

Chapter 7: Watershed Projects Inventory

It is essential to understand what work has already been completed, planned, or is underway to identify actions needed to protect and restore the watershed. Provided in Table 7.3 is an alphabetical inventory of watershed-related projects that have been recently completed, are currently underway, or are in the planning stages as of 2017. Compiling this list assists in cross-disciplinary communication and provides context for the existing conditions and influential factors affecting the Niagara River/Lake Erie Watershed. The projects are listed according to their sub-watershed location. For ease of searching the projects, the table can be viewed and sorted differently online¹.

The inventory provides an outline of federal projects (i.e. US Army Corp of Engineers), state projects (i.e. NYSDEC), county projects (i.e. Soil & Water, Sewer Districts), and some large-scale local projects. It should be noted that the following chart is a preliminary assessment and does not attempt to capture all of the potential water-influencing projects within the watershed. For example, there are many smaller local projects underway at the municipal-level that are not fully documented in this inventory.

Table 7.1 Total Watershed Projects by Category

Category	Number of Projects
Habitat Restoration	57
Data Collection & Research	33
Non-Point Source Pollution	17
Infrastructure Support	12
Water Quality	11
Navigational Dredging	10
Flood Control	9
Toxics Reduction	9
Outreach & Education	5
Erosion	3

A total of 150 projects were identified in the inventory. To highlight the major progress areas in the watershed, the captured projects are categorized to represent the main goal or issue the project aims to address. In Table 7.1 these 10 categories are identified along with the number of projects that fall within these categories. Some projects fell into more than one category and are counted in each. Habitat restoration and data collection & research projects represent the two largest project categories found in the watershed. This may be explained by Buffalo State College’s Great Lakes Center, which is located in the watershed and where much of the research focusing on Lake Erie is completed. It is essential to maintain a balance between data collection & research, and implementation

projects, because water quality improvement (through habitat restoration, erosion control, non-point pollution mitigation, etc.) is vital for improving and protecting the state of our watershed. However, as invasive species, emerging pollutants, and other manmade modifications become increasingly prevalent in the Niagara River and Lake Erie ecosystems, continued research is integral for informing future projects.

¹ www.erie.gov/wmp

Table 7.2 Total Projects by Subwatershed

Subwatershed	Number of Projects
Niagara River	59
Buffalo River	43
Lake Erie	16
Smoke(s) Creek	12
Canadaway Creek	11
Chautauqua Creek	7
Cattaraugus Creek	6
Ellicott Creek	6
Big Sister Creek	6
Lower Tonawanda Creek	6
Cayuga Creek	6
Middle Tonawanda Creek	4
Walnut Creek	4
Buffalo Creek	4
Headwaters Cattaraugus Creek	4
Upper Tonawanda Creek	3
Murder Creek	2
Eighteenmile Creek	2

Table 7.2 shows the number of projects from the list taking place in each sub-watershed. Some projects are taking place in more than one sub-watershed and are counted in each. The Niagara River and Buffalo River sub-watersheds have the most projects underway by far. This is due to the numerous impairment contributors and other high priority issues in these two designated Areas of Concern. Many of the Lake Erie projects are data collection & research projects that assess the water quality and habitat quality of the lake itself. Smoke(s) Creek and Canadaway Creek sub-watersheds are also highly industrialized, flowing through the cities of Lackawanna and Dunkirk respectively, where creeks have been channelized, buried, or otherwise manipulated for industrial and commercial development. This is similar to what has occurred in Buffalo. The highest number of projects are therefore occurring in the most industrialized and urbanized sub-watersheds of the Niagara River/Lake Erie Watershed to restore waterways to a more natural state.

Table 7.3 Niagara River/ Lake Erie Watershed Projects Inventory									
Project Title	Project Description	Sub-watershed	Organization/Agency	Project Funding Level	Cost	Time-frame	Category	Status	
Agri-Chemical Handling Facility	Implemented BMPs for an Agri-chemical Handling Facility within the Bergholz Creek area.	Niagara River	Niagara County SWCD	Federal	\$38,000	2014	Toxics Reduction	Completed	
Anticipating Future Chemical Threats to the Great Lakes	This project identified persistent and bioaccumulative contaminants that chemical monitoring and surveillance programs should analyze when testing fish, air and sediments in the Great Lakes. The project focused on possible impurities, by-products, and degradation products/metabolites of commercial chemicals.	Lake Erie	SRC, Inc.	Federal	\$64,912	2010-2012	Data Collection & Research	Completed	
Aquatic Invasive Species Prevention & Monitoring in the Eastern Great Lakes Basin	This project involved both research, planning, and design of field demonstrations of technologies for eradicating invasive aquatic plants that are adversely impacting the quality and diversity of wetlands in the Great Lakes. Laboratory investigations of innovative technologies were advanced with an emphasis on those that can control Phragmites. In addition, this project conducted preliminary design of field demonstrations of various technologies for Phragmites control at multiple sites within the Great Lakes basin, including sites at selected Areas of Concern. FY10 funds were used to continue investigations at Cornell University of new insect biological control strategies as a long-term, sustainable management method against Phragmites australis, an invasive plant that threatens native wetland habitats. The work includes: 1) development of test procedures and conditions for host-specificity studies and data collection on host specificity of promising insect agents (4 shoot-boring moth species); 2) development of laboratory and greenhouse mass-rearing procedures; and 3) assessing the extent of hybridization between the native and introduced genotypes of (No Suggestions).	Lake Erie	The Nature Conservancy	Federal	\$315,059	Not Available	Data Collection & Research	Completed	
Aquatic Invasive Species Risk Assessment Program	This project will continue an aquatic invasive species risk assessment program to develop and implement a rapid screening process to assess the risk of establishment and significant, negative impacts of species: 1) imported and traded within the Great Lakes Basin and 2) that may benefit from Great Lakes habitat restoration and enhancement under the Great Lakes Restoration Initiative (As requested by other Federal, and Regional [e.g., Great Lakes Fishery Commission], State, Tribal, and local governments, industries, and nongovernmental organizations).	Lake Erie	US Fish & Wildlife	Federal	~ \$ 94,000 per year	Annual	Data Collection & Research	Ongoing	
Athol Springs Seawall Protection, Hamburg NY	Complete design and implementation planning for the seawall along Route 5 at Athol Springs area of Hamburg, NY. The seawall is deteriorating and lake storms significantly impair driving ability along Route 5.	Smoke(s) Creek	US Army Corps of Engineers, NYS DOT, Town of Hamburg	Federal	\$3 million	2018-2020	Infrastructure Support	Underway	
Avian Habitat Restoration at Joseph Davis State Park (NY)	This project restored approximately 35 acres of shrub habitat in need of restoration, making it a highly productive habitat for native pollinators, breeding birds, and migrating birds reliant on fruits from native shrubs. Buffalo Audubon Society and partners restored and enhanced 85 acres of critical bird habitat at Joseph Davis State Park along the Upper Niagara River Corridor. Through invasive species control and seeding and planting of native vegetation, the project will benefit priority bird species by improving forested wetland, scrub-shrub wetland and shrub/scrub early successional habitats throughout the park. This work will address habitat-related Beneficial Use Impairments and contribute to the delisting of the Niagara River Area of Concern by helping to reverse the loss of bird habitat.	Niagara River	Buffalo Audubon Society	Local/Federal	\$200,000, \$360,031	2010-2011	Habitat Restoration	Completed	

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Barcelona Breakwater Rehabilitation - Federally Authorized O&M	USACE Harbor of Refuge on Great Lakes Navigational System - Repair of failed breakwater sheet pile cell and mitigation of resultant shoaling	Chautauqua Creek	US Army Corps of Engineers, Chautauqua County & Town of Westfield	Federal/Local	\$750,000	2017	Navigational Dredging	Underway
Barcelona Harbor Dredging - Federally Authorized O&M	USACE Harbor of Refuge on Great Lakes Navigational System - Mitigation of shoaling caused by 2015 breakwater failure in Federal and Recreational channels	Chautauqua Creek	US Army Corps of Engineers, Chautauqua County & Town of Westfield	Federal/Local	\$500,000	TBD	Navigational Dredging	Planning
Be Green in the Great Lakes	The Be Green in the Great Lakes project focused on outreach and education for the general public and land care businesses regarding alternatives to conventional synthetic pesticides and fertilizers. Four training sessions were held in August 2013 in the Great Lakes watershed. Educational brochures and web content were produced. See the Be Green in the Great Lakes Project and Pest Management Tips webpages for more information.	Lake Erie	NYSDEC	Federal	\$315,223	2010-2013	Outreach & Education	Completed
Beach Forecasting Model and Weather Station Network	This project established weather station networks with real-time internet data retrieval at five northeast Lake Erie beaches and associated streams. These networks will be validated by water quality sampling results and will make existing preemptive beach closure procedures more accurate and precise. This will allow beach managers to protect human health by making more informed decisions.	Big Sister Creek, Smoke(s) Creek	Erie County Health Department	Federal	\$91,440	2010	Data Collection & Research	Completed
Beaver Island State Park Habitat Restoration	Habitat restoration project to maximize the biodiversity of the park and to provide a richer recreational experience for the public. Lagoon Dredged & returned to marsh area.	Niagara River	NYS office of Parks, Recreation & Historic Preservation	State	Not Available	2010-11	Habitat Restoration	Completed
Bell Slip	As part of a brownfield remediation project, the Niagara Frontier Transportation Authority constructed a shallow-water fish habitat within the Buffalo Outer Harbor bay area known as the Bell Slip. The habitat is conducive to spawning for local species.	Buffalo River	NYSDEC, Niagara Frontier Transportation Authority	State	Not Available	2006 - 2008	Habitat Restoration	Completed
Bergholz Creek Cover Crop	Provide cover crop to reduce erosion in the Bergholz Creek area.	Niagara River	Niagara County SWCD	Federal	\$88,000	2015-2019	Non-point Source Pollution	Underway
Bergholz Creek Segment Analysis	This project conducted in-depth analyses of Bergholz Creek to better understand hydrodynamics and sediment loading.	Niagara River	Niagara County SWCD	County	\$22,000	2014	Data Collection & Research	Completed
Big Sister Creek Feasibility Study	This project will explore options for green infrastructure or a constructed wetland to treat stormwater and creek volume before it reaches Bennett Beach.	Big Sister Creek	Erie County Department of Environment & Planning/NY Sea Grant	State	\$25,000	2017-2018	Non-point Source Pollution	Underway
Biomonitoring of Great Lakes Populations	The Agency for Toxic Substances and Disease Registry established programs with Minnesota, Michigan and New York health departments to measure environmental toxin levels in people (measuring toxins in blood & urine samples) who live in the Great Lakes basin to see if there is a higher amount of toxins in people with greater exposure to toxins, such as people who eat Great Lakes fish. This information will guide actions that the state health departments take to protect people.	Lake Erie	Department of Health & Human Services - Agency for Toxic Substances & Disease Registry	Federal	\$2.2 million	Not Available	Data Collection & Research	Not Available
Black Rock Canal Improvements	Green infrastructure, sediment/contaminant removal & technology improvements within the Black Rock Canal.	Niagara River	US Army Corp of Engineers	Federal	\$250,000	2012	Non-point Source Pollution & Habitat Restoration	Completed
Blue Tower Turning Basin	1700 linear feet of in-water habitat restoration and minor riparian buffers at Buffalo Motor & Generator Corporation.	Buffalo River	Buffalo Niagara Riverkeeper	Federal	\$1,000,000	2017-2018	Habitat Restoration	Underway

