriver communities.

Here are the project highlights that make this contest a standout:

- Monthly Theme: Each month, we introduce a new theme related to watersheds, such as "Winter Activity," "Spring Rain," or "Fall Colors." Participants are encouraged to capture moments that best represent the theme, challenging their creativity and photographic skills.
- Inclusivity and Accessibility: We prioritize making the contest inclusive and accessible to all, from amateur photographers to seasoned professionals. The competition allows people of all ages and backgrounds to participate, fostering a sense of community and collaboration.
- Monthly Winners and Prizes: At the end of each month, winners are selected based on their photo's artistic merit, adherence to the theme, and overall impact. The winners receive attractive prizes, such as paddle trips, gift cards, and dinner dates!
- Exhibition: A number of winners and popular photographs from the 2022 Focus on Downriver Water Photo Contest are showcased in the upcoming 2024 ADW Biennial Watersheds Community Calendar. The calendar is packed with practical tips for keeping Downriver water clean and beautiful with photos immortalizing the beauty of our waterway. ADW members will distribute 20,000 calendars to their residents in the fall of 2023.

In conclusion, the "Focus on Downriver Water" Photo Contest stands as a beacon of creativity, conservation, and community engagement. By participating in the contest, the community helps to spread the word about the simple, everyday actions we all can take to keep our water safe for drinking, recreation, and wildlife.

2022 Winner - Grosse Ile Lighthouse taken by Chris Zawistowicz

2022 Winner - Monarch butterfly taken by Rebecca Lowe

Michigan's Areas of Concern Program

Supporting Restoration and Revitalization for over 30 Years!

Three Areas of Concern delisted and 11 in various stages of recovery and improvement.

Tens of millions of dollars of investment in fish and wildlife habitat restoration and cleanup of contaminated sediments in Michigan's waterways.

Funding support to multiple Michigan Public Advisory Councils comprised of residents and local stakeholders, as well as coordination of the greater Statewide Public Advisory Council.

Find out more at *Michigan.gov/AOCprogram*

EGLE
MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

Great Lakes RESTORATION

SPAC
Statewide Public Advisory Council

Friends of the St. Clair River

Friends of the St. Clair River has been getting their feet wet and hands dirty around Michigan's Thumb Coast for nearly two decades. That's 16 years of pulling on waders, collecting insects, maneuvering thorny bushes, and handling the tiniest seeds and largest fish to restore the highest priority landscapes and streams.

Founded in 2007 in response to the St. Clair River Area of Concern designation, our mission is to protect and restore the St. Clair River watershed through community education, environmental monitoring, hands-on stewardship, and advocacy. We are led by a Board of Directors, part-time staff, seasonal interns, and hundreds of volunteers. Friends of the St. Clair River is supported by state and foundation grants, environmental service contracts, corporate sponsorships, and individual contributions. Our flagship fundraiser is the annual Blue Water Sturgeon Festival, now in it's tenth year.

The St. Clair River watershed includes 58 miles of Great Lakes shoreline, 1,000 miles of tributaries, and forms an international boundary between the U.S. and Canada. The watershed is home to the largest Lake sturgeon population in the Great Lakes, forms the largest freshwater delta in North America, and is home to Michigan's first National Water Trail. It is a world-class scuba diving, duck hunting, fishing and freighter-watching destination. The St. Clair River is a Binational Area of Concern.

Our core programs are:

- **Community Education** | We provide nature-based programs to over 10,000 people through wetland explorations, stream monitoring, and ecology hikes. Our classroom program uses lake sturgeon as a local phenomenon to educate hundreds of students on critical watershed issues.
- **Land Stewardship** | Our volunteers work outdoors with us 52 weeks a year conducting cleanups, removing invasive species, and planting native plants. Since 2015, our volunteers have given 15,000 hours of stewardship work.
- **Environmental Monitoring** | Our community science activities look like counting butterflies, inventorying endangered wildlife, relocating protected mussels, and mapping invasive species. Stream Team is our largest program which sees 140 volunteers collecting water quality data in all seasons.
- **Responsible Recreation** | Trails are a meaningful way we engage residents in stewardship of our natural resources. We lead oversight of the Bridge To Bay Trail, an urban 50-mile non-motorized trail that parallels the St. Clair River through 13 waterfront communities.

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St. Clair River AOC U.S. Co-Chair:
Paulette Duhaime
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MSU Extension Mi Paddle Stewards training on the St. Clair River in Clay Twp., MI

Invasive Species Management Coordination

FUNDING SOURCE: Michigan Department of Natural Resources (MDNR) Michigan Invasive Species Grant Program, Six Rivers Land Conservancy, Lake St. Clair Cooperative Invasive Species Management Areas (CISMA)

ENTITY RECEIVING FUNDING: Friends of the St. Clair River

BUDGET: $50,282

START/END DATE: 2020 - Ongoing

The Friends of the St. Clair River partners with the Lake St. Clair Cooperative Invasive Species Management Area (CISMA), under the umbrella of Six Rivers Land Conservancy, to support monitoring, reporting, and management of invasive species in Macomb and St. Clair Counties. This multi-agency collaboration boosts regional efforts to stay current on the latest research, best practices, and emerging issues in invasive species management.

Friends of the St. Clair River has surveyed 771 acres of invasive species infestations and treated 35 acres. Through The Stewardship Network's annual spring challenge, our volunteers amassed 530 hours pulling 6,600 pounds of garlic mustard and dame's rocket from local parks.

Our Lake St. Clair CISMA activities include:

- Conduct forest health surveys for Beech Leaf Disease
- Conduct boat washes, native plant sales, and MI Paddle Steward trainings
- Roll out the Go Beyond Beauty program statewide as Michigan's first hub
- Enhance education through media, newsletters, and workshops

Michigan's first Beech Leaf Disease Detection | Our staff discovered beech leaf disease in St. Clair County in 2022, which became the State's first confirmed case. We are working with the State to develop beech leaf disease survey methods, help standardized protocols for treatment, and establish a demonstration treatment trial site to improve beech tree health and reduce disease symptoms.

Monitoring Across Trails | We survey land and water trails with the use of Midwest Invasive Species Identification Network (MISIN). Volunteers took to the Bridge to Bay Trail to survey 25 miles for invasive species, and took to the St. Clair River in kayaks to survey Port Huron's Blue Water River Walk to investigate erosion impacts due to record-high water levels.

Spongy Moth Suppression Program | St. Clair County faced a severe spongy moth (formerly gypsy moth) outbreak in 2021, which led to the County contracting our services to reinstate a suppression program. Friends of the St. Clair River completed 450 surveys covering 5,180 acres as reported by 1,800 property owners. This data allowed for an aerial spray suppression and control program for the first time in twenty years.

Invasive species removal work day, Columbus County Park, Columbus Twp., MI

Bridge To Bay Trail invasive species survey and mapping, Marine City, MI

Sturgeon Science School & Blue Water Sturgeon Festival

St. Clair River Watershed

FUNDING SOURCE: Michigan Department of Labor and Economic Opportunity's MI STEM Network

ENTITY RECEIVING FUNDING: Friends of the St. Clair River, St. Clair County Regional Education Service Agency

BUDGET: $15,720 and numerous corporate sponsors

START/END DATE: 2014 - Ongoing

Our Sturgeon Science School and Blue Water Sturgeon Festival are an innovative 3-day event focused on education and stewardship of the St. Clair River's threatened lake sturgeon. Since we hatched Sturgeon Festival in 2014, it has provided an exciting setting to learn the fascinating story of this ancient fish – a mascot for the Great Lakes' recovery.

