

DELTA'S PARTNERSHIP WITH THE GREAT LAKES RESTORATION INITIATIVE

Delta Institute envisions a region in which all communities and landscapes thrive through an integrated approach to environmental, economic, and social challenges.

Delta has successfully created and implemented a variety of impactful projects and collaborations with funding provided by the Great Lakes Restoration Initiative. With GLRI support, Delta has been able to move its vision to create thriving landscapes and communities in the Great Lakes forward and assisted in accelerating the efforts to restore and protect the world's largest freshwater ecosystem – the key priority of GLRI funding.

Delta-led projects executive summary

1. Market-based Conservation in the Kalamazoo River Watershed of Michigan
2. Oceana County Tree Planting on the Bike Path in Michigan
3. Rabbit River Watershed Sediment Reduction Project in Michigan
4. Michigan City Cheney Run Stormwater Design in Michigan City, Indiana
5. Urban Watershed Management Implementation in Hobart, Indiana

6. Phytoremediation for the Bear Brand Hosiery Site in Gary, Indiana
7. Reducing Sediment and Nutrients in the Bear Creek and Bear Lake Watershed in Muskegon, Michigan
8. Phytoremediation in Muskegon, Michigan
9. Emerald Ash Borer Mitigation Program for Waukegan Harbor Area of Concern in Waukegan, Illinois
10. Toxics Reduction via E-Waste Management in Cleveland and Toledo, Ohio
11. Lake Michigan Forum and Watershed Academy

Partner-led projects with Delta as collaborator

1. The Nature Conservancy: Saginaw Bay
2. Alliance for the Great Lakes: Michigan City Coastal Vulnerability
3. Southwest Michigan Region Planning Commission: Paw Paw River Ecosystem Services

DELTA-LED PROJECTS

Project 1: Market-based Conservation in the Kalamazoo River Watershed of Michigan

Funding Amount: \$303,181

Duration: 2020-2022

Summary: Delta is partnering with the Allegan Conservation District (Allegan County, MI) and Michigan Farm Bureau to reduce phosphorus loading to Lake Michigan from cropland erosion, livestock access and road and bridge crossings through a market and performance-based agricultural incentive program in targeted areas of the Kalamazoo River watershed. Farmers will implement agricultural best management practices (BMPs) that will improve water quality and ecological health in the Kalamazoo River watershed, using market principles and a performance-based approach that prioritizes the strategic placement of BMPs for optimal effectiveness and optimized cost. These farmers will participate in a reverse auction to incentivize farmers to implement conservation practices on their cropland to reduce nutrient losses, by entering bids to provide phosphorus loading reductions at the lowest cost by implementing conservation practices (i.e. cover crops, no-till). Delta will pay farmers whose bids are accepted for those reductions.

Project 2: Oceana County Tree Planting

Funding Amount: \$99,994

Duration: 2019-2020

Summary: Delta Institute, in partnership with West Michigan Shoreline Regional Development Commission, is planting 700 trees in Oceana County, Michigan along the Hart Montague Trail and on roadways within 5 Trail communities. The project will reduce and treat stormwater volume of 24,900 gallons annually and to build long-term capacity for forest management in low-resource communities where an average of approximately 26% of the population is below the poverty line. By targeting funds to these communities, Delta is building capacity in communities that do not employ an arborist or forester to enable municipal staff and residents to manage and maintain trees.

Other Notes: Stormwater runoff carries oils, grease, pesticides, sediment, excess nutrients such as phosphorous and nitrogen, and elevated temperatures and flow rate that can both contaminate groundwater and significantly degrade the health of local, natural water bodies. Due to impervious urban surfaces and the increased frequency and severity of storms as a result of global

climate change, volumes of stormwater runoff continue to increase. Project trees will absorb, evaporate and reuse stormwater runoff thereby protecting local water sources.