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Broderick Park Habitat Restoration & Seawall Repair	Study to restore habitat and fish passage at Broderick Park in Buffalo, with special consideration to the deteriorated seawall. Project focused on passage of the Emerald Shiner, a species important to the food web of Lake Erie. This project led to the initiation of the Niagara River Shiner Study.	Niagara River	US Army Corp of Engineers	Federal	\$130,000	2014	Infrastructure Support & Habitat Restoration	Completed
Buckhorn State Park Habitat Restoration	Protection of an important bird nesting & breeding area within the park. Includes Osprey poles installed and marsh & dredging of marsh area.	Niagara River	NYS office of Parks, Recreation & Historic Preservation	State	Not Available	2010	Habitat Restoration	Completed
Buffalo Color Peninsula	2645 linear feet of shoreline and riparian restoration.	Buffalo River	Buffalo Niagara Riverkeeper	Federal	\$1,500,000	2017-2018	Habitat Restoration	Underway
Buffalo Harbor Maintenance Dredging	Maintenance dredging occurs every other year, subject to availability of funding. Dredging is planned for summer 2017 and dredged material will be used beneficially for aquatic ecosystem restoration at Unity Island.	Buffalo River	US Army Corp of Engineers	Federal	TBD	Every other year	Navigational Dredging	Funded
Buffalo Motor and Generator Corporation	The project includes upland and shoreline restoration on the property owned by Buffalo Motor and Generator as well as in the adjacent river channel. In total there will be 460 linear feet of in-water habitat restoration. The site is located along the right descending bank of the Buffalo River, across the River from RiverWorks.	Buffalo River	Buffalo Niagara Riverkeeper	Federal	\$450,000	2017-2018	Habitat Restoration	Underway
Buffalo Outer Harbor	The United States Army Corp of Engineers (USACE) is studying the feasibility of various alternatives to restore aquatic habitat along the shoreline of Lake Erie within the Buffalo Harbor area in Buffalo, NY.	Buffalo River	US Army Corps of Engineers	Federal	\$50,000	2010	Habitat Restoration	Completed
Buffalo River & Harbor Enhanced Navigational Dredging	Buffalo Harbor is a Federal navigation channel within the Buffalo River Area of Concern. The project involved the removal of approximately 450,000 cubic yards of contaminated sediments from the navigation channel in order to support the elimination of the dredging restriction Beneficial Use Impairment and delisting of the Area of Concern. The project also involved significant repairs and improvements to the Dike 4 Confined Disposal Facility to support its use for disposal of contaminated sediments from outside the navigation channel dredged as part of a Legacy Act project. FY10 funds were used to initiate construction of repairs and enhancements to the Dike #4 Confined Disposal Facility and to initiate dredging.	Buffalo River	US Army Corps of Engineers	Federal	\$50,000	Not Available	Navigational Dredging	Not Available
Buffalo River AOC Habitat Restoration - River Bend Phase I	The River Bend Habitat Restoration Project included the engineering and design, and implementation of habitat restoration along the Buffalo River, on the site of the former Republic Steel and Donner Hanna Coke facility, and is accessed via South Park Ave. The project is part of the greater River Bend industrial park master plan, which is located within the South Buffalo Brownfield redevelopment area.	Buffalo River	Buffalo Niagara Riverkeeper	Federal	\$657,245	2014	Habitat Restoration	Completed
Buffalo River AOC Habitat Restoration - River Bend Phase II	This project further supports the Buffalo River Remedial Action Plan to address stream water quality monitoring, river bottom sediments, inactive hazardous waste sites, municipal and industrial wastewater treatment facilities, combined sewer overflows, and fish and wildlife habitat issues in the Buffalo River Area of Concern. In particular, data will be collected on the degradation and loss of fish and wildlife habitat, the degradation of microscopic plant and animal populations, and the presence of excess levels of nutrients and algae.	Buffalo River	US Department of Commerce & NOAA	Federal	\$167,000	2013-2017	Habitat Restoration	Underway
Buffalo River Bailey Peninsula and Red Jacket Park	Shoreline and riparian habitat restoration in the Buffalo River Area of Concern. This site will restore approximately 3,765 linear feet of shoreline as part of the management actions for delisting of the Buffalo River as an Area of Concern.	Buffalo River	Erie County Department of Environment & Planning	Federal	\$1,300,000	2014-2019	Habitat Restoration	Underway

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Buffalo River NFTA 61 Smith Street	Shoreline and riparian habitat restoration in the Buffalo River Area of Concern. This site will restore approximately 1,080 linear feet of shoreline as part of the management actions required for delisting of the Buffalo River as an Area of Concern.	Buffalo River	Erie County Department of Environment & Planning	Federal	\$831,000	2015-2019	Habitat Restoration	Underway
Buffalo River Restoration & Habitat Restoration (Phase 2)	Legacy Act dredging and disposal of (non-navigation channel) contaminated sediments from the Buffalo River Area of Concern, including capping of the Union Ship Canal sediments. Following dredging and capping elements, the project will backfill into specific areas of the Buffalo River Area of Concern and Union Ship canal to restore in-water habitat environments (Regional Sediment Management).	Buffalo River	US Army Corp of Engineers	Federal	\$44 million	2013-2015	Navigational Dredging	Completed
Buffalo River Sediment Remediation & Habitat Restoration (Phase 1)	Buffalo Harbor is a Federal navigation channel within the Buffalo River Area of Concern. The project involved the removal of approximately 450,000 cubic yards of contaminated sediments from the navigation channel in order to support the elimination of the dredging restriction Beneficial Use Impairment and delisting of the Area of Concern. The project also involved significant repairs and improvements to the Dike 4 Confined Disposal Facility to support its use for disposal of contaminated sediments from outside the navigation channel dredged as part of a Legacy Act project. FY10 funds were used to initiate construction of repairs and enhancements to the Dike #4 Confined Disposal Facility and to initiate dredging.	Buffalo River	US Army Corp of Engineers/Great Lake Legacy Act	Federal	\$9 million	2012	Navigational Dredging	Completed
Buffalo River Sediment Transport Model	The project developed a Sediment Transport Model for the Buffalo River to assist state and local agencies with the planning and implementation of measures for soil conservation and non-point source pollution prevention.	Buffalo River	US Army Corps of Engineers	Federal	Not Available	Not Available	Erosion Control & Non-point Source Pollution	Completed
Buffalo River Seneca Bluffs	Shoreline and riparian habitat restoration in the Buffalo River Area of Concern. This site will restore approximately 3,000 linear feet of shoreline as part of the management actions required for delisting of the Buffalo River as an Area of Concern.	Buffalo River	US Army Corps of Engineers, Erie County Department of Environment & Planning	Federal	\$2,300,000	2015-2020	Habitat Restoration	Underway
Buffalo River Submerged Aquatic Vegetation	In-River submerged aquatic vegetation restoration at three sites that together will restore approximately 2,300 linear feet of shoreline as part of the management actions for delisting of the Buffalo River.	Buffalo River	US Army Corps of Engineers, Erie County Department of Environment & Planning	Federal	\$1,870,000	2015-2017	Habitat Restoration	Underway
Buffalo River Submerged Aquatic Vegetation Alternative Sites	Submerged Aquatic Vegetation work proposed at 3 alternative sites for 2300 linear feet of habitat restoration along the Buffalo River.	Buffalo River	Erie County	Federal	\$1,870,000	Not Available	Habitat Restoration	Underway
Buffalo River Watershed Study (Final Watershed Assessment)	An initial watershed assessment was completed in 2012. Phase 2 would have consisted of a multi-agency strategic plan for recommending and implementing measures to address the problems within the watershed, but was not pursued due to lack of a project sponsor.	Buffalo Creek, Buffalo River & Cayuga Creek	US Army Corp of Engineers	Federal	\$92,000	2012	Data Collection & Research	Completed
Buffalo River Wetlands Restoration at Seneca Bluffs	Removal of invasive species, planting & landscaping restoration, improved facilities.	Buffalo River	Buffalo Niagara Riverkeeper, Erie County Department of Environment & Planning	Federal	\$200,000	2013	Habitat Restoration	Completed
Buttermilk Falls North Otto Road Stream Stabilization	The Cattaraugus County DPW and Cattaraugus County Soil & Water Conservation District determine emergency stream bank projects around the county every year and budget funds to correct these issues to improve water quality, flood control, non-point source pollution and infrastructure protection. This project armored the Warterman Brook stream bank with rock riprap to protect the road shoulder and repair existing rock. This will prevent further erosion and sediment loading.	Cattaraugus Creek	Cattaraugus County DPW & Cattaraugus County SWCD	County	\$23,342	2014	Erosion Control	Completed

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Canadaway Creek Restoration, Pomifret, Chautauqua County, New York	Restore three sections of Canadaway Creek to reduce sediment loading, restore aquatic habitat and restore aquatic organism passage. Approximately 0.3 miles of stream will be restored.	Canadaway Creek	US Fish & Wildlife	Federal	\$154,000	2015-2017	Habitat Restoration	Underway
Cattaraugus Creek Harbor - Federally Authorized O&M	USACE Harbor of Refuge on Great Lakes Navigational System - Mitigation of shoaling caused by deferred maintenance in Federal and Recreational channels, maintenance of breakwater structures.	Cattaraugus Creek	US Army Corps of Engineers, Chautauqua County & Town of Hanover	Federal/State/Local	\$795,000	TBD	Flood Control/Navigational Dredging	Untended
Cattaraugus Creek Harbor Flood Mitigation Study	Feasibility Study for flood mitigation at Sunset Bay and dredging the mouth of Cattaraugus Creek.	Cattaraugus Creek	US Army Corps of Engineers, Chautauqua County & Town of Hanover	Federal/Local	\$200,000	2018	Flood Control	Included in 2015 WRDA Bill
Cattaraugus Creek Round 21 Ag BMP Implementation Project	Participating farms in the Cattaraugus Creek watershed received funding to implement BMPs to reduce agriculture runoff and nutrient management.	Headwaters Cattaraugus Creek	Cattaraugus County SWCD & Wyoming County SWCD	State/County	\$848,633	2015 - 2019	Non-point Source Pollution	Underway
Cattaraugus Creek/Clear Lake Drinking Water Source Protection Project	The project implemented conservation and management practices on seven farms to protect water quality in area streams that are source water for Clear Lake Reservoir and Lake Erie.	Cattaraugus and Headwaters Cattaraugus Creeks	Erie and Cattaraugus Soil & Water Conservation Districts	State/Local	Not Available	Not Available	Non-point Source Pollution	Completed
Cazenovia Creek, Ice Control Structure, West Seneca, NY	Repair the Ice Control Structure located on Cazenovia Creek in West Seneca. The structure provides an ice retention barrier to reduce downstream flooding.	Buffalo River	US Army Corps of Engineers, NYS DEC, and Town of West Seneca	Federal/State/Local	\$650,000	2017	Infrastructure Support	Completed
Chadwick Bay Regional Water Supply Program - Phase 1	Implementation of a regional water supply and distribution system that consolidates separate municipal water supply and distribution systems that serve 42,000 people.	Cattaraugus, Chautauqua, and Walnut Creeks	Chautauqua County and municipalities that border Lake Erie	State/Local	\$32.35 million	2016-2018	Infrastructure Support	Underway
Characterization of the Niagara River Larval Fish Community	The U.S. Fish and Wildlife Service Lower Great Lakes Fish and Wildlife Conservation Office sampled juvenile and larval fish using a variety of methods in several habitat types (wetlands, backwater and open flow areas) in the Niagara River from May-September 2011. Sampling methods included drift nets, ichthyoplankton nets, light traps, minnow traps, trawling and larval seines. Species diversity information will help guide management decisions on the Niagara River.	Niagara River	US Fish & Wildlife	Federal	\$47,000	2010 - 2011	Data Collection & Research	Completed
Chautauqua County Fairgrounds Drainage	Mitigate localized flooding and nutrient loading from fairgrounds runoff to Lake Erie tributary.	Canadaway Creek	Chautauqua County Fair Association	Local	\$300,000	TBD	Infrastructure Support	Planning
Chautauqua County Septic Inspections (within 250 feet of Lake Erie shoreline)	County-wide initiative to identify and bring inadequate septic systems into compliance. Other bodies of water included are Chautauqua, Findley, Bear, and Cassadaga lakes.	Cattaraugus, Chautauqua, and Walnut Creeks	Chautauqua County	Local	\$100,000 annually	Ongoing	Infrastructure Support	Ongoing
Chautauqua Creek Fish Passageway, Chautauqua County, Westfield, NY	Utilized in-stream construction to allow fish to pass the three barriers: 1) Raised pool level at downstream railroad bridge. 2) Raised pool level at the middle barrier that was damaged by the storm; and 3) Created an engineered riffle at the upper barrier damaged by the storm to allow passage over the village water supply dam. Boulders were pinned at each location to ensure that the project does not fail during high flows.	Chautauqua Creek	US Fish & Wildlife	Federal	\$270,000	2014-2016	Habitat Restoration	Completed