The MI STEM Network grant sparked a relationship with St. Clair County Regional Education Services Agency (RESA). We are expanding placed-based education to increase student understanding of water quality needs and stewardship behaviors.

Sturgeon Science School is a one-of-kind classroom program that emphasizes the impact humans have on their environment and connects students to Great Lakes sturgeon research happening at their doorstep. Nearly 800 fifth graders across six school districts receive a presentation and free field trip aboard the Huron Lady to watch U.S. Fish and Wildlife (USFWS) biologists catch and release sturgeon. Students meet an invasive sea lamprey, watch live sturgeon research underneath the Blue Water Bridges, and conduct water quality testing. Partners include the Michigan DNR, Alpena Fish and Wildlife Conservation Office, St. Clair-Detroit River Sturgeon for Tomorrow, and Great Lakes Fishery Commission.

During our Blue Water Sturgeon Festival Huron Lady Cruises, 200 passengers watch researchers from the USFWS's sturgeon program catch sturgeon, which they measure, weigh, and tag. Sturgeon captured during this research receive a pit-tag for tracking and are used in the Great Lakes restocking program before being released. Students play a significant role in the annual release of young sturgeon from our captive-rearing program by gently hand-releasing them back into the wild.

The work of lake sturgeon conservation in the St. Clair River is very important; it extends beyond the borders of Michigan with the introduction of this species into other Great Lakes. Once on the brink of extinction, lake sturgeon are making a comeback and have become a spotlight for the St. Clair River Area of Concern habitat work. Sturgeon Festival is our largest annual fundraiser supported with sponsorships, merchandise sales, and donations. The festival continues to attract thousands of visitors from around the state and country each year.

Sturgeon Science School Huron Lady Cruise for 5th grade students with the USFWS research vessel, N'me, St. Clair River, Port Huron, MI

Student hand releases a baby lake sturgeon back into the wild in Lake Huron at the Sturgeon Festival, Port Huron, MI

Stream Team Water Quality Monitoring

St. Clair River Watershed

FUNDING SOURCE: ZF North America, Inc., Michigan Department of Environment, Great Lakes, and Energy's (EGLE) Michigan Clean Water Corps (MiCorps) Program

ENTITY RECEIVING FUNDING: Friends of the St. Clair River

BUDGET: $4,000 (Friends of the St. Clair River match $500)

START/END DATE: 2021 - Ongoing

Friends of the St. Clair River's volunteer stream monitoring program, funded with a MiCorps Program grant, launched in 2008 by using macroinvertebrate and habitat data to prioritize streams for restoration and to correct habitat impairments across the watershed.

Friends of the St. Clair River partners with the St. Clair County Health Department to conduct macroinvertebrate monitoring, acquiring valuable water quality data for watershed management efforts. Our original program allowed for monitoring at seven sites, which later expanded to twelve sites. The program grew to 100 volunteers and a dozen certified leaders and continued for five years.

Stream Team was revived in 2021 with the award of a MiCorps Maintenance Grant. In 2022, volunteers monitored three different streams across our watershed. Several rare, native freshwater mussel species were documented. Stream Team has become our largest volunteer program which sees 140 volunteers venturing into waterways in all seasons to collect water quality data.

Data is used by the St. Clair River Area of Concern Binational Public Advisory Council to evaluate progress towards Beneficial Use Impairment restoration goals. Since macroinverebrates tell us about river health, diving into the data to view trends, diversity and the history of our streams gives us an indication of how healthy rivers are. Having ten years of data from monitoring is invaluable.

Wetland Wanderings | We host macroinvertebrate explorations at Blue Water River Walk County Park, a St. Clair River Area of Concern Fish and Wildlife Habitat project. This urban coastal park received GLRI funding in 2016 to clean-up a three-acre brownfield providing habitat and storm water filtration. Continual investments in maintenance have allowed us to monitor this site since 2019. Our data shows an increase in species diversity and abundance, as well as the return of herons, turtles, mink and beaver.

Winter Stonefly Search | We set out once a year to search for winter stoneflies in the Belle River. Since we launched the stonefly search in 2021, we have uncovered nearly 1,000 stoneflies.

Winter stonefly search, Belle River, Columbus Twp., MI

Stream Team volunteers, Pine River, Goodells

Kawkawlin River Watershed Association

The Kawkawlin River Watershed Association (KRWA) was formed in 1993 with the objectives of promoting and advocating for watershed issues in the Kawkawlin River basin. Primary among these issues include recreation, safety, education about watershed issues, and the conservation and protection of water quality.

To that end, the KRWA sponsors several events and projects that increase appreciation of the Kawkawlin River. These projects include a long-term water monitoring effort, the placement of channel marker buoys for recreational boaters, an annual river cleanup event, an annual kayaking event, installation of a kayak launch for the public to enjoy, promotion of establishment of a special assessment district to fund treatment of weeds, a website, and the publication of a quarterly newsletter. The KRWA also works in the interest of watershed residents and property owners with regard to issues such as dredging and marine and winter safety patrolling of the navigable area of the river.

The association's representation in governmental projects such as river restoration, water quality and E. coli issues are important to everyone; especially those of us who live along the river. Water quality, navigability and weed control are at the forefront of KRWA attention. Over the years, valuable relationships with local and state entities have been imperative in achieving watershed goals. The KRWA continues to work closely with numerous partners such as:

- Saginaw Valley State University (SVSU)
- Delta College
- University of Michigan (Flint)
- Bay County Conservation District
- Kawkawlin Township
- Monitor Township
- Bangor Township
- Michigan Department of Environment, Great Lakes and Energy (EGLE)
- State of Michigan

KRWA was also present in the creation of a speed limit for ATVs and snowmobiles to help improve safety of those who enjoy the river. We are very proud of our accomplishments, but we also like to have some fun!

The KRWA currently has approximately 200+ members who subscribe at a minimum of $25.00 per member per year.

The Kawkawlin River Watershed drains nearly 250 square miles in four counties (Bay, Midland, Gladwin, and Saginaw) and contains land area in 14 townships.

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President: Mark Kondziola
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Vice President: Marci Norgan
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Saginaw Bay Watershed – Agricultural Runoff Intercept

Bay City, MI

FUNDING SOURCE: Great Lakes Restoration Initiative (GLRI), U. S. Department of Agriculture (USDA) Forest Service

ENTITY RECEIVING FUNDING: Kawkawlin River Watershed Association (KRWA)

BUDGET: $98,000

START/END DATE: 2020 - 2023

The KRWA was awarded a grant from the USDA Forest Service to design and plant buffer strips with trees, shrubs and seeding with a native grass mix to address the goals, priorities, and emphasis of improving water quality and habitat into the waters of the Great Lakes. The project areas were constructed adjacent to agricultural lands to intercept drain tile outlet pipes from the fields and distribute the flow horizontally along the banks in the newly implemented drainage swales and vegetated buffer strips. Implementation areas will be distributed throughout the Saginaw Bay watershed, a water body internationally recognized on the Area of Concern (AOC) list within the Lake Huron watershed.

Project work took place in contributing watersheds to Saginaw Bay where runoff waters from the upland farming areas are laden with excess nutrients such as nitrogen, phosphorus and sediment. Due to poorly infiltrating soils and flat topography, the runoff waters flow directly to channelized road-side drains into contributing water bodies and the bay itself. These excess nutrients degrade the Bay and contribute to the large algae blooms for which this portion of Saginaw Bay is known. This project improved the quality of the Great Lakes through enhanced filtration by using native plantings to intercept runoff from the upland agricultural focal areas allowing for additional nutrient uptake, infiltration and transpiration prior to entering Saginaw Bay. The roots of these plants will also reduce sediment and erosion on the upland portions of the watershed, creating a buffer and reducing the habitual clogging of the culverts within the critical areas.

