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Great Lakes Coalition

Great Lakes Restoration Projects Producing Results for People, Communities

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Prepared for the
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Healing Our Waters® Great Lakes Coalition

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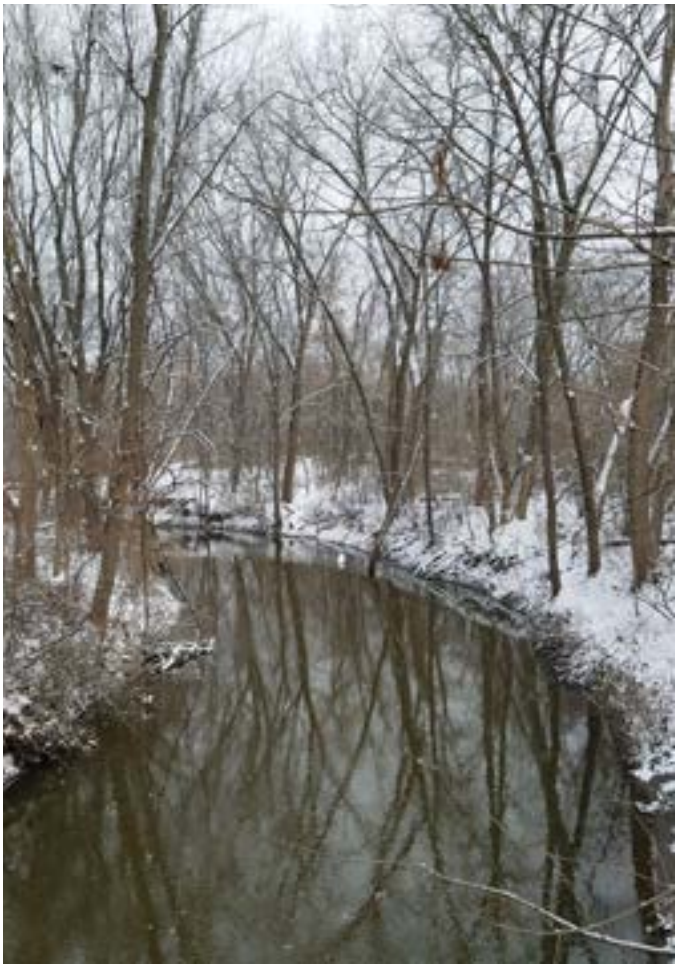
MICHIGAN CITY, IND.



This stretch of Trail Creek is being restored, thanks to funding from the Great Lakes Restoration Initiative, reducing the amount of stormwater discharged into Lake Michigan. Photo Credit: Delta Institute

Restoring 9 acres of wetlands in Michigan City, Ind., is preventing 37.5 million gallons of polluted urban runoff from flowing into a local creek and ultimately, Lake Michigan.

The Trail Creek watershed, which comprises Michigan City, Ind., drains a 59 square mile area into Lake Michigan. Trail Creek is a vital habitat for a variety of fish and other wildlife in the region. Unfortunately, when it rains, a significant portion of Michigan City's urban stormwater empties into Trail Creek, carrying sediment, oil, grease, and other pollution from surface streets, construction sites, and industry. This has a negative impact on the water quality of the creek—and on the fish and wildlife habitat that the creek provides—as well as on the water quality of Lake Michigan.

Thanks to funding from the Great Lakes Restoration Initiative, National Fish & Wildlife Fund and Indiana Department of Natural Resources, 9.4 acres of wetlands around the creek are being restored. The wetlands are helping capture and manage 37.5 million gallons of stormwater annually, reducing the amount of pollutants such as sediment, E. coli and nutrients that enter Trail Creek and, ultimately, Lake Michigan.

The improved water quality and habitat in Trail Creek that results from this project is critical for protecting Michigan City's famous salmon and steelhead trout runs.

The wetland restoration project will also remove harmful phragmites, an invasive reed that can negatively affect the biodiversity and ecological functions of native habitats, impair the recreational use of wetlands and shorelines, decrease property values, and increase fire risk.

"This project will do more than clean up storm water," said Ethan Brown, community planning manager at Alliance for the Great Lakes. "It will give Michigan City residents new recreational opportunities and protect the salmon and trout runs that are an important part of the city's tourism industry."

APPROXIMATE COST OF PROJECT: $1.9 million, with $500,000 provided by the Great Lakes Restoration Initiative.

RESOURCE CHALLENGES ADDRESSED: Urban runoff, habitat degradation, invasive species.