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<p>Chautauqua Creek Oxbow Forest Preserve Improvement Project</p>	<p>The Chautauqua Watershed Conservancy underbook this project as part of a larger series of public access improvements at this Preserve. Eight checkdams and a large rock outfall were installed along Lyons Road in the Town of Chautauqua as part of the erosion control project. An approximately 2500 square foot rain garden was also installed to reduce runoff that was severely eroding the steep slopes of the Chautauqua Creek Gorge. Aside from reducing erosion, these efforts will help prevent degraded water quality in Chautauqua Creek, a tributary of Lake Erie, trout stream, and drinking water supply of the Town of Westfield. Finally, over 300 individual plants from more than 30 native species were planted, which will benefit the local ecosystem by enhancing floral biodiversity and replacing lost ecological connections that stem from losses in diversity. This project was supported with funding from the New York State Conservation Partnership Program (NYSCPP) and New York's Environmental Protection Fund. The NYSCPP is administered by the Land Trust Alliance, in coordination with NYS Department of Environmental Conservation.</p>	<p>Chautauqua Creek</p>	<p>Chautauqua Watershed Conservancy</p>	<p>Local/State</p>	<p>15,619</p>	<p>2015-2016</p>	<p>Water Quality, Erosion Control, Habitat Restoration</p>	<p>Completed</p>
<p>Clear Creek Stream Habitat Restoration and Fish Passage Project, Cattaraugus County, Freedom, NY</p>	<p>The project stabilized stream banks, reduced sediment inputs, and restored sediment transport to re-establish stream and floodplain function along Clear Creek, and provide fish passage over the sheet pile grade control structure. The project restored 0.3 miles of stream and re-opened 6 miles of stream to fish passage.</p>	<p>Headwaters Cattaraugus Creek</p>	<p>US Fish & Wildlife</p>	<p>Federal</p>	<p>\$146,000</p>	<p>2010-2012</p>	<p>Habitat Restoration</p>	<p>Completed</p>
<p>Common Tern Nesting HIP</p>	<p>Common terns, which are a protected species in NYS, have been nesting on breakwalls along the Buffalo Harbor and Niagara River, and their nesting has been monitored nearly every year since 1986. A decline in nesting success was noted and attributed to deterioration of the nesting areas (concrete weathering and competition by gulls and cormorants. Although there has been colony nesting maintenance for several years, this project marked a more dramatic increase in improvement the nesting areas by adding a greater quantity substrate, brood boxes and perimeter fencing. Chick rearing success was monitored every ten days throughout the season and mink predators were removed. This HIP has improved tern nesting success compared to years with less intensive efforts.</p>	<p>Niagara River</p>	<p>New York Power Authority</p>	<p>Local</p>	<p>\$1,076,000</p>	<p>2008-2013</p>	<p>Habitat Restoration</p>	<p>Completed</p>
<p>Concord Wastewater Infrastructure Project</p>	<p>Consolidation of Kissing Bridge and Crane Ridge subdivisions' waste water treatment plants</p>	<p>Buffalo River</p>	<p>Town of Concord</p>	<p>State</p>	<p>\$50,000</p>	<p>2014-2017</p>	<p>Water Quality</p>	<p>Underway</p>
<p>Connoisarauley Creek County Road 12 Stream Stabilization</p>	<p>The Cattaraugus County DPW and Cattaraugus County Soil & Water Conservation District determine emergency streambank projects around the county every year and budget funds to correct these issues to improve water quality, flood control, non-point source pollution and infrastructure protection. This project armored the stream bank with rock riprap to protect the road shoulder and repair existing rock. This will prevent further erosion and sediment loading.</p>	<p>Cattaraugus Creek</p>	<p>Cattaraugus County DPW & Cattaraugus County SWCD</p>	<p>County</p>	<p>\$20,445</p>	<p>2015</p>	<p>Erosion Control</p>	<p>Completed</p>
<p>Contaminated Sediment Strategic Plan</p>	<p>Identified strategic opportunities for the USACE to collaborate with EPA's Legacy Act and other programs to remove contaminated sediments from the U.S. Great Lakes Area Of Concerns (AOCs) having federal navigation channels.</p>	<p>Buffalo River, Niagara River</p>	<p>US Army Corp of Engineers</p>	<p>Federal</p>	<p>\$756,000</p>	<p>2010-2015</p>	<p>Toxics Reduction</p>	<p>Completed</p>

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Crooked Brook Aquatic Habitat Restoration, Dunkirk, Chautauqua County, NY	Restored two sections of Crooked Brook to reduce sediment loading and improve water quality. In addition, the project improved aquatic habitat within the stream. Bendway weirs and bank armoring were used in several locations to divert the main force of the stream flow back to the center of the channel. Resting pools were added between weirs to aid fish migration. In addition, at one location, engineered rock riffles were used to maintain grade and prevent head cutting of the streambed.	Canadaway Creek	US Fish & Wildlife	Federal	\$77,000	2015-2016	Habitat Restoration	Completed
Crow Creek Fish Barrier Removal	An improperly installed culvert which prevents native brook trout movement will be removed and replaced. A preliminary assessment revealed that the culvert was clogged and 56 brook trout were below the barrier, whereas only three were upstream. The barrier will be replaced with a wide arch pipe culvert which will provide 1.9 of stream miles of aquatic connectivity. Post construction monitoring and community assessment will determine if improvements in passage and water quality occurred as a result, while also ensuring that unexpected bankside erosion did not occur. Improvement to the quality of water in the Altica Reservoir is also anticipated as a direct result of this project. Resident brook trout were sampled for genetic analysis to determine if they are a native strain (i.e., not stocked in origin).	Tonawanda (Upper) Creek	Buffalo Niagara Riverkeeper, US Fish and Wildlife Service, Wyoming County SWCD, WNYT Trout Unlimited	Local/State/Federal	\$175,986	2016-2018	Habitat Restoration	Underway
Dunkirk Harbor - Federally Authorized O&M	USACE Harbor of Refuge on Great Lakes Navigational System - Mitigation of shoaling caused by deferred maintenance in Federal and Recreational channels, maintenance of breakwater structures.	Canadaway Creek	US Army Corps of Engineers, Chautauqua County & City of Dunkirk	Federal/Local	\$1.35 million	TBD	Navigational Dredging	Unfunded
Dunkirk Harbor Improvements	USACE Harbor of Refuge on Great Lakes Navigational System - Mitigation of design deficiencies to mitigate wave reflection & multiplication.	Canadaway Creek	US Army Corps of Engineers, Chautauqua County & City of Dunkirk	Federal/Local	TBD	TBD	Infrastructure Support	Planning
Dunkirk Segmented Breakwater	Install Segmented Breakwater east of Dunkirk Harbor to protect beach and seawall.	Canadaway Creek	US Army Corps of Engineers, Chautauqua County & City of Dunkirk	Federal/Local	TBD	TBD	Infrastructure Support	Planning
Ellicott Creek, Lehn Springs (Williamsville, NY)	Study for the Determination of Federal Interest on erosion and flooding problems from the Lehn Springs Area of Glen Falls Park in Williamsville and impacting Ellicott Creek. Project was not initiated due to lack of funding.	Ellicott Creek	US Army Corps of Engineers	Federal/Local	Not currently funded	TBD	Flood Control	Pending
Emerald Shiner Project in the Upper Niagara River	This project is a comprehensive study of the life history and habitat utilization of the native emerald shiner (<i>Notropis atherinoides</i>) in the upper Niagara River and their importance in sustaining sport fish and piscivorous bird species (in particular the common tern, <i>Sterna hirundo</i>) that depend on this resource. This project focuses on restoration and enhancement of fish and wildlife resources by analyzing threats to migration and the status of key habitats, helping restore threatened species, conserving migratory birds, and educating the public. In addition, this project addresses the delisting criteria of the Niagara Remedial Action Plan (RAP) for Fish Habitat and for Fish Communities.	Niagara River	Buffalo State College	Local	\$766,448	2014-2017	Data Collection & Research	Underway