Design tasks were completed in late 2021 with implementation starting in 2022. The goal was to complete implementation in a phased approached to allow for vegetation establishment prior to releasing drain tile water into the newly constructed swales. Late last fall after seasonal work was completed in the adjacent agricultural fields, the project implementation team went to work making modifications that would allow for the newly planted vegetation to become established.

New drain design showing materials and vegetation

Swale layouts to implement the drainage design were installed, including excavation and installation of coconut fiber mats underneath the rip rap (stone) to protect the soil from erosion. A native grass and wildflower buffer zone was planted and an erosion blanket and cover crop installed. This spring the project team was able to plant a significant number of 338 cell plug flats each of Silky Dogwood, Common Elderberry, and Ninebark throughout the project sites. The goal of implementing these native plantings is to help evapo-transpire and filter the tile drain water being pumped in from the fields, to reduce runoff to the County Drain system. This fall, the vegetation will be fully established and water from the drain tile outlet pumps will be turned into the new swales for filtration.

Tobico Marshland Revitalization: Tributary to Saginaw Bay

Bay City, MI

FUNDING SOURCE: Great Lakes Restoration Initiative (GLRI), U. S. Department of Agriculture (USDA) Forest Service

ENTITY RECEIVING FUNDING: Kawkawlin River Watershed Association (KRWA)

BUDGET: $200,000

START/END DATE: 2017 - 2021

Tobico Marsh is a 900-acre body of water (lagoon) and the largest remaining wetland along Saginaw Bay. The marshland is the largest inland lake in Bay County, and the variety of aquatic plants found there combine to make Tobico one of the finest places to witness the fall migration in the Great Lakes Region. Biologists estimate that in October there are usually 3,000 to 5,000 birds in the Marsh. During peak migration, from the third week of October to early November, more than 25,000 have been known to gather at one time. The Marsh sits within the greater Tobico Marsh Wildlife Refuge, an 1,848-acre wildlife refuge that lies within Bay City State Park adjacent to Saginaw Bay.

Sadly, Tobico Marsh is now considered an impaired wetland area as the water quality has become degraded over time due to upstream inputs. The Marsh is located directly downstream from agricultural lands within the Kawkawlin River Watershed. Runoff waters from the upland farming areas are laden with excess nutrients such as nitrogen, phosphorus and sediment. Due to poorly infiltrating soils, the runoff waters flow directly into Tobico Marshland through a system of road-side drains. From there, the Tobico Marsh drains into the Saginaw Bay, a water body internationally recognized on the Area of Concern (AOC) list. These excess nutrients degrade the Saginaw Bay and contribute to the large algae blooms for which this portion of Saginaw Bay is known.

In 2017, the KWRA was awarded the GLRI USDA Forest Service grant to help filter and improve water quality into the Tobico Marsh, and therefore functionality of the Marsh itself. The project design utilized native plantings to intercept runoff from the upland agricultural lands allowing for additional nutrient uptake, infiltration and transpiration prior to entering the Tobico Marsh. The roots of these plants also reduced sediment and erosion on the upland portions of the marshland, creating a buffer and reducing the habitual clogging of the culverts within the Tobico Marsh areas - restoring the hydraulics. These plantings also supported additional flood storage and wildlife habitat. In total, 2,356 native small trees and shrubs, and approximately 2 acres of native grass seed was installed at the implementation sites under this project. Anticipated agricultural runoff uptake of approximately 30 gallons of runoff water/day per tree for approximately 120 days/year within the growing season of the Saginaw Bay Region.

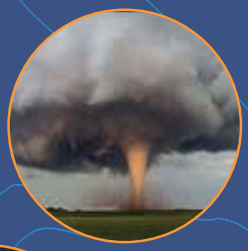
Project partners included the Michigan Department of Natural Resources (MDNR), Bay County Conservation District (BCCD), Bay County State Recreation Area, Saginaw Valley State University (SVSU), Bay County Drain Commissioner and local farmers to identify project goals and potential planting areas. SVSU completed pre-implementation monitoring for baseline water quality assessment and will do so again post-implementation to gauge project success.

View of native plantings

Tobico Marsh overlook

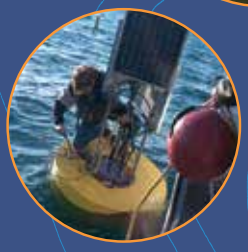
NOAA in the Great Lakes

Connecting people with the Great Lakes and achieving our mission of science, service, and stewardship.



Weather

Forecasting, preparing, and building a weather- ready nation



Research

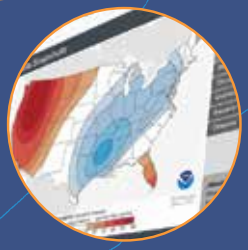
Driving innovative research and technology

Coasts

Protecting maritime heritage, supporting coastal communities, and providing nautical charts

Habitat

Restoring habitat for a healthy fishery, clean water, and recreation



Climate

Preparing communities for changing conditions

N

NOAA provides products & services in 5 key areas

www.noaa.gov/regional-collaboration-network/regions-great-lakes

Saginaw Bay Monitoring Consortium

Understanding the condition of a complex system like the Saginaw Bay Watershed, the largest in Michigan, requires robust, comprehensive data that captures trends in water quality over time. Unfortunately, monitoring efforts for Saginaw Bay to date have been neither long-term nor coordinated, and the data that exists is not easily accessible. We know that water quality in Saginaw Bay is degraded—including elevated levels of nutrients (phosphorus and nitrogen) caused largely from farmland runoff—but we lack a detailed, location-specific understanding of the management implications.

The Saginaw Bay Monitoring Consortium (SBMC)* seeks to establish a coordinated and comprehensive water quality monitoring system and associated tools and resources for the watershed. This will help us understand water quality trends over time, including the impacts of changes in agricultural practices in the watershed. It will contribute to an important scientific knowledge base and improved information flow to stakeholders, and ultimately help inform decision-making and best practices around restoration and resource management, such as:

- Actions to reduce significant environmental damage (i.e. Beneficial Use Impairments) in the Saginaw Bay "Area of Concern."
- Targets for reducing nutrient levels in Saginaw Bay, under Annex 4 of the Great Lakes Water Quality Agreement.
- Watershed restoration and management decision-making by watershed groups and municipal stormwater managers.

Recently, USGS has installed 11 new stream gages at strategic points in the watershed, adding to seven existing gages. Similarly, NOAA has added 5 new monitoring sites in the bay, bringing the total to 10 bay monitoring sites. Together, these bay and tributary monitoring stations provide a comprehensive data collection network.

Monitoring data will be made publicly available through an online dashboard so that all partners can understand how water quality is changing—over time and at scale—and better align complementary efforts.