KEY PARTNERS: Michigan City, Delta Institute, Alliance for the Great Lakes, Michigan City Sanitary District, V3 companies, Geosyntec consultants.

JOBS CREATED: Landscape architects, engineers, biologists, general labor.

RESULTS AND ACCOMPLISHMENTS: The wetland habitat is preventing 37.5 million gallons of urban runoff from being discharged into Lake Michigan annually. Fish and wildlife habitat will be restored, and invasive phragmites will be abated.

Replacing Trees Lost to Emerald Ash Borer in Illinois Reduces Stormwater, Flooding

CHICAGO METROPOLITAN AREA, ILL.

Replacing trees lost to the invasive emerald ash borer in the greater Chicago area has reduced stormwater and flooding and provided habitat for wildlife.

For over 15 years, the Chicago metropolitan area has been combating the emerald ash borer, an invasive species that feeds on the inner bark of ash trees, disrupting their ability to transport water, and ultimately killing them. Since its discovery in 2002, the non-native beetle has killed tens of millions of ash trees in North America, including nearly 13 million in the Chicago metropolitan region.

About 20 percent of trees in Chicago parks are ash trees. These trees provide the community shade, cooling and crucial stormwater sinks, as well as reducing air pollution. Due to the infestation of the emerald ash borer, however, millions of these trees have had to be destroyed.

Thanks to a series of grants from the Great Lakes Restoration Initiative, the Morton Arboretum has been able to help communities in Cook and Lake Counties plant 772 new trees to replace the ash trees lost to the emerald ash borer. Some of the areas include the Cook County Forest Preserve and the cities of Chicago, Glenview, Highland Park, and Orland Hills. These trees have had a tremendous effect on the communities in which they were planted.

"Each [mature] tree can handle an average of 1000 gallons of stormwater per year," said Lydia Scott, director of the Chicago Trees Initiative of the Morton Arboretum. The trees are absorbing stormwater and helping to reduce flooding.

"The trees provide improved habitat for wildlife, especially migratory birds," Scott said. The arboretum takes special care to plant trees that are native to the Chicago region. "We try to replace [lost ash trees] with native species such as oaks and hickories—trees that are native to the Chicago region. They've co-evolved with the birds and insects here. Birds know to look for those trees."

RESOURCE CHALLENGES ADDRESSED: Tree loss, habitat loss, and invasive species.

Ash trees, like the ones pictured above, that become infected with the emerald ash borer have to be cut down and destroyed. Photo credit: Flickr

APPROXIMATE COST: $328,000, of which $100,000 was provided by the Great Lakes Restoration Initiative.

KEY PARTNERS: Morton Arboretum, Chicago, Glenview, Highland Park, Orland Hills, and Cook County Forest Preserve.

TYPES OF JOBS CREATED: Landscape, forestry, parks and recreation.

RESULTS AND ACCOMPLISHMENTS: Planting more than 772 new trees has reduced stormwater surges and prevented flooding in several Chicago-area communities. The project has also replaced lost habitat for migratory birds in the region, as well as providing shade, cooling and improved air and water quality for the communities in the area.

Replacing Risky Dam with Natural Rapids Opens up Fish Habitat

FRANKENMUTH, MICH.

Construction of the Frankenmuth Dam Fish Passage has allowed spawning access to vital Great Lakes fish species such as Lake Sturgeon and Walleye.

Approximately 20 miles south of Lake Huron's Saginaw Bay, the Frankenmuth Dam spans the Cass River and was originally built in 1850. Over the years, weather and continuous use deteriorated the dam, causing significant concern that the dam might fail. A failure would have had severe consequences for the Frankenmuth community, resulting in shallower water upstream, eliminating commercial boating and changing the river profile for properties along the river, as well as releasing silts and soils from behind the dam, which would damage habitat for river-dwelling wildlife.

Further, the dam prohibited spawning access to many fish species historically important to the indigenous tribes and recreational anglers in the area, including walleye and lake sturgeon, which use rivers and tributaries for spawning before returning to the Saginaw Bay where they spend most of their adult lives. The dam's construction caused a significant decline in these species in Saginaw Bay.

The Great Lakes Restoration Initiative was able to address these concerns with the Frankenmuth Fish Passage Project. The project replaces the dam with a natural rapids, allowing fish to migrate up the river and reproduce.

RESOURCE CHALLENGES ADDRESSED: Loss of spawning habitat, riverbank stability, and flooding.