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Enhanced Fish Consumption Advisory in Buffalo Niagara Region	Current advisories were revised to improve information uptake in high-risk communities. Local community and refuge outreach groups collaborated in translating and distributing non-traditional outreach materials. This project filled a significant gap in understanding fish consumption patterns of subsistence anglers to inform future education and policy efforts.	Buffalo River, Niagara River, Lake Erie	Buffalo Niagara Riverkeeper	Federal	\$224,997	2010	Outreach & Education	Completed
Evaluating Ponto-Caspian Fish Species for Risk of Great Lakes Invasion	This project identified "high-risk" fish species from the Ponto-Caspian region of Russia. Information obtained from this investigation will be used to evaluate the effectiveness of ballast water regulations against invasive species from the Ponto-Caspian. Informational materials were developed to support early detection and monitoring initiatives in the Great Lakes.	Lake Erie	Buffalo State College	Federal	\$111,264	2010-2011	Data Collection & Research	Completed
Evaluation of Niagara River Corridor Benthic Habitat With Side Scan Sonar and GIS Modeling	The U.S. Fish and Wildlife Service Lower Great Lakes Office is classifying substrate in the Niagara River to help restore lake trout and lake sturgeon habitat. Side scan sonar mapping and GIS techniques, coupled with field validation and underwater video, will be used to evaluate habitat. They will assess 22 miles of habitat in the upper river, 8 miles of habitat in the lower river, and 12 square miles of the Niagara bar. Information will be used to prioritize habitat protection.	Niagara River	US Fish & Wildlife	Federal	~\$ 58,000 per year	Annual	Data Collection & Research	Ongoing
Evans Town Park Beach Project	Installation of Green Infrastructure measures to improve water quality at the Town Beach (public). The Fern Brook Creek runs along the northwest side of the park and drains into Lake Erie and is a discharge point for stormwater drainage for Town Park. The design plan integrates rain gardens and bio-retention swales to infiltrate stormwater from roofs, paved surfaces and recreational courts before reaching the beach to further permeate daily stormwater.	Big Sister Creek	Town of Evans	Federal	\$172,125	Not Available	Non-point Source Pollution	Underway
Fish Attraction Structures	Four structures were placed in the upper Niagara River with the intention of improving fish habitat. These structures were installed in 2008 and are being monitored periodically until 2018. As reported in the 2012 monitoring, there has been some structural loss, and accumulation of silt and Dreissena mussels; however overall the structures were in good to fair shape. The primary fish species to utilize these structures (through direct diving observation) are round goby and smallmouth bass, followed by carp, muskie and largemouth bass. The monitoring report (available online) discusses suggestions for future fish structures, based off the experiences from this project.	Niagara River	New York Power Authority	Local	\$310,000	2008, Monitoring periodically until 2018	Habitat Restoration	Completed
Fish Monitoring and Surveillance	This project will assess trends and identify emerging and legacy contaminants (identified in the Great Lakes Water Quality Agreement) at levels previously impossible to detect by monitoring fish from each of the five Great Lakes. Additionally, in collaboration with other state, federal, and international agencies, the project will assess transfer of contaminants from the water column through the food chain, expand the existing Great Lakes Fish Monitoring Surveillance Program (GLFMS) analysis list to include important emerging contaminants, and provide better information for decision-makers regarding the health of the Great Lakes ecosystem.	Lake Erie	Clarkson University	Federal	\$2.75 million	2010-	Data Collection & Research	Ongoing
Flood Control Projects	Various projects are listed to address flooding issues throughout the Niagara River/Lake Erie Watershed. http://www.dec.ny.gov/lands/62265.html	Entire Niagara River/Lake Erie Watershed	NYSDEC	State	Varies	Varies	Flood control	Completed

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Forest Lawn Upper Wetland	This project is intended to improve water quality and mitigate flooding impacts of Scapaqua Creek in Forest Lawn Cemetery, through the implementation of wetland, wet meadows, and riparian forest surrounding a spring fed pond. It will consist of many native plantings, which will enhance habitat for multiple species of ducks, as well as indicator salamander species. It will also include beneficial human uses, such as pedestrian foot paths, scenic landscape, and meandering pathways through the wetland and meadow.	Niagara River	Buffalo Niagara Riverkeeper, Forest Lawn Cemetery, Buffalo Sewer Authority, Ducks Unlimited	Local	\$1,080,000	2016-2018	Habitat Restoration, Flood Control, Water Quality	Underway
Fox Valley Road Slope/Stream Stabilization Project/Buttermilk Creek, West Valley, NY	The project addressed a severe bank slide on Buttermilk Creek that was contributing tons of sediment with every rain event. The bank was reshaped, the toe was armored with heavy rock and the site was hydroseeded to restore and stabilize the bank. The Frog Island Habitat Improvement Project (HIP) is a shallow, roughly 5-acre area that is currently devoid of vegetation. Historically this island was over mined for gravel and wave action likely eroded what little remained. Located in the shallows between Motor and Strawberry Islands, this HIP involves the creation of emergent wetland and submerged aquatic vegetation (SAV) habitat in a portion of the river that at one time supported wetlands. This project involves using hard structures surrounding the island to absorb and dissipate wave energy. The purpose is to create better habitat and structure for native vegetation, fishes and waterfowl.	Headwaters Cattaraugus Creek	Cattaraugus County SWCD	State/Local	\$27,500	2017	Erosion Control	Completed
Frog Island Restoration		Niagara River	New York Power Authority	Local	\$4,200,000	2013-2016	Habitat Restoration	Completed
Gallagher Beach Feasibility Study	Study for the Determination of Federal Interest in making improvements to Gallagher Beach for the purposes of storm damage reduction and shoreline protection. Beach is currently used to launch boats and smaller watercraft, public has a desire to see improvements at the beach, including sand replenishment.	Buffalo River	US Army Corps of Engineers	Federal	Not currently funded	TBD	Infrastructure Support	Unfunded by Congress
Gowin Gulf Road Emergency Stream Stabilization Project	This was an emergency stream stabilization project that was on a tributary to the South Branch of the Cattaraugus Creek in the Town of New Albion. After a few significant rain events the stream eroded to the point where it took a section of the road shoulder on Gowin Gulf Road. This project stabilized a total of 350 linear feet of stream bank.	Cattaraugus Creek	Cattaraugus County SWCD	State/Local	\$32,553	2017	Erosion Control	Completed
Grand Isle Ferry Landing	New York State Department of Environmental Conservation acquired a 1 acre parcel within the Niagara River AOC. This parcel is one of the last undeveloped sections of shoreline that provides natural habitat for native fish, wildlife, and plant species.	Niagara River	NYSDEC	Federal/State	\$26,500	2011	Habitat Restoration	Completed
Green Infrastructure along E. Spring Street in Williamsville	The Village of Williamsville completed a Green Infrastructure project on East Spring Street including road construction with permeable pavement and rain gardens to capture runoff prior to discharging to Ellicott Creek in Glenn Park with funding from NYSDEC WQP, NYS Environmental Facilities Corps GIGP, and other sources as part of larger project.	Ellicott Creek	Village of Williamsville	State	\$3 million	2014-2016	Non-point Source Pollution	Completed
Green Infrastructure along S. Long Street in Williamsville	Green Infrastructure with porous pavement and rain gardens is planned for S. Long Street to capture runoff prior to discharging to Ellicott Creek. Funding is from NYS Environmental Facilities Corporation GIGP.	Ellicott Creek	Village of Williamsville	State	\$1.5 million	2017-2019	Non-point Source Pollution	Underway
Guterl Steel Investigation, Lockport NY	Investigation includes a full remedial investigation, feasibility study, proposed plan and Record of Decision for the former Guterl Steel facility in Lockport, NY. The 70 acre site includes elevated levels of radionuclides. The Guterl Steel Site is currently in the feasibility study phase. The document is currently scheduled to be complete in FY18.	Tonawanda (Lower) Creek	US Army Corps of Engineers, US Congress	Federal	\$10.9 million	2010-	Toxics Reduction	Ongoing

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Habitat Use and Movement of Lake Trout in the Niagara River and Niagara Bar	The objective of this Great Lakes Restoration Initiative project is to identify specific habitat use and movement of radio and acoustic tagged lake trout that could help identify potential spawning habitat in the Niagara River and on the Niagara Bar.	Niagara River	US Fish & Wildlife	Federal	~\$65,000 per year	Annual	Data Collection & Research	Ongoing
Hazelwood Real Time Controlled In Line Storage Structure	Installation of a real time controlled chamber to temporarily store flows in the existing sewer.	Niagara River	City of Buffalo Sewer Authority	State/Local	\$2 million	2017-2018	Water Quality	Underway
Household Toxics Reduction through Consumer Education Pilot	This project reduced toxic contamination of the Great Lakes from household cleaning products. It supported workshops promoting the use of nontoxic products and sustainable practices in communities throughout the Rochester Embayment, Niagara River, Eighteenmile Creek, and St. Lawrence River-Massena Area of Concern watersheds.	Niagara River	Rochester Institute of Technology	Federal	\$104,192	2011-2014	Outreach & Education	Completed
Identification of Lake Sturgeon Spawning Habitat in the Lower Niagara River	The U.S., Fish and Wildlife Service Lower Great Lakes Fish and Wildlife Conservation Office has been radio tagging and acoustic tagging adult lake sturgeon since 2011 to identify habitat use. These data will be used in conjunction with substrate mapping data to identify spawning habitat and prioritize management actions.	Niagara River	US Fish & Wildlife	Federal	~\$46,000 per year	2010 - 2018	Data Collection & Research	Underway
Improving the Early Detection of Pronto-Caspian Fishes in the Great Lakes	SUNY- Buffalo State College assessed the invasive potential for high-risk Prontocaspian fish from European shipping ports. Great Lakes ports were also assessed to identify high-risk locations and time periods that are a strong habitat match for these high-risk invasive fish. This data will be used to focus surveillance and early detection efforts for invasive Prontocaspian fish likely to adapt to the waters of the Great Lakes.	Lake Erie	Buffalo State College	Federal	\$99,756	2012-2016	Data Collection & Research	Completed
Installation of real time controlled in-line storage structure on Smith Street Drain	Installation of overflow control structure with static weir and actuated dewatering valves to allow combined sewer to be stored upstream of the structure and rerouted to the South Interceptor for conveyance to the plant.	Buffalo River	City of Buffalo Sewer Authority	State/Local	\$4,000,000	2016-2017	Water Quality	Underway
Investigating Lake Sturgeon in Lower Niagara River	SUNY- Buffalo State College and US FWS will study the distribution, abundance and diversity of benthic forage resources in the lower Niagara River and their relation to lake sturgeon habitat use and feeding ecology. This information is essential for developing management and conservation action plans, and supporting the sustainable recreational use of the Niagara River.	Niagara River	Buffalo State College	Ecological Greenway Fund	\$296,218	2014-	Data Collection & Research	Ongoing
Lake Erie Beach Planning Study	NYSDEC Division of Water Planning Study to implement green infrastructure at Lake Erie Beach (public) in order to reduce the volume of contaminated runoff to near shore waters. The beach is approximately 450 feet long. The Beach has experienced beach closings due to unacceptable bacteria tests in the past few years. Proposed projects include removal of impervious surfaces, and installation of bioinfiltration/bio retention areas and rain gardens, designed to treat, slow, divert or capture runoff to reduce pollutant concentrations that drain into the beach and nearshore areas (discharge from MuddyCreek).	Big Sister Creek	Town of Evans	State	\$75,000	2016-2017	Non-point Source Pollution	Underway
Lake Sturgeon Assessment in the Niagara River	This project will assess the status of lake sturgeon populations in the Lower Niagara River and Niagara Bar and upper Niagara River. Lake sturgeon are captured, aged, and tagged (using PIT tags and radio transmitters). Mark-recapture analysis will be used to estimate abundance, survival and developing habitat preference models. This is a collaborative project between the U.S., Fish and Wildlife Service Lower Great Lakes Fish & Wildlife Conservation Office and the Northeast Fishery Center.	Niagara River	US Fish & Wildlife	Federal	~\$65,000 per year	2010-2018	Data Collection & Research	Underway