**SBMC is a collaborative effort among Michigan Department of Environment, Great Lakes and Energy (EGLE), U.S. Geological Survey (USGS), The Nature Conservancy (TNC), Saginaw Bay Environmental Science Institute at Saginaw Valley State University (SVSU), National Oceanic and Atmospheric Administration Great Lakes Environmental Research Laboratory (NOAA GLERL), LimnoTech, Central Michigan University (CMU), Michigan Department of Agriculture and Rural Development (MDARD), and Saginaw Chippewa Indian Tribe of Michigan.*

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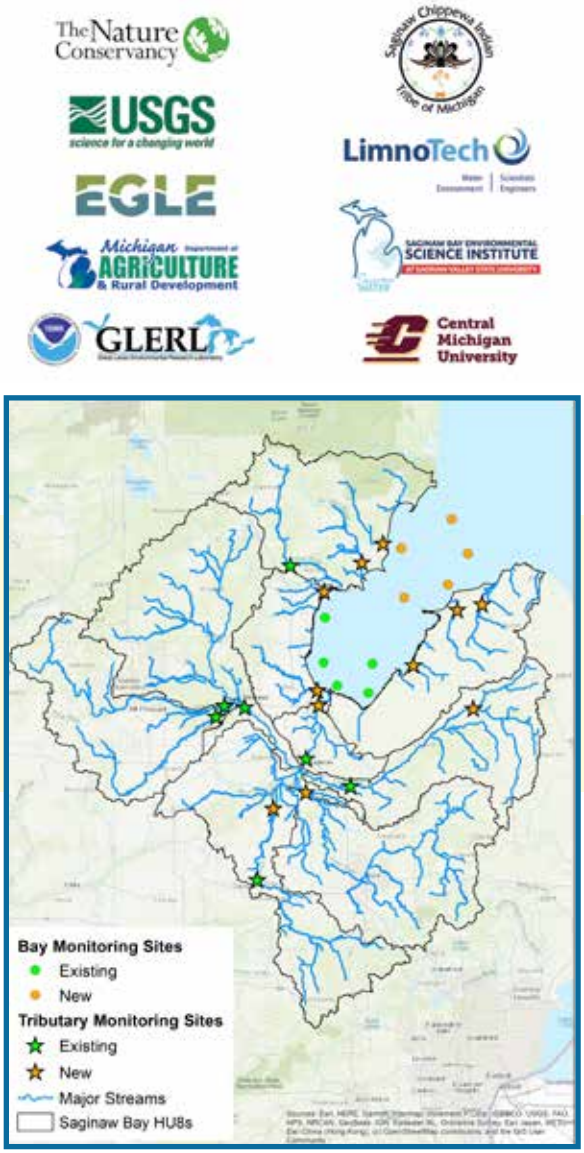
SAGINAW BAY MONITORING CONSORTIUM
COORDINATING TEAM



Saginaw Bay Nutrient Monitoring

Saginaw Bay, MI

FUNDING SOURCE: U. S. Environmental Protection Agency (USEPA), Great Lakes Restoration Initiative (GLRI)

ENTITY RECEIVING FUNDING: NOAA Great Lakes Environmental Research Laboratory

BUDGET: $1 Million

START/END DATE: 2023 - 2026

To assess Saginaw Bay's nutrient dynamics and ecosystem ecology during ice-free periods, and to provide the empirical basis to develop models that will inform management scenarios, the National Oceanic and Atmospheric Administration Great Lakes Environmental Research Laboratory (NOAA GLERL) and the Cooperative Institute for Great Lakes Research (CIGLR) are conducting intensive monitoring that combines shipboard sampling and real-time instrumentation on buoys. This research builds on monitoring that began in Saginaw Bay in the 1990s.

The monitoring program includes biweekly sampling cruises from May – October at 10 sites in the inner and outer bay. These sampling cruises monitor key biological, chemical, and physical parameters, which will strengthen our understanding of the systems water quality and factors contributing to cyanobacteria bloom progression and toxicity within the bay. Measurements include:

- Total phosphorus (P)
- Particulate carbon and nitrogen
- Phytoplankton community composition and abundance
- Total dissolved P
- Total organic carbon (TOC)
- Total alkalinity
- Nitrate and ammonium
- Total carbon (TC)
- Suspended solids
- Dissolved reactive phosphorus
- Chlorophyll *a*
- Chromophoric dissolved organic matter
- Particulate phosphorus
- Phycocyanin
- eDNA

Bay Monitoring by Glenn Cooper and Anna Boegehold

Online Dashboard: Connecting Conservation & Water Quality

Saginaw Bay Watershed, MI

FUNDING SOURCE: Jury Family Foundation and Cook Family Foundation

ENTITY RECEIVING FUNDING: The Nature Conservancy

BUDGET: $191,468

START/END DATE: 2023 - 2026

The Saginaw Bay Monitoring Consortium's online Dashboard is intended to serve both the general public and water quality scientists and will host water quality monitoring data for 18 stream stations and 10 bay stations. These data will be presented within the context of an interactive map with accompanying graphs that depict trends. Initially, the dashboard will include a subset of all the parameters being monitored, and in the coming months all parameters will be incorporated. Beyond the data dashboard, there is a story-map with narrative text that tells about the Saginaw Bay region beginning with its first peoples through early European settlement and land use changes and development within the context of how humans have altered the landscape and impacted the water quality of the regions along with how these changes impact people's lives today.

The data presented within the story-map and dashboard will help determine the nutrient and sediment loads from stream tributaries to the bay, help identify priority sub-watersheds for soil and nutrient conservation, help evaluate and update the Saginaw Bay annual phosphorus loading target, and provide information to monitor progress of Saginaw Bay restoration efforts.

Online dashboard

Coordinated Tributary Water Quality Monitoring in the Saginaw Bay Watershed

Saginaw Bay, MI

FUNDING SOURCE: U. S. Environmental Protection Agency (USEPA), Great Lakes Restoration Initiative (GLRI)

ENTITY RECEIVING FUNDING: Saginaw Valley State University (SVSU) by grant contract from Michigan Department of Environment, Great Lakes and Energy (EGLE); United States Geological Survey (USGS)

BUDGET: SVSU (via EGLE): $1.2 Million; USGS: $1.5 Million

START/END DATE: 2023 - 2026

The Saginaw Bay Environmental Science Institute at Saginaw Valley State University is working with the United States Geological Survey and Michigan's Department of Environment, Great Lakes, and Energy to address tributary data needs in the Saginaw Bay Watershed. USGS is collecting continuous data on stage and discharge, and SVSU student teams are collecting data on nutrients and sediment in order to evaluate tributary water conditions, determine annual loading to the bay, and monitor progress toward restoration. These data will allow conservation efforts to focus on sub watersheds where sediment and nutrient run-off issues are evident.

This project addresses tributary data needs through weekly measurements of water quality parameters (see table below) at 18 tributary locations throughout the watershed. The sampling sites, which represent the major sub watersheds of the Saginaw River as well as coastal tributaries with substantial agricultural land, are located at or near USGS gaging stations to enable loading calculations. Data from the sites will provide valuable information about sediment and nutrient sources and impacts on the Bay. This tributary monitoring effort will be coordinated with open water monitoring in Saginaw Bay (by NOAA GLERL and existing EGLE stations) as part of the Saginaw Bay Monitoring Consortium.

Tributary measurements include the following:

- Total phosphorus
- Soluble reactive phosphorus
- Nitrate-N
- Nitrite-N
- Ammonium-N
- pH
- Total Suspended Solids
- Turbidity
- Dissolved Oxygen
- Water Temperature
- Conductivity
- Discharge (USGS)

SVSU sampling at a tributary site (photo credit: Alaina Seman, SVSU)

USGS gaging station, Saginaw River at Holland Avenue (photo credit: David Karpovich, SVSU)

Partnership for the Saginaw Bay Watershed

If you live in one of the 22 counties that are a part of the Saginaw Bay Watershed your land drains to Saginaw Bay, Lake Huron. Our watershed contains more than 175 inland lakes, about 7,000 miles of rivers and streams, and contains America's largest contiguous freshwater coastal wetland system! More than 1 million people call the Saginaw Bay watershed home and live in cities, suburbs, and farming communities.

The Saginaw River and Saginaw Bay were designated as an Area of Concern (AOC) by the International Joint Commission in 1987. According to the USEPA, an AOC is a region along the Great Lakes with water quality problems and degraded environmental conditions which are likely to cause beneficial use impairments (BUIs). Originally there were 12 BUIs in the Saginaw River and Saginaw Bay AOC. Since then 3 BUIs have been removed.