Project 3: Rabbit River Watershed Sediment Reduction Project

Funding Amount: \$465,402

Duration: 2017 - 2020

Summary: Delta Institute is leading a coalition of partners to implement best management practices in the Rabbit River watershed, a tributary to the Kalamazoo River, Michigan. Up to 4,500 acres of highly erosive lands will be addressed through cover crops, exclusion fencing, no-till and mulch-till practices to reduce sediment loading by 1.5 million pounds annually.

Project 4: Michigan City Cheney Run Stormwater Design and Installation

Funding Amount: \$500,000

Duration: 2017 - 2020

Summary: Delta Institute is working with the Alliance for the Great Lakes and the Michigan City, Indiana Sanitary District to build a five-acre wetland to reduce runoff from Cheney Run to Trail Creek and Lake Michigan. This will capture and treat 37.5 million gallons of stormwater a year (and associated sediments, nutrients, and pathogens) and prevent it from discharging into Lake Michigan annually.

Project 5: Hobart Urban Watershed Management Implementation

Funding Amount: \$355,370

Duration: 2016 - 2019

Summary: Delta Institute in collaboration with the City of Hobart, Indiana and the Alliance for the Great Lakes, is implementing four to six green infrastructure sites that include rain gardens, infiltration basins, permeable pavement, bioswales, hybrid ditches, and stormwater plants within the Deep River and Turkey Creek Watershed which drains into Lake Michigan. The project will reduce the discharge of polluted urban stormwater runoff by 800 thousand to 3.5 million gallons annually.

Project 6: Phytoremediation at Bear Brand Hosiery

Funding Amount: \$170,691

Duration: 2015-2018

Summary: Delta Institute is planting hybrid poplar trees on the former Bear Brand Hosiery Plant, a five-acre brownfield site with petroleum contamination that lies within the Grand Calumet Area of Concern in

Gary, Indiana. The hybrid poplars are expected to grow rapidly and absorb and break-down the petroleum contamination within the soil. The planted trees will take up significant amounts of water, reducing stormwater run-off into Lake Michigan and returning this vacant industrial site to productive use.

Project 7: Reducing Sediment and Nutrients in the Bear Creek and Bear Lake Watershed (Muskegon, Michigan)

Funding Amount: \$750,000

Duration: 2015 -2018

Summary: Delta Institute led a coalition of community organizations to reduce the discharge of nutrients and about 100 tons of sediment into the 19,058-acre Bear Creek and Bear Lake watershed, which discharges into the Muskegon Lake Area of Concern (AOC) in Muskegon County, Michigan. The watershed discharges into Muskegon Lake, which in turn discharges directly into Lake Michigan. The coalition used the “reverse auction” process to encourage the implementation of best management practices that eliminate sediment and nutrient loadings at agricultural and urban locations.

We've worked with 300+ local partners to create positive environmental change in the Great Lakes region.

Project 8: Muskegon Phytoremediation

Funding Amount: \$526,312 (multiple grants)

Duration: 2011 – 2017

Summary: Delta Institute, in partnership with the West Michigan Shoreline Regional Development Commission, planted hybrid poplar trees on brownfield sites throughout the Muskegon River Area of Concern to remediate soil, reducing nonpoint source pollution and runoff, and improve water quality.

Project 9: Emerald Ash Borer Mitigation Program for Waukegan Harbor Area of Concern

Funding Amount: \$156,800

Duration: 2012 - 2014

Summary: Participating communities, such as North Chicago, Waukegan, Beach Park, Wadsworth, Gurnee, Park City, and Green Oaks from the Waukegan Harbor Area of Concern, worked with Delta Institute to build capacity in their communities with the assistance of community based organizations such as service organizations, conservation groups, block groups and

faith-based organizations to conduct sample inventories, create basic operational management plans, gather details to create planting plans and workshops on proper planting techniques and maintenance. Trees were planted in communities that are now engaging in long-term forestry plan implementation.