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Line	1870 linear feet of shoreline work proposed on northeast shoreline of Katherine Street.	Buffalo River	US Environmental Protection Agency	Federal	\$2,600,000	Not Available	Habitat Restoration	Planning
Little River Harbor Dredging, Niagara Falls, NY	Periodic dredging is needed to maintain the recreational harbor of Little River in Niagara Falls, NY. The Harbor was last dredged in 1988.	Niagara River	US Army Corps of Engineers	Federal	Not currently funded	TBD	Navigational Dredging	On hold
Living Shorelines Program	As part of the Niagara River Riparian Restoration Phase 2 Program, Buffalo Niagara Riverkeeper is identifying areas of severe erosion along the Niagara River and its tributaries, to select and implement 4 riparian restoration projects at selected sites. The program aims to restore both hardened and degraded shoreline areas to their natural, resilient, and self-repairing form which will better support a sustainable, protective and higher-functioning ecosystem. Restoration practices include innovative bioengineering techniques utilizing natural materials, native plant species, and gradual slopes to protect from erosion and create function natural living infrastructure systems.	Niagara River	Buffalo Niagara Riverkeeper	Local (Niagara River Greenway)	\$1,299,430	2013-2018	Habitat Restoration	Underway
Lower Great Lakes Barrier Assessment and Brook Trout Assessment	This project will develop a GIS based database of road crossings that includes information on fish passability and importance to brook trout populations. In addition, it will prioritize fish passage restoration projects in the Great Lakes watershed. This is a multiple year project. Work will include the Great Lakes watershed portion of western and central New York.	Lake Erie	US Fish & Wildlife	Federal	~\$25,000 per year	Annual	Data Collection & Research	Ongoing
Lower Great Lakes Lower Trophic Monitoring Program	The U.S. Fish and Wildlife Service Lower Great Lakes Fish and Wildlife Conservation Office and partners will monitor and evaluate key lower trophic variables (phosphorus, chlorophyll a, secchi depth and zooplankton density and biomass) that characterize overall ecosystem change spatially, temporally and by habitat types. Collections will occur at 18 stations in Lake Erie and 12 stations in Lake Ontario from May through October. This project is conducted in partnership with State and Federal agencies and universities around Lake Erie and Lake Ontario.	Lake Erie	US Fish & Wildlife	Federal	~\$50,000 per year	Annual	Data Collection & Research	Ongoing
Motor Island Wetland Restoration	This HIP consisted of excavation of a pier, implementation of breakwalls and protective berms surrounding the island, and native wetland restoration plantings on Motor Island (north of Strawberry Island). Other features included ice scouring preventions, enhancement of existing shallow pool areas, herbivory deterrents on new plants, and installation of submerged aquatic vegetation. Motor Island is important habitat for many spawning fish and resident and migratory birds, but has been susceptible to erosion ever since it was over-mined in the mid 21st century.	Niagara River	New York Power Authority	Local	\$1,920,000	2012-2014	Habitat Restoration	Completed
MS4 Gap Analysis and Mapping Project	This project will perform a gap analysis to identify barriers to green infrastructure in building and zoning codes. It will also upgrade storm system maps to include municipal facilities and post-construction stormwater management practices.	MS4 Communities within Erie & Niagara Counties	NYS DEC, Erie County Department of Environment & Planning, Western New York Stormwater Coalition	State/Local	\$517,405	2017-2019	Data Collection & Research	Underway
Murder Creek Bank Stabilization	Murder Creek Bank Stabilization funded by the NYSDDEC Water Quality Improvement Program led by the Town of Newstead.	Murder Creek	Town of Newstead	State	\$212,000	2010	Non-point Source Pollution	Completed

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Muskellunge Telemetry Study	This acoustic telemetry project will track muskellunge in the Buffalo Harbor and Niagara River for 5-7 years. Although musky presence is well-documented in these regions, there is little information regarding the movement of muskellunge throughout these two systems between captures. This project will directly inform researchers about the migration and movement of adult muskies, and therefore elucidate where habitat restoration efforts would be the most beneficial for this prized apex predator. It is expected that enough data will be gathered in the first two years to create GIS maps identifying critical areas for habitat improvement projects, as musky are quite dependent on vegetation and shallow areas for successful spawning.	Buffalo River, Niagara River	Niagara Musky Association, NYSDEC, GLATOS, Gomez and Sullivan Engineers	Local/State	\$113,000	2016-2021 or 2023 (dependent on transmitter battery life)	Data Collection & Research	Underway
New York Teachers Get WET for the Great Lakes	This grant supported two five-day academies and 14 "Get WET for the Great Lakes" institutes at which teachers were provided with content and methods for conducting watershed education experiences relating to the Buffalo River, Niagara River, Eighteenmile Creek, and Rochester Embayment Areas of Concern in New York State. The project targeted teachers from underserved schools and empowered teachers and students to protect fresh water resources through direct stewardship activities in their Areas of Concern. Following the training, teachers received support to help them integrate Great Lakes information into their curricula.	Buffalo River, Niagara River	Buffalo Niagara Riverkeeper	Federal	\$168,982	2011	Outreach & Education	Completed
Niagara Falls, NY Wastewater Treatment Facility Improvements	Design and construction for upgrades to Niagara Falls, NY's Wastewater Treatment Facility. The plant has reached its 30 year useful life and requires upgrades and replacement to avoid system failure.	Niagara River	US Army Corps of Engineers, Niagara Falls Water Board	Federal/Local	\$5 million	TBD	Infrastructure Support	Unfunded by Congress
Niagara Gorge & Rim Restoration and Enhancement	The project will treat invasive species and plant additional native plants at Devil's Hole Gorge State Park, a 125 acre parcel of high quality riparian habitat. Four separate landscapes will be targeted throughout the park, ranging from talus forest to native grassland tracts. Invasive species will be treated with spot herbicides where necessary to prevent non-target effects.	Niagara River	WNY Land Conservancy	Local	\$996,000	2017-2019	Habitat Restoration	Underway
Niagara Gorge Rim Restoration Plan	Development of an ecological restoration plan for the Niagara Gorge Rim.	Niagara River	Wild Ones Niagara/Niagara River Greenway Commission	Local	TBD	TBD	Habitat Restoration	Planning
Niagara River AOC Ecosystem Restoration, Great Lakes Fishery and Ecosystem Restoration	The study consisted of a conceptual design for possible ecosystem restoration of fish and wildlife habitats, including islands and wetlands along the US shoreline of the Niagara River. Plans and concepts were shared with project partners and used as the basis for detailed design at project sites including East River Marsh, Buckhorn State Park, Burnt Ship Creek, Grass Island and Spicer Creek.	Niagara River	US Army Corps of Engineers, Buffalo Niagara Riverkeeper, NYS DEC, NYS Parks, Niagara River Greenway Commission	Federal/State/Local	-	TBD	Habitat Restoration	Unfunded by Congress
Niagara River Bird & Herptile Population Project	The purpose of this project is to evaluate delisting criteria related to birds and herptiles for the Degradation of Fish and Wildlife Populations Beneficial Use Impairment. Depending on the approach detailed in the work plan, the study will likely include reconnaissance and preliminary field work during 2013. This is the first phase of a multi-year BUI evaluation project.	Niagara River	US Fish & Wildlife	Federal	\$407,400	2014-2018	Data Collection & Research	Underway
Niagara River Ecosystem Restoration	The study will include a reconnaissance analysis for possible ecosystem restoration (reconstruction of fish and wildlife habitats, including islands and wetlands) along the US shoreline of the Niagara River.	Niagara River	US Army Corps of Engineers, Buffalo Niagara Riverkeeper, NYS DEC, Niagara River Greenway Commission	Federal/State/Local	\$100,000	TBD	Habitat Restoration	Unfunded by Congress

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Niagara River Habitat Restoration Strategy	Niagara River Habitat Conservation Strategy identified the most critical biodiversity features of the Niagara River Watershed and its major sub-basins, evaluating features in terms of current ecological health and also vulnerability. The Strategy provides a science-based, collaborative blue-print to guide future efforts and to protect and restore habitat values, species communities and ecological functions that define a healthy Niagara River Watershed.	Niagara River Watershed (11 Sub-watersheds)	Buffalo Niagara Riverkeeper	Federal	\$243,936	2010-2014	Habitat Restoration	Completed
Niagara River NY Strategic Navigation Dredging	Feasibility planning to remove contaminated sediments from the Niagara River. Existing sediment data was compiled and used to create GIS-database. This project led to initiation of the Black Rock Channel Strategic Navigation Dredging Project.	Niagara River	US Army Corp of Engineers	Federal	60,000	2010-2011	Navigational Dredging/Toxics Reduction	Terminated
Niagara River Toxics Management Plan	The four agencies committed to implement a set of actions designed to reduce loadings of chemicals to the Niagara River, focusing on 18 "priority toxics" that were present in the river at concentrations exceeding the most sensitive agency criteria. They also committed to ongoing monitoring of the river. A key milestone was to achieve a 50% reduction of ten of the priority toxics believed to be from significant Niagara River sources by 1996. Overall, the agencies met the 50% reduction goal for the ten priority toxics, reducing some by more than 75% through actions addressing point and non-point sources of contamination. This "umbrella" plan does not have specific funding associated with it.	Niagara River	US EPA Environment Canada, NYSDDEC & Ontario Ministry of the Environment	Federal	Not Available	1987-	Toxics Reduction	Ongoing
Niagara Street Gateway Project/Great Lakes Seaway Trail Green Street Project-Phase 1, Buffalo NY	Implementation of Green Infrastructure along Niagara Street within the City of Buffalo to reduce stormwater flows into the City's Combined Sewer System.	Niagara River	City of Buffalo Sewer Authority	Federal/Local	\$500,000	2013-2016	Non-point Source Pollution	Completed
Niagara Street Phase 2, Buffalo NY	Implementation of Green Infrastructure along Niagara Street within the City of Buffalo to reduce stormwater flows into the City's Combined Sewer System.	Niagara River	City of Buffalo Sewer Authority	Federal/Local	\$1.7 mil	2016-2017	Non-point Source Pollution	Underway
Niagara Street Phase 4	Implementation of Green Infrastructure along Niagara Street within the City of Buffalo to reduce stormwater flows into the City's Combined Sewer System.	Niagara River	City of Buffalo Sewer Authority	Federal/Local	Not Available	2018-?	Non-point Source Pollution	Planned
North Gorge Interceptor Project	Phase 1 Removal of sediment and debris from the North Gorge Interceptor to improve function and original capacity.	Niagara River	City of Niagara Falls	Federal	\$11 million	2009-	Water Quality	Completed
Northern Chautauqua County Local Waterfront Revitalization Plan	The Northern Chautauqua County LWRP is a locally prepared, comprehensive land and water use plan for a community's natural, public and working waterfront.	Cattaraugus, Chautauqua, and Walnut Creeks	Chautauqua County and municipalities that border Lake Erie	State/Local	\$230,000	Ongoing	Water Quality	Ongoing
NYDEC Ohio Street Boat Launch	332 linear feet of shoreline and riparian/land restoration.	Buffalo River	Buffalo Niagara Riverkeeper	Federal	\$306,000	2017-2018	Habitat Restoration	Underway
NYPA Planning Assistance (Flooding Impact Study)	Study to evaluate the impact of flooding on threshold water levels within the Niagara River.	Niagara River	US Army Corps of Engineers, New York Power Authority	Federal/Local	\$60,000	2015	Infrastructure Support	Completed
Observing Systems and Monitoring Nearshore Lake Erie	This project increased the existing network of nearshore monitoring on Lake Erie with acquisition of three observational buoys to assess nutrients, energy and particulate fluxes between nearshore and open water zones at listed Great Lakes Areas of Concern, such as Ohio's Ashtabula River and New York's Buffalo River, and at Cattaraugus Creek. An automated underwater vehicle was used to monitor changes in water quality, hydrodynamic parameters and ice thickness. This project was designed to validate work by the University of Michigan on a hydrodynamic forecasting model to predict impacts of environmental and climate change on Lake Erie. Real-time data is available to Great Lakes stakeholders through a website.	Lake Erie	Buffalo State College Great Lakes Center	Federal	\$962,583	2010-2012	Data Collection & Research	Completed