The Partnership for the Saginaw Bay Watershed (PSBW) is a voluntary, membership-based coalition of public and non-governmental agencies, organizations, and individuals committed to sustaining or restoring the ecology of the Saginaw Bay Watershed, while ensuring economic viability. Toward that end, the Partnership promotes comprehensive resource management and educational services by facilitating inter-governmental coordination and public involvement, conducting studies, formulating public policy recommendations, providing advice to public officials and citizens, and undertaking various programs and projects to restore, protect and enhance Michigan's largest watershed.

A big part of the PSBW work is to try to keep track of the activities of people who reside, study, regulate, enforce, and engage in business throughout the Saginaw Bay watershed. Our partners from state and federal agencies and educational institutions are primary compilers and interpreters of valuable information.

The Partnership is fortunate to interact with the Saginaw Bay Watershed Initiative Network (WIN), perhaps America's most effective sustainability organization. In recent years, the Partnership's top priority has been preparation of a Management Action List of projects that need to occur to restore BUIs and, ultimately, delist Saginaw River/Bay as an AOC.

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Vice Chair: Bill Wright
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Tall Ships Weekend on the Saginaw River

Egrets gather near I-75's Zilwaukee Bridge over the Saginaw River

Frankenmuth Dam Fish Passage

Frankenmuth, MI

FUNDING SOURCE: Saginaw Bay Watershed Initiative Network (WIN), U. S. Army Corps of Engineers, Great Lakes Fishery Commission

ENTITY RECEIVING FUNDING: City of Frankenmuth

BUDGET: $4 Million

START/END DATE: 2014 - 2015

In 2005, the PSBW, using a grant from the Saginaw Bay Watershed Initiative Network (WIN), conducted an assessment and developed a report, Enhancing Fish Passage over Low-head Barrier Dams in the Saginaw River Watershed, which was intended to help dam owners make informed and collaborative decisions about the future of their dam. It strived to establish social, economic, and ecological contexts for decision-making and describes potential costs and benefits of enhancing fish passage in several key tributaries in the Saginaw River watershed.

The City of Frankenmuth got a grant from Saginaw Bay WIN that helped put its dam on the Cass River "onto the radar screen" for the U. S. Army Corps of Engineers. The Corps took on the Frankenmuth project as one of its own.

The Frankenmuth Dam is located on the Cass River within the city of Frankenmuth, approximately 20 miles south of Lake Huron's Saginaw Bay. The Cass River originates in Tuscola County in east central Michigan near Cass City. The Cass River's watershed encompasses 848 sq. miles and lies within the Saginaw Bay watershed. The Frankenmuth Dam is a concrete dam approximately 240 feet long with a structural height of 14 feet. It was built in the 1850s to supply water to a local mill. Although walleye and lake sturgeon are the species targeted by the Michigan Department of Natural Resources & Environment and the Partnership for the Saginaw Bay Watershed, a fish passage at the Frankenmuth Dam would also increase habitat connectivity for a variety of other species including white sucker, white bass, smallmouth bass, channel catfish, northern pike, and steelhead. Connecting river habitat for these species would benefit the overall diversity of Cass River and Saginaw Bay watershed species.

Construction was complete in 2015. The fish passage (especially for walleye) now allows access to 73 miles of stream habitat upstream from the dam for possible spawning, opportunity for re-introduction of historically observed species (notably sturgeon), fishing opportunities created at the rock ramp (dam replacement). The impoundment above the former dam was still holding plenty of water for the Frankenmuth Belle to carry passengers on its popular river tours. Fish had already begun to use the combination of quiet pools and fast rapids offered by the new "structure." The walkway and observation platform have now become popular with residents and tourists alike.

Frankenmuth Dam fish passage

Coreyon Reef Restoration

Saginaw Bay, MI

FUNDING SOURCE: U.S. Environmental Protection Agency (USEPA), Great Lakes Restoration Initiative (GLRI), Saginaw Bay Watershed Initiative Network and Michigan Department of Environment, Great Lakes and Energy

ENTITY RECEIVING FUNDING: Michigan Department of Environment, Great Lakes and Energy (EGLE)

BUDGET: $1.4 Million

START/END DATE: 2018 - 2019

The rock reef restoration project is the culmination of years of work to restore historical fish spawning habitat within inner Saginaw Bay. The goal of this project was not simply to create additional spawning habitat for native fish species, but rather to help facilitate a resilient and diverse fish population. Evaluation of this demonstration project can also inform future reef restoration throughout the Great Lakes.

The first major step in this habitat restoration effort concluded in 2016 with the completion of a multi-year assessment of several potential reef restoration sites. Funded by the U.S. Fish and Wildlife Service, the project helped resource managers determine the feasibility of restoring rock reef habitat within Saginaw Bay. The results of the assessment found that conditions in the inner bay are suitable for restoration, with the Coreyon Reef identified as a priority restoration site.

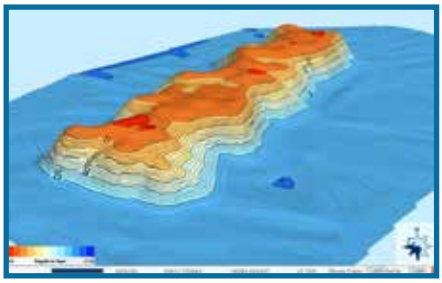
Historically, rock reefs formed in the Great Lakes as glacial deposits and provided important spawning habitat for many native fish species. This project mimiced these naturally-formed reefs by placing approximately 10,000 cubic yards of rock material at the restoration site. The rocks ranged in size from 4 to 8 inches in diameter and were placed on the lakebed by barge and crane. This created a pile of rocks covering up to 3 acres and rising 2 to 4 feet from the lake bottom. The height of the rock piled varied to prevent navigational hazards and maintained a minimum of 6.5 feet of water depth based on the recorded low water level.

The restored reef created important spawning and juvenile habitat for many native fish, including species that spawn in spring (Walleye, Smallmouth Bass, Suckers) or fall (Lake Whitefish, Cisco, Lake Trout, Burbot). During spawning, the gaps formed between the rocks create a sheltered environment protected from predators where fish eggs can incubate. As the eggs hatch, the warm and highly productive waters of the inner Bay provide excellent nursery habitat and abundant food sources for larval and young fish, encouraging fast growth and increasing survival potential.

The goal of this reef restoration project was not simply to create additional spawning habitat, but rather to facilitate a resilient and diverse fish population. This project also serves as a demonstration project which can be evaluated to inform future reef restoration throughout the Great Lakes.

The Partnership for the Saginaw Bay Watershed was one of many partners that participated on the reef restoration team and planning calls.

Barges heading for Coreyon Reef



Purdue 3D reef plan

Coreyon Reef construction

REINTRODUCTION OF STURGEON TO THE SAGINAW RIVER SYSTEM

Saginaw River Watershed, MI

FUNDING SOURCE: U.S. Fish & Wildlife Service (USFWS), Michigan Department of Natural Resources (MDNR), Sturgeon for Tomorrow, Saginaw Bay Foundation

ENTITY RECEIVING FUNDING: Saginaw Bay Sturgeon Restoration, Saginaw Bay Watershed Initiative Network

BUDGET: $25,000 Annually

START/END DATE: 2018 - 2028

Lake Sturgeon are found throughout rivers and lakes in North America including Michigan. Lake Sturgeon were common to all of the Great Lakes in the early 1800s. However, due to habitat degradation and an increase in commercial utilization sturgeon numbers declined.