APPROXIMATE COST: About $3.5 million, of which $2.3 million was provided by the Great Lakes Restoration Initiative.

KEY PARTNERS: Great Lakes Restoration Initiative, City of Frankenmuth, Army Corps of Engineers, CTI and Associates.

TYPES OF JOBS CREATED: Small machinery operators, landscape designers, contractors, architects.

RESULTS AND ACCOMPLISHMENTS: Removing a risky dam and replacing it with natural rapids has opened up 73 miles of fish habitat and allowed vital Great Lakes fish species such as walleye and sturgeon access to their spawning habitats, restoring their populations to Saginaw Bay.

A walleye fished out of Saginaw Bay. The Frankenmuth Dam Fish Passage allowed walleye and similar fish spawning access to the Cass River, which had been denied to them for over a hundred years. Photo credit: Drew Youngedyke

Duluth Slip Project Caps 150,000 Cubic Yards of Contaminated Riverbed

DULUTH, MINN.

A slip in Duluth harbor undergoes construction to remediate toxic contamination.
Photo credit: Minnesota Pollution Control Agency

Capping contaminated soil in the St. Louis River and harbor to Lake Superior prevents toxic pollution from spreading and harming fish, wildlife, and people.

The St. Louis River is the largest tributary to Lake Superior. It empties into the lake at the twin ports of Duluth, Minn., and Superior, Wis. The St. Louis River estuary serves as a nursery to more than 45 native fish and 230 bird species, including walleye, lake sturgeon, common tern, and piping plover. Historically, the area also provided an essential hub for shipping as well as industries like ship-building and steel production.

But the heavy industry that was essential for a growing nation also left a legacy of pollution and contamination. The St. Louis River is now listed as one of the Great Lakes region's most contaminated sites—called an Area of Concern—due to toxic chemicals such as mercury, dioxin, and PCB in the river and harbor. The pollution has led to fish consumption advisories, beach closures, and the loss of fish and wildlife habitat. Since the late 1980s, local, state and federal partners have worked to clean up the river.

In the fall of 2018, thanks to $7.8 million from federal Great Lakes Restoration Initiative and $4.2 million from Minnesota bonds, three shipping slips underwent remedial construction to remediate toxic pollution in the lakebed. The project put clean sand and loose rock on portions of the lake- and river-bottom that had been contaminated. This sealed, or "capped," the contaminated sediment so that fish and other organisms would not be exposed to it.

COST: $12 million, of which $7.8 million came from the Great Lakes Restoration Initiative.

RESOURCE CHALLENGES ADDRESSED: Toxic pollution, habitat degradation.

KEY PARTNERS: Minnesota Pollution Control Agency, the U.S. Environmental Protection Agency, the U.S. Army Corps of Engineers, the City of Duluth, the Duluth Entertainment and Convention Center, Great Lakes Sediment Remediation, LLC, and White Lake Dock and Dredge.

TYPES OF JOBS CREATED: General labor, researchers, biologists, construction.

RESULTS AND ACCOMPLISHMENTS: In Duluth, over 150,000 cubic yards of contaminated sediment were capped at three sites protecting important organisms that live on the bottom of the riverbed, the fish that thrive in its waters, and people connected through the food chain.

Lake Sturgeon Monitoring in Lower Niagara River Helps Threatened Fish Recover

NIAGARA RIVER, N.Y.

Lake Sturgeon, like the one pictured above, are being monitored in the Niagara River to ensure a healthy population rebound. Photo credit: U.S. Fish and Wildlife Service

State-of-the-art monitoring technology ensures stable, healthy population growth and recovery for threatened lake sturgeon.

Lake sturgeon are an ancient fish that have inhabited the Great Lakes region for millennia, and have provided a valuable source of food for civilizations that have made the Great Lakes their home. At the time of European settlement, lake sturgeon were abundant in the Great Lakes and its associated rivers. However, towards the end of the 19th century, overfishing and human development led to a precipitous decline in lake sturgeon populations.

Thanks to new environmental protections and fishing restrictions, lake sturgeon populations have slowly begun to rebound in the Great Lakes region. To ensure that this population rebound is consistent over the long term, more research into sturgeon dietary habits, movement behavior, and breeding routines is necessary.

By funding long-term research into the sturgeon's population, movement and habitat use, the Great Lake Restoration Initiative has made it a priority to ensure that the Lake Sturgeon population growth remains healthy and stable.