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Old Bailey Woods	805 linear feet of shoreline and riparian/land restoration. The aquatic habitat at the mouth of Cornelius Creek is severely degraded and in need of restoration. FY10 funds were used to complete a Federal Interest Determination, which was negative due to lack of stakeholder support.	Buffalo River	Buffalo Niagara Riverkeeper	Federal	\$700,000	2017-2018	Habitat Restoration	Underway
Ontario Street Aquatic Habitat Restoration		Niagara River	US Army Corp of Engineers	Federal	50,000	2009	Habitat Restoration	Terminated
Phase 2 Long Term Control Plan Receiving Water Quality Assessment	SUNY Buffalo State subcontracted with Malcolm Pirnie to conduct wet and dry weather sampling on Scatiquada Creek and the Niagara River in support of Phase 2 of the BSA Long Term Control Plan.	Niagara River	Buffalo State College	Local	\$219,316	2008-2009	Data Collection & Research	Completed
Point Gratiot Beach Green Infrastructure Planning Study	NYS DEC Division of Water Planning Study to implement green infrastructure at Point Gratiot beach (public) in order to reduce the volume of contaminated runoff to near shore waters. The Beach has experienced beach closings due to unacceptable bacteria tests in the past few years. Proposed projects include removal of impervious surfaces, and installation of biofiltration/bio retention areas and rain gardens, designed to treat, slow, divert or capture runoff to reduce pollutant concentrations that drain into the beach and nearshore areas.	Canadaway Creek	Dunkirk	NYSDEC	\$75,000	2016-2017	Non-point Source Pollution	Underway
Reassessment of Niagara River Area of Concern Sources of Contamination	The project builds upon previous studies and monitoring efforts (completed in the late 1980's to mid 1990's) to reassess point and non-point sources of priority toxic chemicals that have contributed to five of the seven Beneficial Use Impairments (BUIs) at the Niagara River Area of Concern (AOC). While considerable progress has been made by state and local regulatory agencies, a comprehensive reassessment is needed to determine whether delisting criteria have been met and to identify remaining sources of contamination. The sampling program will focus on hazardous waste sites, wastewater discharges and primary tributaries. The expected outcomes include reduction of toxic substances entering the Niagara River and the eventual removal of five of the seven BUIs present at this AOC.	Niagara River	NYSDEC	Federal	\$902,573	2011-	Data Collection & Research	Ongoing
RiverFest Park	460 linear feet of in-water habitat restoration.	Buffalo River	Buffalo Niagara Riverkeeper	Federal	\$432,000	Not Available	Habitat Restoration	Underway
Robert Moses Removal	This is the removal of 2 miles of paved expressway adjacent to the Niagara River, between the Falls and Gorge. Traffic will be routed to the next road over, Whirlpool Drive. This will increase connectivity for green space and recreation, creating 300 acres of greenway.	Niagara River	New York State Office of Parks, Recreation and Historic Preservation, NYS Department of Transportation	State	\$42 million	2018-2020	Infrastructure Support	Planned
Rush Creek Interceptor Project	Project to eliminate the Blasdell Wastewater Treatment Plant & sanitary overflows to area creeks	Smoke(s) Creek	Erie County Division of Sewerage Management	County	\$16 million	2014-2017	Water Quality	Completed
Sanitary Surveys and Website for Beach Water Quality Information	In this project, 38 bathing beach sanitary surveys were conducted on the St. Lawrence River, Lake Ontario, and Lake Erie. Site assessments were performed to identify sources of pollution. Results will be used to direct remediation efforts to improve water quality, reduce bath exposure to pollution, and prevent potential illness. A publicly accessible web-based system with real-time water quality information for all Great Lakes beaches was developed.	Lake Erie	Health Research, Inc.	Federal	\$650,000	2010	Data Collection & Research	Completed
Sanitary Surveys: Lake Erie, Lake Ontario, Niagara River NY State Parks	Sanitary surveys were conducted at seven beaches located on Lake Erie, western Lake Ontario, and the Niagara River. The sanitary surveys identified hydrological conditions, primary pollutants and their source locations. Information generated will be used to improve understanding of contamination problems and implement steps toward beach remediation.	Lake Erie, Niagara River, Smoke(s) Creek	NYS office of Parks, Recreation & Historic Preservation	Federal	\$250,000	2010	Data Collection & Research	Completed

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<p>Scajaquada Creek and Hoyt Laks Restoration, Forest Lawn and Delaware Park, Buffalo NY</p>	<p>This assemblage of individual projects for technical assistance, all with the common goal of restoring the ecological function of Hoyt Lake and Scajaquada Creek within the City of Buffalo, has led to the implementation of a single project for removal of contaminated sediment and habitat restoration. Technical assistance included sediment characterization, engineering evaluations, planning and design for habitat restoration. Buffalo Sewer Authority is implementing the project in Forest Lawn and Delaware Park in close coordination with other partners.</p>	<p>Niagara River</p>	<p>US Army Corps of Engineers, Buffalo Olmsted Parks Conservancy, City of Buffalo (Buffalo Sewer Authority), Buffalo Niagara Riverkeeper, Forest Lawn</p>	<p>Federal/Local</p>	<p>\$400,000</p>	<p>2011-</p>	<p>Toxics Reduction & Habitat Restoration</p>	<p>Ongoing</p>
<p>Scajaquada Creek and Hoyt Lake Technical Assistance for Ecosystem Restoration</p>	<p>This group of related technical assistance efforts resulted in sediment sampling and analysis, hydraulic modeling, planning and detailed design to support ecosystem restoration in the lower Scajaquada Creek and Hoyt Lake. A project is currently being implemented by Buffalo Sewer Authority.</p>	<p>Niagara River</p>	<p>US Army Corps of Engineers, Buffalo Niagara Riverkeeper, City of Buffalo (Buffalo Sewer Authority), Olmsted Parks Conservancy</p>	<p>Federal/Local</p>	<p>-</p>	<p>TBD</p>	<p>Toxics Reduction & Habitat Restoration</p>	<p>On Hold awaiting results of current studies</p>
<p>Scajaquada Creek Restoration Feasibility</p>	<p>Study looks at the feasibility of restoration needs for Scajaquada Creek corridor. Improvements would look at what's necessary to improve creek habitat, fish populations, and water quality.</p>	<p>Niagara River</p>	<p>US Army Corps of Engineers, Buffalo Niagara Riverkeeper</p>	<p>Federal/Local</p>	<p>\$50,000</p>	<p>TBD</p>	<p>Toxics Reduction & Habitat Restoration</p>	<p>On Hold awaiting results of current studies</p>
<p>Seaway Landfill Site (CERCLA Remediation)</p>	<p>The Seaway Landfill site in Tonawanda, NY needs additional capping and remedial work to address soils contaminated with radium, thorium, and uranium. The Seaway landfill is currently undergoing remediation for removal of FUSRAP contaminated soils on the south side of the landfill perimeter. The contractor (TES) is completing work plans for this action and will mobilize to the site in May with completion of the remediation task in 2017.</p>	<p>Niagara River</p>	<p>US Army Corps of Engineers</p>	<p>Federal</p>	<p>\$44.2 million</p>	<p>2012-2017</p>	<p>Toxics Reduction</p>	<p>Underway</p>
<p>Smoke Creek Flood Control Project Restoration</p>	<p>Dredging of sediment from the creek and excavation of accumulated soils from the banks to restore the flood-carrying capacity of the Smoke Creek Flood Control Project. Woody vegetation was also cleared from the banks.</p>	<p>Smoke(s) Creek</p>	<p>NYSDEC, Dormitory Authority of the State of New York</p>	<p>State</p>	<p>Not Available</p>	<p>2015</p>	<p>Flood Control</p>	<p>Completed</p>
<p>Smokes Creek Restoration</p>	<p>Feasibility study to restore ecosystem function at the mouth of Smoke's Creek, where sedimentation has degraded a critical fish spawning habitat. Study will look at dredging and creation of additional wetland and riparian habitat to restore creek corridor.</p>	<p>Smoke(s) Creek</p>	<p>US Army Corp of Engineers, City of Lackawanna</p>	<p>Federal</p>	<p>TBD</p>	<p>2012-</p>	<p>Habitat Restoration</p>	<p>On-hold</p>
<p>South Branch Cattaraugus Creek Round 18 Nutrient Management Implementation Project</p>	<p>Participating farms in the South Branch of Cattaraugus Creek watershed received funding to implement BMP's to reduce agricultural runoff and nutrient management.</p>	<p>Cattaraugus Creek</p>	<p>Cattaraugus County SWCD</p>	<p>State/County</p>	<p>\$722,700</p>	<p>2012 - 2015</p>	<p>Non-point Source Pollution</p>	<p>Completed</p>
<p>South Branch of Cattaraugus Creek County Road 12 Bridge 9</p>	<p>The Cattaraugus County DPW and Cattaraugus County Soil & Water Conservation District determine emergency streambank projects around the county every year and budget funds to correct these issues to improve water quality, flood control, non-point source pollution and infrastructure protection. This project armored the stream bank with rock riprap to protect the road shoulder and repair existing rock. This will prevent further erosion and sediment loading.</p>	<p>Cattaraugus Creek</p>	<p>Cattaraugus County DPW & Cattaraugus County SWCD</p>	<p>County</p>	<p>\$17,957</p>	<p>2015</p>	<p>Erosion Control</p>	<p>Completed</p>