In the 1990s habitat restoration efforts and education began. In 2018, the Saginaw Bay Sturgeon Restoration, a member of the Saginaw Bay Watershed Initiative Network along with many partner agencies, nonprofit organizations, schools and more, started releasing more than 1,000 juvenile Lake Sturgeon into four Saginaw Bay Watershed rivers: Cass, Tittabawassee, Shiawassee, and Flint. The partners include Sturgeon for Tomorrow, The Conservation Fund, MDNR, USFWS, Michigan Sea Grant, Michigan State University Extension, and many local partners including the Partnership for the Saginaw Bay Watershed.

The Lake Sturgeon rehabilitation in the Saginaw River is utilizing surplus fish from both the Black River Streamside Rearing Facility and the Genoa National Fish Hatchery. It is expected that up to 2,000 Lake Sturgeon will be stocked into the Tittabawassee, Flint, Shiawassee and Cass rivers annually for the next decade or longer. It is expected that when the fish mature, which can take up to 20 years, they will return to their natal river to spawn. All fish are fitted with a microchip PIT tag which will allow for data gathering in future assessments.

The goal is for a self-sustaining lake sturgeon population to be restored in Saginaw Bay and Lake Huron.

Sturgeon release

Young conservationist participating in Sturgeon release

Southeast Michigan Council of Governments

SEMCOG, the Southeast Michigan Council of Governments, supports local planning through its technical, data, and intergovernmental resources, striving to improve the region's water quality, enhance transportation systems, revitalize communities, and spur economic development. Since its inception in 1968, SEMCOG has conducted regional planning in partnership with local member governments. SEMCOG serves the Southeast Michigan region, made up of Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw, and Wayne Counties. Membership is open to all counties, cities, villages, townships, intermediate school districts, and community colleges.

The Function of SEMCOG

- Promote informed decision-making by improving Southeast Michigan and its local governments through insightful data analysis and direct assistance to members;
- Promote the efficient use of tax dollars for infrastructure investment and governmental effectiveness;
- Develop regional solutions that go beyond the boundaries of individual local governments; and
- Advocate on behalf of Southeast Michigan in Lansing and Washington.

SEMCOG's Environment and Infrastructure group provides planning and implementation assistance across air quality, water resources, water infrastructure, materials management, parks and recreation, and land conservation topic areas. We bring together local governments and other agencies to improve the quality of the region's natural resources and protect public health. The collaborative efforts address various environmental- and water-related challenges and identify best practices for local implementation. We advance cost-effective and strategic initiatives that provide direct benefits to the region. Examples of these initiatives and products include:

- Water Infrastructure Planning Guide
- Growing our Resilience, Equity and Economy with Nature (GREEN) Initiative
- Water infrastructure and environment legislative and regulatory support.
- Federal grant funding subaward programs.

Upcoming projects will focus on developing the Southeast Michigan Healthy Climate Plan and the Regional Resilience Improvement Plan.

In addition, SEMCOG helps to disseminate environmental education to its members and the public through programs such as the One Water campaign, which promotes shared responsibility for our water resources. Overall, SEMCOG and its Environment and Infrastructure team play a vital role in enhancing the region's sustainability and quality of life through comprehensive planning and coordination.

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Ambassador Bridge – Detroit, MI

Green infrastructure implementation on Auburn Road, Rochester Hills, MI

SEMCOG members tour Innovation Hills Park, Rochester Hills, MI

Green Infrastructure Assessments for Coastal Resilience

FUNDING SOURCE: Michigan Department of Environment, Great Lakes and Energy (EGLE), Coastal Management Program that is funded, in part, by the National Oceanic and Atmospheric Administration (NOAA)

ENTITY RECEIVING FUNDING: Southeast Michigan Council of Governments (SEMCOG)

BUDGET: $124,457 with $62,253 in match from SEMCOG

START/END DATE: 2022 - 2023

SEMCOG, in partnership with the Center for Watershed Protection (CWP), was awarded a Michigan Coastal Management Grant to support resilience capacity building in Southeast Michigan. Specifically, the Green Infrastructure Assessments for Coastal Resilience in Southeast Michigan project identified high-priority, publicly-owned properties and looked at the feasibility for green infrastructure (GI) on these sites. Green infrastructure elements identified through this project included shoreline softening, bioretention, permeable pavement, and impervious cover removal. Developing resilient solutions, especially within coastal communities, is a local and regional priority to ensure that communities can withstand and recover from extreme weather events. The implementation of nature-based solutions like GI is key to enhancing coastal resilience.

SEMCOG and CWP coordinated with over 50 local agencies and partners to identify potential GI project site locations. Individual discussions, virtual meetings, and an online ArcGIS Survey123 facilitated collection of potential project site locations.

After stakeholder input was received for potential project locations, the project team completed approximately 75 site field assessments. The project team used a Site Analysis Approach from the CWP Urban Stormwater Retrofit Practices Manual to determine if a site met the criteria for green infrastructure implementation. Separate processes were developed for shoreline and upland sites in partnership with the project stakeholders. Through these field assessments, 45 unique sites were found to be potentially feasible for green infrastructure implementation. Four sites had both upland and shoreline opportunities resulting in a total of 48 distinct projects. These sites represent $20 million investment in nature-based solutions, and would result in 60 acres of drainage area managed, 1.6 million gallons of stormwater runoff captured, and 2 miles of shoreline restored.

The project team developed concept plans for all 48 potential opportunities. Each concept design includes a narrative describing the proposed work, including a cost estimate and a one-page layout of the plan. Having these plans in place will help stakeholders move forward with project design and implementation. SEMCOG will work with communities to identify potential funding opportunities for implementation.

GI concept plan

Tour of GI at Sterling Relief Drain

Green Infrastructure Partnerships in Southeast Michigan

FUNDING SOURCE: U. S. Environmental Protection Agency (USEPA), Great Lakes Restoration Initiative (GLRI)

ENTITY RECEIVING FUNDING: Southeast Michigan Council of Governments (SEMCOG)

BUDGET: $1.3 Million

START/END DATE: 2022 - 2024

SEMCOG has partnered with the USEPA GLRI to establish a green infrastructure subaward program. This program has and continues to support implementation of small-scale green infrastructure techniques that work towards regional and local stormwater management goals. It is also building capacity at the local level for a number of disadvantaged communities.

The two subaward programs have and are supporting fifteen (15) local agencies to construct a variety of green stormwater infrastructure techniques that provide multiple community benefits. SEMCOG has awarded GLRI funds to the following local agencies:

- Clinton Township
- Independence Township
- City of Madison Heights
- City of Rochester Hills
- Pittsfield Township
- City of Center Line
- Clinton Township
- City of Dearborn
- City of Grosse Pointe Park
- Huron River Watershed Council – in coordination with the City of Walled Lake and the City of Wixom
- City of Northville
- Oakland County Water Resources Commission
- City of River Rouge
- City of Southfield
- City of Trenton

These techniques are located in parks, along major transportation corridors, adjacent to waterways, in residential neighborhoods and at local government facilities. Together, they will achieve more than 12- million gallons of runoff reduction on an annual basis within the southeast Michigan portion of the Lake Erie watershed.
These subaward partnerships between SEMCOG and USEPA have provided multiple benefits across the region, including:

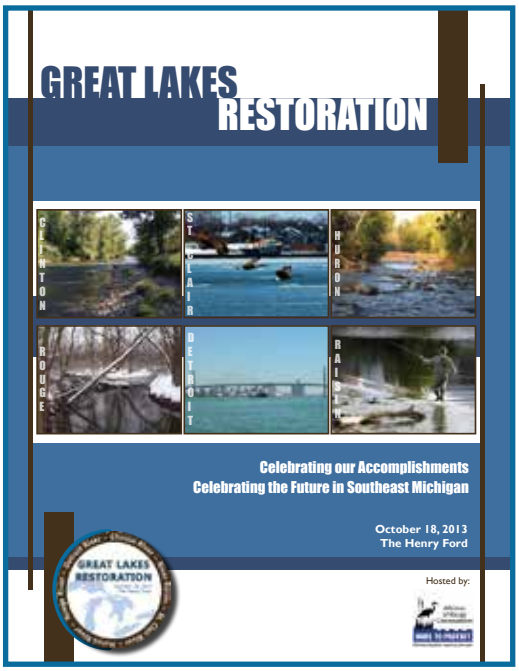
- Supporting small-scale projects with federal funds;
- Building capacity at the local level;
- Expanding demonstration project opportunities in underserved communities;
- Raising additional public awareness through community engagement about stormwater; and
- Increasing stormwater collaboration opportunities and partnerships across the region.