The Great Lakes Restoration Initiative, in conjunction with the U.S. Fish and Wildlife Service and other federal agencies and universities, has conducted lake sturgeon research in the Niagara River and Lake Ontario since 2010.

With state-of-the-art tracking technology, acoustic telemetry and other techniques, the U.S. Fish and Wildlife Service has been systematically assessing the lake sturgeon populations in the Lower Niagara River, working to answer questions such as: "What is the age distribution of sturgeon in the Lower Niagara River? When do sturgeon come into the river from Lake Ontario? How long do they spend in the river? Where in the river do they spend the most time? How far up the river do they swim?"

These data provide a wealth of knowledge for conservation efforts aimed at ensuring that lake sturgeon remain a vibrant part of the ecosystem of the Great Lakes for centuries to come.

APPROXIMATE COST: $639,000 over 10 years provided by the Great Lakes Restoration Initiative.

KEY PARTNERS: U.S. Fish and Wildlife Service, SUNY Buffalo State College.

TYPES OF JOBS CREATED: Fishery Biologists, researchers.

Lake Sturgeon feed on insects, larvae, leeches and other marine life. Once plentiful in the region, the fish suffered steep declines due to habitat loss and overfishing. It is now recovering. Photo credit: U.S. Fish and Wildlife Service

RESULTS AND ACCOMPLISHMENTS: By tracking key data about the health and location of Niagara River lake sturgeon populations, researchers are able to plot the sturgeon's comeback in real time, responding to threats as they occur.

Griswold Creek Restoration Restores Floodplain, Reduces Erosion, and Improves Native Plant Diversity

GRISWOLD CREEK AT BESSIE BENNER METZENBAUM PARK, CHESTERLAND, OHIO

Reconnecting Griswold Creek to its natural floodplain reduced streambank erosion, restored native plant species, and improved wildlife habitat.

Griswold Creek is a coldwater stream that flows into the Chagrin River and then into Lake Erie. Suburban development, stormwater runoff, and the removal of native streamside plants have destabilized the stream corridor, rendering it vulnerable to streambank erosion and disconnected from its natural floodplain. This, in turn, has threatened the habitat of native species and increased the amount of polluted stormwater being discharged into Lake Erie.

Thanks to a $260,765 grant from the Great Lakes Restoration Initiative, the Geauga Park District, in collaboration with the Chagrin River Watershed Partners, has been able to restore 1,354 linear feet of the stream and improve floodplain habitat.

Before restoration, heavy erosion of the streambank offered no floodplain connection, causing silt to wash downstream. Photo credit: Chagrin River Watershed Partners

Vernal pools that provide amphibian habitat were excavated in the riparian area, and invasive species such as Phragmites, reed canary grass and European buckthorn were removed and replaced with native species of oaks, willows and dogwoods. These native species form interlocking root structures that hold the soil in place and prevent erosion.

Additionally, sandstone riffles were installed in the stream, increasing the stream's connection to the natural floodplain. The restored connection slows the waters down when it rains, allowing it to go into the riparian area. As it does so, the floodplain filters out pollutants and sediments. The riffle structures also help increase habitat complexity, creating areas with faster moving, more oxygenated water favored by many aquatic insects and small fish.

The restoration project also provided great educational opportunities for the local community. Local high school students had the opportunity to learn about stream monitoring and the various ways that the improved habitat has strengthened the local ecosystem.

COST: $260,765, all of which was provided by the Great Lakes Restoration Initiative.

KEY PARTNERS: Geauga Park District, Chagrin River Watershed Partners, Davey Resource Group, Ohio Environmental Protection Agency.

TYPES OF JOBS CREATED: Construction, general labor, research.

RESOURCE CHALLENGES ADDRESSED: Invasive species, erosion, stormwater runoff.

After restoration, installed rock riffles increase connection to natural floodplain, slowing waters down and filtering out sediments. Photo credit: Chagrin River Watershed Partners

RESULTS AND ACCOMPLISHMENTS: Connecting Griswold Creek to its natural floodplain reduced erosion and polluted runoff into the Chagrin River and Lake Erie. Additionally, removing invasive species and planting native species provided habitat for fish and wildlife.

Farms Embrace Pollution Controls to Reduce Runoff, Curb Toxic Algae

POTTER COUNTY, PA.

Implementing farm conservation practices along the Genesee River is reducing fertilizer and animal waste from polluting Lake Ontario.