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<p>South Branch to Cattaraugus Creek County Road 12 Emergency Stream Bank Project #2</p>	<p>The Cattaraugus County DPW and Cattaraugus County Soil & Water Conservation District determine emergency stream bank projects around the county every year and budget funds to correct these issues to improve water quality, flood control, non-point source pollution and infrastructure protection. This project armored both wing walls under the bridge and upstream from the bridge on the right descending bank with riprap. Two flow training structures were added to help improve alignment under the bridge.</p>	Cattaraugus Creek	Cattaraugus County DPW & Cattaraugus County SWCD	County	\$29,750	2016	Erosion Control	Completed
<p>South Park Lake, NY</p>	<p>USACE initiated a feasibility study to evaluate alternatives for aquatic ecosystem restoration in South Park Lake in Buffalo. The project was terminated as a Federal project due to a lag in the required non-Federal cost-share. Erie County and the City of Buffalo have developed a strategy to pursue this project, building on the information provided by USACE.</p>	Buffalo River	US Army Corps of Engineers	Federal	Not currently funded	2010-	Habitat Restoration	Terminated
<p>Spicer Creek Wildlife Management Area Habitat Restoration</p>	<p>Records indicate that the nearshore area adjacent to the Wildlife Management Area supported emergent marine wetlands. Riverine wetlands are now absent from this area, likely due to modified water levels for power generation, wave action from heavy boat traffic, seasonal beaching of boats for recreational purposes, and ice-driven disturbances. The goal of this project is to restore the wetlands through the installation of a segmented breakwall system to protect the area from disturbances.</p>	Niagara River	NYSDEC	State		2017 -	Habitat Restoration	Ongoing
<p>Spring Brook Stream Restoration and Habitat Improvement, Erie County, Springville, NY</p>	<p>The project improved brook trout habitat conditions by reducing sediment and nutrient inputs, reduced in-stream water temperatures, and reduced bank erosion. Approximately 2,700 linear feet of stream channel were enhanced with grade control structures, rip rap and lunkers in the stream, and tree and shrub plantings in the riparian zone. A fish survey conducted in the summer 2015 found brook trout using the restored sections.</p>	Headwaters Cattaraugus Creek	US Fish & Wildlife	Federal	\$100,000	2013-2015	Habitat Restoration	Completed
<p>Stella Niagara Habitat Enhancement</p>	<p>This 29 acre preserve was purchased by WNYLC, and the purpose of the project is to enhance the site for wetland and meadow restoration. The project includes invasive species removal, native plantings, including several rare plants, oak savannah plantings and grassland/meadow creation and maintenance. The project is intended to improve and create habitat which will sustain and support multiple species of greatest conservation need, including multiple species of birds, amphibians, native pollinators, among others. Creation of public recreational hiking paths is another component of the project.</p>	Niagara River	WNY Land Conservancy	Local	\$510,000	2016-2017	Habitat Restoration	Underway
<p>Stormwater Mapping Project (Erie & Niagara Counties) - Phase 1 and Phase 2</p>	<p>Mapping the stormwater conveyance systems of Municipal Separate Storm Sewer Systems using GIS.</p>	MS4 Communities within Erie & Niagara Counties	NYSDEC, Erie County Department of Environment & Planning, Western New York Stormwater Coalition	State/Local	\$1,412,319, \$556,307	2011-2017	Data Collection & Research	Underway
<p>Strawberry Island Habitat Restoration</p>	<p>Habitat improvements designed to create approximately seven acres of new diverse wetland habitat for fish, wildlife and water birds on the state-owned island. The improvement project includes measures to protect downstream shallow water habitats that may be affected by erosion caused by severe storms.</p>	Niagara River	New York Power Authority	State/Local	\$2.3 million	2014-2016	Habitat Restoration	Underway

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<p>The Lake Erie Nearshore and Offshore Nutrient Study</p>	<p>This project assessed the causes of nutrient-related problems in the Lake Erie central and eastern basins. It quantified the major biotic and abiotic nutrient pools, rates of nutrient movement, and trophic pathways in the nearshore and offshore regions of Lake Erie. Additionally, data was coupled with hydrodynamic models of particle transport and phosphate source tracking to assess whether the pools of nutrients in the nearshore and offshore regions follow predicted patterns of lake mixing models. The models are used to determine where nutrients came from and how they move from the nearshore to offshore Lake Erie, providing information to managers on how and where to address excess nutrient input.</p>	<p>Lake Erie</p>	<p>Buffalo State College Great Lakes Center</p>	<p>Federal</p>	<p>\$615,813</p>	<p>2011-2014</p>	<p>Data Collection & Research</p>	<p>Completed</p>
<p>Tift Nature Preserve Site Improvements</p>	<p>This is a green infrastructure and storm runoff reduction project at Tift Nature Preserve. The heavily compacted gravel parking lot, which floods and runs off into Lake Kirsy, will be replaced with pervious pavement. Numerous swales, bioretention areas, rain gardens and other native plantings will be installed to prevent invasive species establishment, and improve the riparian buffer. This project will emphasize education, have signage and learning areas to inform visitors about runoff and water quality issues. Additionally, this project will greatly improve visitor access, as the uneven gravel does not adequately accommodate school buses, families with young children and visitors with special needs.</p>	<p>Buffalo River</p>	<p>Tift Nature Preserve (Buffalo Museum of Science)</p>	<p>Local</p>	<p>\$533,738</p>	<p>2015-2017</p>	<p>Water Quality, Flood Control, Erosion Control, Habitat Restoration, Outreach & Education</p>	<p>Underway</p>
<p>Times Beach CDF Phragmites Demo (Buffalo, NY - Outer Harbor)</p>	<p>Times Beach is a former confined disposal facility (CDF) located on the shore of Buffalo Harbor. This project has entailed planning, design, and implementation of projects to demonstrate means of removing, adaptively monitoring and controlling aquatic invasive plants. A particular area of focus is expected to be control of Phragmites australis. This project also contains a restoration planting plan to bolster the existing native species.</p>	<p>Buffalo River</p>	<p>US Army Corp of Engineers</p>	<p>Federal</p>	<p>\$1,376,000</p>	<p>2012-2018</p>	<p>Data Collection & Research</p>	<p>Underway</p>
<p>Toe of Katherine Street</p>	<p>805 linear feet of shoreline and riparian/upland restoration.</p>	<p>Buffalo River</p>	<p>Buffalo Niagara Riverkeeper</p>	<p>Federal</p>	<p>\$500,000</p>	<p>2017-2018</p>	<p>Habitat Restoration</p>	<p>Underway</p>
<p>Tonawanda Creek Watershed Agricultural BMP Implementation Project</p>	<p>In the Niagara County section of the Tonawanda Creek Sub-watershed participating farms received funding to cover their Barmyards to reduce erosion of animal wastes.</p>	<p>Tonawanda (Lower and Middle) Creeks</p>	<p>Niagara County SWCD</p>	<p>State/County</p>	<p>\$450,000</p>	<p>2011-2015</p>	<p>Non-point Source Pollution</p>	<p>Completed</p>
<p>Tonawanda Creek Watershed Agricultural BMP Implementation Project</p>	<p>After completing Agricultural Environmental Management Assessments, Participating Farms are implementing BMPs throughout the watershed. Covering Barmyards to reduce erosion of animal wastes.</p>	<p>Tonawanda (Lower, Middle, and Upper) Creek</p>	<p>Niagara County SWCD Genesee County SWCD Wyoming County SWCD</p>	<p>State/County</p>	<p>\$1,647,000</p>	<p>2001 -</p>	<p>Non-point Source Pollution</p>	<p>Ongoing</p>
<p>Town of Clarence Storm Modeling</p>	<p>The Town of Clarence requested planning assistance from the USACE to conduct hydrologic models for 5, 10, 25, and 50 year storm events based on the Town's current MS4 infrastructure. Models will be used to help assess solutions to flooding and drainage concerns.</p>	<p>Tonawanda (Lower and Middle) Creeks</p>	<p>US Army Corps of Engineers, Town of Clarence</p>	<p>Federal/Local</p>	<p>\$100,000</p>	<p>TBD</p>	<p>Flood Control</p>	<p>On Hold</p>
<p>Town of Freedom Ditch Stabilization Project, Freedom, NY</p>	<p>The project corrected two roadside ditches in the Town of Freedom with significant erosion concerns that outlet into Clear Creek. The first section rock lined 225 linear feet with medium rock riprap, and a plunge pool was created where the water enters to prevent further scouring. The other section rock lined 500 linear feet with medium rock riprap. Both projects will reduce the amount of sediment that was once making its way to Clear Creek. The area was restrebed and hydosedded upon completion of the project.</p>	<p>Headwaters Cattaraugus Creek</p>	<p>Cattaraugus County SWCD</p>	<p>State/Local</p>	<p>\$21,800</p>	<p>2017</p>	<p>Erosion Control</p>	<p>Completed</p>

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Town of Otto Ditch Stabilization Project on Forty Road, Otto, NY	This project addressed a roadside ditch erosion problem, back in the flood of 2009 the bridge was swept away, since then this section of dirt road hasn't been maintained. The town has been diligently working on getting this road back and hopefully working towards funding for a new bridge. This project consisted of replacing multiple cross culverts, rock-lining 500 linear feet of newly dug ditch to prevent erosion. Ditches and road shoulders were hydroseeded to stabilize the area.	Cattaraugus Creek	Cattaraugus County SWCD	State/Local	\$30,600	2017	Erosion Control	Completed
Tributary 5 to Mansfield Creek County Road 14 Emergency Stream Bank Project #3	The Cattaraugus County DPW and Cattaraugus County Soil & Water Conservation District determine emergency streambank projects around the county every year and budget funds to correct these issues to improve water quality, flood control, non-point source pollution and infrastructure protection. This project removed existing waste concrete blocks, reshaped the banks and installed stacked rock riprap with the bottom course pinned in place to protect the road shoulder and prevent further erosion.	Cattaraugus Creek	Cattaraugus County DPW & Cattaraugus County SWCD	County	\$38,400	2016	Erosion Control	Completed
Tributary to Buttermilk Creek County Road 32 Stream Stabilization	The Cattaraugus County DPW and Cattaraugus County Soil & Water Conservation District determine emergency streambank projects around the county every year and budget funds to correct these issues to improve water quality, flood control, non-point source pollution and infrastructure protection. This project armored the stream bank with rock riprap to protect the road shoulder and repair existing rock. This will prevent further erosion and sediment loading.	Cattaraugus Creek	Cattaraugus County DPW & Cattaraugus County SWCD	County	\$28,706	2013	Erosion Control	Completed
Tributary to Buttermilk Creek County Road 55 Stream Stabilization	The Cattaraugus County DPW and Cattaraugus County Soil & Water Conservation District determine emergency streambank projects around the county every year and budget funds to correct these issues to improve water quality, flood control, non-point source pollution and infrastructure protection. This project armored the stream bank with rock riprap to protect the road shoulder and repair existing rock. This will prevent further erosion and sediment loading.	Headwater Cattaraugus Creek	Cattaraugus County DPW & Cattaraugus County SWCD	County	\$16,578	2014	Erosion Control	Completed
Tributary to Connoisarauley Creek County Road 12 Stream Stabilization	The Cattaraugus County DPW and Cattaraugus County Soil & Water Conservation District determine emergency streambank projects around the county every year and budget funds to correct these issues to improve water quality, flood control, non-point source pollution and infrastructure protection. This project armored the stream bank with rock riprap to protect the road shoulder and repair existing rock. This will prevent further erosion and sediment loading.	Cattaraugus Creek	Cattaraugus County DPW & Cattaraugus County SWCD	County	\$9,883	2013	Erosion Control	Completed
Tributary to South Branch of Cattaraugus Creek County Road 12 Stream Stabilization	The Cattaraugus County DPW and Cattaraugus County Soil & Water Conservation District determine emergency streambank projects around the county every year and budget funds to correct these issues to improve water quality, flood control, non-point source pollution and infrastructure protection. This project armored the stream bank with rock riprap to protect the road shoulder and repair existing rock. This will prevent further erosion and sediment loading.	Cattaraugus Creek	Cattaraugus County DPW & Cattaraugus County SWCD	County	\$11,961	2015	Erosion Control	Completed