GI along Auburn Road in Rochester Hills, MI

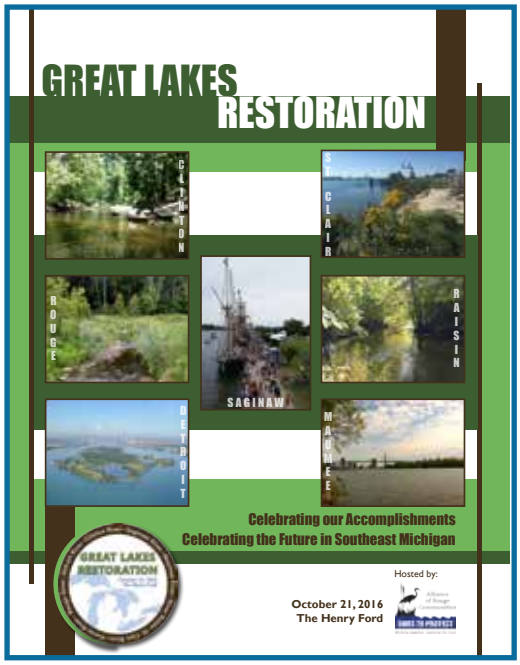
GI in Normandy Park in Clinton Twp., MI

View past Great Lakes Restoration Celebration books online!

2013 Book:



2016 Book:



2019 Book:

Great Lakes Commission

Since it was established in 1955 by the Great Lakes Basin Compact, the Great Lakes Commission (GLC) has worked with its member states and provinces to address issues of common concern, develop shared solutions and collectively advance an agenda to protect and enhance the region's economic prosperity and environmental health.

Our Vision
The Great Lakes Commission is a binational leader and a trusted voice ensuring the Great Lakes and St. Lawrence River support a healthy environment, vibrant economy and high quality of life for current and future generations.

Our Mission
The Great Lakes Commission represents, advises and assists its member states and provinces by fostering dialogue, developing consensus, facilitating collaboration and speaking with a unified voice to advance collective interests and responsibilities to promote economic prosperity and environmental protection and to achieve the balanced and sustainable use of Great Lakes – St. Lawrence River basin water resources.

Our Membership
Our members include the eight Great Lakes states with associate member status for the Canadian provinces of Ontario and Quebec. Each jurisdiction appoints a delegation of three to five members comprised of senior agency officials, legislators and/or appointees of the governor or premier.

The GLC is developing and managing several regional collaborative partnerships to restore and protect habitat for fish and wildlife, support the remediation of degraded areas, and ensure resiliency to changing lake levels and impacts from climate change. The GLC coordinates regional engagement, improves management, advances research, and facilitates communication and outreach to address coastal conservation challenges.

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Ford Cove Feasibility

Grosse Pointe Shores, MI

FUNDING SOURCE: National Oceanic and Atmospheric Administration (NOAA), Great Lakes Restoration Initiative (GLRI), and Great Lakes Commission (GLC) Regional Partnership

ENTITY RECEIVING FUNDING: Edsel & Eleanor Ford House

BUDGET: $264,514

START/END DATE: 2020 - 2022

Lake St. Clair is an approximately 430-square mile lake between Michigan and Ontario that connects Lake Huron with Lake Erie. Nearly 8 million people live within a one-hour drive of Lake St. Clair. Most of the U.S. Lake St. Clair coastline is in Macomb County and the shoreline has been heavily developed. Of Macomb County's 31.5 miles of shoreline only 2,140 linear feet remain in a natural condition, a 99.9 percent reduction in natural shoreline. Ford Cove is one of the few remaining areas in this portion of Lake St. Clair that is suitable for large scale shoreline restoration to improve aquatic habitat and replace hardened shoreline with natural features.

This project implemented an initial feasibility study to evaluate and plan for the restoration of degraded coastal wetland, nearshore, and shoreline habitat in a heavily developed section of Lake St. Clair. The proposed project activities will benefit a wide diversity of species by reducing high-energy wave impacts and improving nursery habitat, cover, and forage for fish, herps, waterfowl, and invertebrates. The consultant, OHM Advisors, performed detailed baseline chemical, geotechnical, and ecological evaluations, preliminary hydrologic and hydraulic modeling, and produced conceptual plans with estimated implementation costs and restoration recommendations.

Just over $260,000 was provided for this project by NOAA through a Regional Partnership with the Great Lakes Commission. Funding came from the GLRI, a regional program that supports the implementation of a comprehensive plan for the Great Lakes. Additional funding in the amount of $7 million has been secured by the Eleanor & Edsel Ford House to complete the engineering & design and implementation phases of the project.

View of Ford Cove

Powderhorn Lake Connectivity

Chicago, IL

FUNDING SOURCE: National Oceanic and Atmospheric Administration (NOAA), Great Lakes Restoration Initiative (GLRI), and Great Lakes Commission (GLC) Regional Partnership

ENTITY RECEIVING FUNDING: Audubon Great Lakes

BUDGET: $1.1 Million

START/END DATE: 2019 - 2023

Powderhorn Lake is a 50-acre freshwater lake with an adjacent 55-acre shallow pool, owned by the Forest Preserves of Cook County (FPCC), and located in Chicago, Illinois. To the north lies Wolf Lake, a 950-acre freshwater lake, owned by the Illinois Department of Natural Resources (IDNR). Powderhorn Lake is embedded within one of the few remaining examples of the dune and swale topography that once characterized the Calumet Region along the south shore of Lake Michigan. Once connected as part of a large collection of marshes, lakes, and rivers adjacent to Lake Michigan, these lakes have been isolated by urban and industrial development. Despite their isolation, populations of aquatic species characteristic of the Great Lakes basin persist. However, the impacts of isolation threaten their future survival. Currently, Powderhorn Lake remains separated from its northern neighbor, Wolf Lake, which connects to Lake Michigan through the Indian Creek pathway to the Calumet River.

Due to this disconnection, Powderhorn Lake has no natural outlet for water discharge and currently drains north to Wolf Lake under the railroad blocking all fish passage. During times of high-water levels, the lake's variety of marsh and hemi-marsh habitats are transformed into open water areas which overflow into adjacent habitats and nearby residential areas.

In 2016, the Forest Preserves of Cook County (FPCC)'s grant request to conduct a hydrological study of Powderhorn Lake was supported by the Illinois Department of Natural Resources' Coastal Management Program through a federal grant from the National Oceanic & Atmospheric Administration. The project sought to study, define, and propose practices to mitigate hydrologic impacts and non-point source (i.e., stormwater runoff) pollution to the Powderhorn Lake site.