Project 10: Toxics Reduction via E-Waste Management

Funding Amount: \$151,000

Duration: 2011 - 2012

Summary: Delta Institute worked with businesses and local governments in the Cleveland and Toledo, Ohio metro areas to develop improved purchasing and management practices that reduced electronic waste (e-waste) and releases of associated toxic substances. Results included preventing the release of 1,915 pounds of lead, 3,400 pounds of plastic and significant quantities of mercury and flame retardants.

Project 11: Lake Michigan Forum and Watershed Academy

Funding Amount: \$500,000 (multiple grants)

Duration: 2009 - 2015

Summary: Delta Institute facilitated the operations of the Lake Michigan Forum and Watershed Academy, which promoted citizen involvement in, and effective stewardship of, the Lake Michigan ecosystem. An overall framework was developed for the dissemination of information on current and emerging Lake Michigan issues, such as water quality, biodiversity, nearshore habitat restoration, climate change adaptation and resilience, land use change and industrial development.

The Forum and Watershed Academy encouraged diverse groups of citizens and stakeholders to learn about the inherent value of Lake Michigan and promote implementation of Lake Michigan Lakewide Action and Management Plan (LAMP) priorities.

PARTNER-LED PROJECTS

Project 1: Accelerating Outcome-Based Ag Conservation in Saginaw Bay

Lead Organization: The Nature Conservancy

Funding Amount: \$3,801,296

Duration: 2015-2019

Summary: This project provided dedicated technical assistance to Saginaw Bay Watershed producers to expedite implementation of up to 55,000 acres of conservation practices (tillage, cover crops, buffer

strips, nutrient management, wetlands and drainage water management) funded by the Regional Conservation Partnership Program. Work primarily addressed excessive sediment and nutrient loading while also improving aquatic habitat. We developed and tested the effectiveness of a Pay for Performance fund which reimbursed producers according to sediment removed by each practice (tons). Michigan State University integrated the STEPL model into the Great Lakes Watershed Management System to simplify pollutant load calculations.

Other Notes: This project was re-scoped and the funding level was reduced due to decisions at US EPA after the project commenced. Delta completed its scope of work for those tasks that were included in the revised scope of work.

Project 2: Deploying Tools to Analyze and Reduce Coastal Vulnerability to Climate Change in Michigan City, Indiana

Lead Organization: Alliance for the Great Lakes

Funding Amount: \$100,000

Duration: 2012-2015

Summary: This project enabled officials from Michigan City, Indiana to integrate climate science and adaptation principles into decisions regarding the use of the City's land and natural resources. Michigan City officials worked closely with the project partners to jointly develop: 1) climate change vulnerability information; and 2) climate adaptation training and tools, including adaptation strategies relating to combined sewer overflows, flooding, and natural resource protection.

Project 3: Payment for Ecosystem Services Project in the Paw Paw River Watershed (Southwest Michigan)

Lead Organization: Southwest Planning Commission

Funding Amount: \$500,000

Duration: 2011 - 2014

Summary: The Southwest Michigan Planning Commission, Delta Institute and the Van Buren and Berrien Conservation Districts in partnership with local watershed groups, county and state agencies, and other organizations, implemented a Payment for Ecosystem Services (PES) Program in the Paw Paw River Watershed (PPRW). The PES Program not only helped meet the goals of the local watershed plan, but also the Great Lakes Restoration Initiative, the Great Lakes Regional Collaboration, and the Lake Michigan Lakewide Management Plan through the

implementation of on the ground restoration and conservation activities on private agricultural lands. These activities improved near shore health by expanding green infrastructure; reducing sediment, nutrient, pathogen and chemical loadings through agricultural best management practices; enhancing stewardship and conservation efforts with verifiable, metric-based water and habitat benefits; increasing partnerships and collaboration; developing transferable infrastructure for ecosystem service payment programs; and, helping restore the biological, chemical and physical integrity of the Great Lakes region.

Delta has a long and extensive history of improving the quality of our water throughout the Great Lakes Basin.

We are proud of our work ensuring that the brilliant blue of our lakes remain for generations to come.

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