The 157-mile-long Genesee River begins in Potter County, Pa., flowing through Pennsylvania and New York before emptying into Lake Ontario. Farms along the river have long been a source of runoff pollution, discharging fertilizer and animal waste into the river, which end up in Lake Ontario. This runoff can have adverse effects on the ecology of the river and Lake Ontario, leading to toxic algal blooms that close beaches. Other impacts include low levels of oxygen dissolved in the water that harms fish and elevated bacterial growth that can make people sick if they come into contact with polluted water.

Thanks to funding from the Great Lakes Restoration Initiative, The USDA Natural Resources Conservation Service, in collaboration with Pennsylvania State University (Penn State) and Penn State Cooperative Extension, have set up demonstration farms in the Upper Genesee watershed, modeling best practices and new techniques to reduce runoff and maintain the local ecosystem.

These farms use conservation practices like planting cover crops and using no-till farming that build soil health and benefit water quality, with on-farm research opportunities to evaluate conservation practices. In addition, the network serves as a platform to share technology, information and lessons learned with farmers, businesses, landowners and the public.

APPROXIMATE COST: $550,000, all provided through the Great Lakes Restoration Initiative.

KEY PARTNERS: USDA Natural Resource Conservation Service, Penn State University.

TYPES OF JOBS CREATED: Research, agriculture.

RESULTS AND ACCOMPLISHMENTS: The establishment of a demonstration farm network in Potter County, Pa., has provided opportunities for local farmers to implement improved forest, pasture and cropland management practices, as well as manure management practices. Implementing farm conservation practices is reducing agriculture runoff into the Genesee River and Lake Ontario, improving water quality and recreational opportunities.

Farms like the one pictured above have used farm conservation practices to improve soil and water heath in Harris County, Pa., which ultimately helps restore the health of Lake Ontario. Photo credit: U.S. Department of Agriculture

Streambank Restoration at Petrifying Springs Park Improves Water Quality, Restores Native Species

PETRIFYING SPRINGS PARK, KENOSHA COUNTY, WIS.

Planting native vegetation along the Pike River and restoring an adjacent wetland is reducing erosion, preventing storm runoff, and providing a home for fish and other native species.

Pike River is a major waterway in Wisconsin whose north and south branches meet at Petrifying Springs Park and then flow into Lake Michigan. Covering almost 310 square miles, the river's watershed includes over 300 miles of streams and numerous lakes. Over time, development and human activity degraded the quality of the river, contributing to erosion, poor water quality, and the destruction of habitat.

Thanks to a grant from the Great Lakes Restoration Initiative, the Kenosha County Division of Parks & Recreation, in collaboration with local partners, is restoring the Pike River streambank.

The project aims to address streambank erosion and improve the flow of the river. The project will restore 3,145 feet along the river, as well as five acres of adjacent habitat. Planting native vegetation will stabilize the riverbank, enhance habitat quality, and reduce erosion. Restoring a riparian wetland will collect stormwater from the Petrifying Springs Parkway and the adjacent golf course before it reaches the river, helping to reduce storm runoff and significantly improving water quality.

These restored habitats will provide habitat for fish—such as panfish and other game fish—and promote the recovery of previously threatened species of macroinvertebrates. Ultimately, project managers hope to reintroduce northern pike in the Pike River.

"This project will restore and preserve the Pike River watershed, which, in turn, will feed cleaner water into Lake Michigan," said Kenosha County Executive Jim Kreuser. "This is a win-win for our environment and our quality of life, which is enhanced so much by the natural resources around us."

APPROXIMATE COST: $1,241,000, of which $500,000 was provided by the Great Lakes Restoration Initiative.

RESOURCE CHALLENGES ADDRESSED: Stormwater runoff, erosion, poor water quality, and the destruction of habitat.

KEY PARTNERS: Kenosha County Division of Parks & Recreation, University of Wisconsin-Parkside, Root-Pike Watershed Initiative Network, Village of Somers, Southeast Gateway Group of Sierra Club.

TYPES OF JOBS CREATED: Landscaping, research, general labor.

Before restoration, exposed streambanks were vulnerable to erosion and habitat destruction. Photo credit: Kenosha County Division of Parks & Recreation

After restoration, streambanks are protected from erosion with rock and, later, native vegetation. Photo credit: Kenosha County Division of Parks & Recreation

RESULTS AND ACCOMPLISHMENTS: The Kenosha County, Wis., project is reducing erosion and stormwater runoff into the river. Flood events have become more manageable, and damage to the riverbank and the ecology has been mitigated.

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