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<p>Tributary to South Branch of Cattaraugus Creek County Road 14 Stream Stabilization</p>	<p>The Cattaraugus County DPW and Cattaraugus County Soil & Water Conservation District determine emergency streambank projects around the county every year and budget funds to correct these issues to improve water quality, flood control, non-point source pollution and infrastructure protection. This project armored the stream bank with rock riprap to protect the road shoulder and repair existing rock. This will prevent further erosion and sediment loading.</p>	<p>Cattaraugus Creek</p>	<p>Cattaraugus County DPW & Cattaraugus County SWCD</p>	<p>County</p>	<p>\$5,360</p>	<p>2015</p>	<p>Erosion Control</p>	<p>Completed</p>
<p>Tributary to South Branch of Cattaraugus Creek County Road 75 Emergency Stream Bank Project #4</p>	<p>The Cattaraugus County DPW and Cattaraugus County Soil & Water Conservation District determine emergency streambank projects around the county every year and budget funds to correct these issues to improve water quality, flood control and non-point source pollution. This project armored the stream bank with rock riprap to protect the road shoulder and repair existing rock. This will prevent further erosion and sediment loading.</p>	<p>Cattaraugus Creek</p>	<p>Cattaraugus County DPW & Cattaraugus County SWCD</p>	<p>County</p>	<p>\$20,950</p>	<p>2016</p>	<p>Erosion Control</p>	<p>Completed</p>
<p>Tributary to South Branch of Cattaraugus Creek Crumb Hill Road Bridge 20</p>	<p>The Cattaraugus County DPW and Cattaraugus County Soil & Water Conservation District determine emergency streambank projects around the county every year and budget funds to correct these issues to improve water quality, flood control, non-point source pollution and infrastructure protection. This project armored the stream bank with rock riprap to protect the road shoulder and repair existing rock. This will prevent further erosion and sediment loading.</p>	<p>Cattaraugus Creek</p>	<p>Cattaraugus County DPW & Cattaraugus County SWCD</p>	<p>County</p>	<p>\$8,680</p>	<p>2015</p>	<p>Erosion Control</p>	<p>Completed</p>
<p>Tributary to South Branch of Cattaraugus Creek Crumb Hill Road Stream Stabilization</p>	<p>The Cattaraugus County DPW and Cattaraugus County Soil & Water Conservation District determine emergency streambank projects around the county every year and budget funds to correct these issues to improve water quality, flood control, non-point source pollution and infrastructure protection. This project armored the stream bank with rock riprap to protect the road shoulder and repair existing rock. This will prevent further erosion and sediment loading.</p>	<p>Cattaraugus Creek</p>	<p>Cattaraugus County DPW & Cattaraugus County SWCD</p>	<p>County</p>	<p>\$12,336</p>	<p>2014</p>	<p>Erosion Control</p>	<p>Completed</p>
<p>Tributary to South Branch of Cattaraugus Creek Meyer Road Bridge 15</p>	<p>The Cattaraugus County DPW and Cattaraugus County Soil & Water Conservation District determine emergency streambank projects around the county every year and budget funds to correct these issues to improve water quality, flood control, non-point source pollution and infrastructure protection. This project armored the stream bank with rock riprap to protect the road shoulder and repair existing rock. This will prevent further erosion and sediment loading.</p>	<p>Cattaraugus Creek</p>	<p>Cattaraugus County DPW & Cattaraugus County SWCD</p>	<p>County</p>	<p>\$8,168</p>	<p>2015</p>	<p>Erosion Control</p>	<p>Completed</p>
<p>Union Ship Canal</p>	<p>A brownfield remediation project at this location included restoration of ecological areas and features, such as reef groupings, benthic substrates, submerged and emergent wetland plantings, and an inland embayment area.</p>	<p>Buffalo River</p>	<p>NYSDEC, Erie County, City of Buffalo</p>	<p>State</p>	<p>Not Available</p>	<p>2011</p>	<p>Habitat Restoration</p>	<p>Completed</p>
<p>Upgrades to Lackawanna Wastewater Treatment Plant and associated systems</p>	<p>Project to upgrade the Lackawanna Wastewater Treatment Plant, excess flow management facility, and the upstream sewer system.</p>	<p>Smoke(s) Creek</p>	<p>Erie County Division of Sewerage Management</p>	<p>County</p>	<p>TBD</p>	<p>2017-?</p>	<p>Water Quality</p>	<p>Underway</p>
<p>Upgrades to Southtowns Advanced Wastewater Treatment Facility</p>	<p>Project to upgrade the Southtowns Advanced Wastewater Treatment Facility to increase capacity and address updated SPDES permit requirements.</p>	<p>Smoke(s) Creek</p>	<p>Erie County Division of Sewerage Management</p>	<p>County</p>	<p>\$75 million</p>	<p>2017-2027</p>	<p>Water Quality</p>	<p>Underway</p>
<p>Upper Cattaraugus Creek Round 22 Water Resource Protection Project</p>	<p>Participating farms in the Upper Cattaraugus Creek watershed received funding to implement BMP's to reduce agricultural runoff and nutrient management.</p>	<p>Headwaters Cattaraugus Creek</p>	<p>Cattaraugus County SWCD</p>	<p>State/County</p>	<p>\$3,090,511</p>	<p>2016 - 2020</p>	<p>Non-point Source Pollution</p>	<p>Underway</p>

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<p>USACE Improvements to Unity Island</p>	<p>This project will utilize dredged sediment from the Buffalo River to partially fill in North Pond at Unity Island. The purpose of this infill is to create a hemi-marsh, or a marsh that is partially submerged and integrated with open water habitats. Large logs will be interspersed throughout the marsh to allow connecting pathways for amphibians and reptiles to move around and bask on. A fish weir will allow for fish movement between the river and hemi-marsh. The hemi-marsh design discourages establishment of invasive knotweed and Phragmites, which prefer wet meadow habitats. Preliminary testing on dredged sediment have shown that it is adequate substrate for the growth of native plants such as water celery. The project will also provide porcupine cribs, which are a type of shelter for small forage fishes.</p>	<p>Niagara River</p>	<p>US Army Corps of Engineers</p>	<p>Federal</p>	<p>~\$2,900,000</p>	<p>2016-2020</p>	<p>Habitat Restoration</p>	<p>Underway</p>
<p>Vernal Pool Enhancement at Tift Nature Preserve</p>	<p>The purpose of this project is to create and enhance existing vernal pools in the wetlands of Tift Nature Preserve. Currently the vernal pools at this site dry up too quickly in the season to properly host amphibians such as salamanders, which require standing water for larval and juvenile growth. This project also has an upland forest restoration component, necessary for the adult phase of amphibian life cycles. To achieve these goals, invasive nuisance trees will be removed from the upland habitat and replaced with natives (wrapped for protection from deer). Natural debris will be removed from vernal pools, then a non-permeable liner will be placed at the bottom to enhance retention. The natural debris will be placed back in the pools, and volunteers and workers will monitor for amphibian presence seasonally.</p>	<p>Buffalo River</p>	<p>Tift Nature Preserve (Buffalo Museum of Science)</p>	<p>Local</p>	<p>\$92,825</p>	<p>2017-2018</p>	<p>Habitat Restoration</p>	<p>Underway</p>
<p>Village of Silver Creek Flood Mitigation Feasibility Study</p>	<p>Feasibility Study for flood mitigation and dredging the mouth of Walnut Creek.</p>	<p>Walnut Creek</p>	<p>US Army Corps of Engineers, Chautauque County & Village of Silver Creek</p>	<p>Federal/Local</p>	<p>\$200,000</p>	<p>2018</p>	<p>Flood Control</p>	<p>Included in 2016 WRDA Bill</p>
<p>Weber Property Acquisition & Restoration</p>	<p>This three phase project will restore and reconnect Cayuga Creek to its floodplain and wetland forest. A 36.9 acre parcel will be acquired from Joseph C. Weber Inc. Following acquisition, the property will be assessed and a master restoration plan will be developed. The third stage will be construction of restoration efforts, including reconnecting the creek to its floodplain, invasive species management, flood mitigation and recreation trail work. The third stage requires public approval for funding.</p>	<p>Niagara River</p>	<p>Buffalo Niagara Riverkeeper, WNY Land Conservancy, Town of Niagara</p>	<p>Local</p>	<p>\$452,000 (Estimate)</p>	<p>2016-2019</p>	<p>Habitat Restoration</p>	<p>Planning</p>
<p>Wetland Plantings and Management at Tift Nature Preserve</p>	<p>This was a follow up project completed after extensive invasive species removal at Tift Nature Preserve. This preserve hosts many state-listed species of birds and provides critical wetland habitat in the watershed. The project consisted of native wetland plantings and the purchase of a weather station to better track long term weather trends at the preserve. Without establishing native plants in the absence of Phragmites, a wetland is susceptible to recurrent invasions. A combination of bare roots, plugs and seeds were used to start natives, and protective grids surrounded each planting area to prevent herbivory or other means of damage.</p>	<p>Buffalo River</p>	<p>Tift Nature Preserve (Buffalo Museum of Science)</p>	<p>Local</p>	<p>\$113,000</p>	<p>2015-2016</p>	<p>Habitat Restoration, Data Collection & Research</p>	<p>Completed</p>
<p>Willert Park Green Infrastructure</p>	<p>Implementation of Green Infrastructure in the SPP 281 sewer shed.</p>	<p>Buffalo River</p>	<p>City of Buffalo Sewer Authority</p>	<p>State & Local</p>	<p>\$4.8 mil</p>	<p>2017-2018</p>	<p>Non-point Source Pollution</p>	<p>Underway</p>

<p>Woodlawn Beach Pollution Source Identification & Remediation</p>	<p>This project continued Woodlawn Beach sanitary survey work by conducting pollution source identification on Rush Creek, Blasdell Creek and Foster Brook. Remediation efforts were conducted by studying various beach grooming techniques and other efforts to reduce pollution. Work conducted will help improve beach water quality, recreational opportunities, public health protection of swimmers, and public education.</p>	<p>Smoke(s) Creek</p>	<p>NYS Office of Parks, Recreation & Historic Preservation</p>	<p>Federal/State</p>	<p>\$200,833</p>	<p>2010-2012</p>	<p>Date Collection & Research</p>	<p>Completed</p>
<p>Xenobiotics in Fish from New York's Great Lakes International Waters</p>	<p>Xenobiotics in fish data was collected from Lake Erie, Niagara River, and Cayuga Creek (Niagara County) from 2010-2012 including mercury, polychlorinated biphenyls (PCBs) and a selected group of organochlorine pesticides (OCPs), including dichlorodiphenyltrichloro-ethane (DDT) and its metabolites, chlordane and its metabolites, dieldrin, mirex, photomirex, heptachlor, heptachlor epoxide, hexachlorocyclohexane (HCH) isomers, hexachlorobenzene (HCB), octachlorostyrene and other contaminants.</p>	<p>Cayuga Creek, Lake Erie, Niagara River</p>	<p>NYSDEC</p>	<p>Federal</p>	<p>\$500,000</p>	<p>2010-2014</p>	<p>Date Collection & Research</p>	<p>Completed</p>

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