The study was completed in 2018, with the major finding that the lake and adjacent pool have elevated water levels due to artificial impoundment. Elevated water levels reduce the function of the pool for early age fish habitat, marsh bird habitat, and refugia for small non-game fishes. The resulting plan designed hydrological improvements which would allow for the adjustment of water levels by reconnecting Powderhorn Lake to Wolf Lake and, eventually, Lake Michigan.

The project implemented the creation of 630 linear feet of stream habitat and the installation of two water control structures that restore the hydrologic connection of 192 acres of emergent wetland habit between Powderhorn Lake and Wolf Lake.

Aerial view of Powderhorn Lake

Construction of hydrologic connection

Cascade Valley View River Restoration

Akron, OH

FUNDING SOURCE: National Oceanic and Atmospheric Administration (NOAA), Great Lakes Restoration Initiative (GLRI), and Great Lakes Commission (GLC) Regional Partnership

ENTITY RECEIVING FUNDING: Summit Metroparks

BUDGET: $3 Million

START/END DATE: 2018 - 2022

Located in northeast Ohio, the Cuyahoga River AOC is comprised of the lower 46.5 miles of the Cuyahoga River, including all the tributaries that drain to that section of river, and the adjacent Lake Erie shoreline and its tributaries. The AOC begins at the head of the Gorge Dam pool in Akron/Cuyahoga Falls, ends at Lake Erie, and includes the shoreline from the western Cleveland border to Euclid Creek on the east. The Cuyahoga River has a history of heavy industrial use and unmanaged pollution. Periodic pollution fires plagued the river beginning in 1936, with the largest river fire occurring in 1952. By the 1960s, the lower Cuyahoga River in Cleveland was used for waste disposal and was choked with debris, oils, sludge, industrial wastes, and sewage. These toxins were considered a major source of pollution to Lake Erie, which was considered "dead" at the time. On June 22, 1969, the Cuyahoga River caught fire and captured national attention. This incident led to important environmental legislation including the Clean Water Act. It also spurred the creation of federal and state environmental protection agencies.

Summit Metro Parks (Metroparks) has completed the process of restoring a 200-acre golf course (Valley View Golf Club) along a two-thirds mile stretch of the Cuyahoga River at Cascade Valley View Metropark in Akron, Ohio. Initial restoration activities at the site were implemented and funded by a Clean Ohio grant. This includes the restoration of headwater tributaries via daylighting of culverted streams, wetlands restoration, and reforestation of upland areas. $1,226,041 was awarded to fund the engineering and design of this restoration plan through a 2016 NOAA/GLC Regional Partnership. An additional award of $1,842,919 was funded in 2019 under a second NOAA/GLC Regional Partnership to fund the implementation phase to restore an estimated 5,000 linear feet of the mainstem of the Cuyahoga River and 60 acres of associated floodplain. The restoration monitoring plan was also initiated during this phase of the project and builds on active Metropark monitoring activities.

Completion of this project resulted in the restoration of 55 acres of floodplain habitat and 4,750 linear feet of stream habitat, 55 acres of native plant establishment, and the installation of 476 habitat structures placed in-stream.

Before restoration *After restoration*

Collins Park Golf Course Restoration & Ottawa River Restoration at Jermain Park

Toledo, OH

FUNDING SOURCE: National Oceanic and Atmospheric Administration (NOAA), Great Lakes Restoration Initiative (GLRI), and Great Lakes Commission (GLC) Regional Partnership

ENTITY RECEIVING FUNDING: City of Toledo

BUDGET: $1.2 Million

START/END DATE: 2021 - 2027

Designated as an Area of Concern (AOC) under the Great Lakes Water Quality Agreement in 1987, the Maumee is one of the largest AOCs in the United States. The area has a two-century history of development, contamination, and degradation that led to the impairment of water flowing into Lake Erie and the need for focused restoration efforts. Located in Northwest Ohio, the Maumee AOC comprises 787 square miles that includes approximately 23 miles of the lower Maumee River downstream to Maumee Bay, as well as other waterways such as Swan Creek, Ottawa River (Ten Mile Creek), Grassy Creek, Duck Creek, Otter Creek, Cedar Creek, Crane Creek, Turtle Creek, Packer Creek, and the Toussaint River.

Established in 1932, the nine-hole, roughly 90-acre Collins Park Municipal Golf Course is located in eastern Toledo, Ohio. Duck Creek runs through the middle of the course and has been significantly altered through subsurface culverts, resulting in degraded fish and wildlife habitat. The site has significant potential to provide improved habitat for a variety of native species while addressing the Loss of Fish and Wildlife Habitat and Degradation of Benthos Beneficial Use Impairments designated for the Maumee AOC.

$201,035 was awarded through the 2019 Regional Partnership between GLC and NOAA to fund a feasibility study which is currently exploring restoration options of Duck Creek at the Collins Park Golf Course. Another $2,03,116 has been awarded to complete engineering and design once a final concept design has been created. Restoration will result in the removal of subsurface culverts, improved sinuosity, an expanded floodplain, and the installation of in-water habitat structures at Duck Creek.

Jermain Park is located on land purchased by the City of Toledo in 1915 which was then added to the Toledo Park system. The Ottawa River runs through the park and has undergone dredging and infrastructure development over time, including previous use as an amusement park. Past activity at the site degraded fish and wildlife habitat, but the potential to provide significant habitat for a variety of native species exists.

$849,720 was awarded through the 2019 Regional Partnership between GLC and NOAA to fund final engineering & design and construction for this project. Completion of this project will enhance approximately 2.7 acres of wetland habitat, stabilize 2,300 linear feet of eroding streambank, and enhance approximately 1.5 acres of riparian habitat.

Ottawa River at Jermain Park

Duck Creek at Collins Park Golf Course

Ralph C. Wilson Centennial Park Shoreline Restoration

Erie & Niagara Counties, NY

FUNDING SOURCE: National Oceanic and Atmospheric Administration (NOAA), Great Lakes Restoration Initiative (GLRI), and Great Lakes Commission (GLC) Regional Partnership

ENTITY RECEIVING FUNDING: Buffalo Urban Development Corporation

BUDGET: $11.2 Million from multiple NOAA/GLC Regional Partnership grants

START/END DATE: 2020 - 2027

The Niagara River Area of Concern (AOC) is located in both Erie and Niagara counties in western New York and connects Lake Ontario and Lake Erie. In 1987, the Niagara River was designated as an AOC under the Great Lakes Water Quality Agreement with seven designated beneficial use impairments (BUIs). Currently, only one BUI has been removed.

Anticipated outcomes of the proposed project include approximately 2 acres of submerged and emergent wetland, including deep water channels and fish enhancement structures. This newly created wetland ecosystem will directly contribute to the Niagara River AOC delisting by addressing BUI #14, Loss of Fish and Wildlife Habitat, and will serve a critical coastal resiliency function for the Western New York region.

This project is part of a larger transformative effort to completely redesign and re-construct LaSalle Park into the new Ralph C. Wilson, Jr. Centennial Park. In addition to the ecological and coastal resiliency benefits, the project will provide many public amenities and aesthetic improvements, as well as utilize innovative approaches to managing stormwater and filtering pollutants using green and living infrastructure features. While these features will be designed and funded separately, they leverage the requested GLRI funding, expanding its catalytic effect. As one of the jewels in the City of Buffalo's emerald necklace of parks and open spaces, the transformation of LaSalle Park into a world-class waterfront space directly contributes to Western New York's emerging Blue Economy, serving as a driver for community revitalization and economic sustainability.

Current conditions at R. C. Wilson Centennial Park

Hardened shoreline at R. C. Wilson Centennial Park