

Ohio Coastal Management Program Grants 1998 - 2007



CONTENTS

About the OCMP – 3

Types of Grants – 5

Types of Projects

Acquisition – 6

Coastal Access Feature - 9

Construction – 10

Education – 12

Great Lakes Feature -15

Planning – 16

Project Feature - 23

Watershed Plans – 24

Watershed Map - 27

Research/Monitoring – 28

Restoration – 31

CELCP - 32

Appendix A – 35

Complete Grant List
by County

Appendix B (Charts) – 52

Geographic Distribution

Category Distribution

Funding Source Distribution



“Achieve a balance between use and preservation of Lake Erie’s coastal resources, in collaboration with our partners, by effectively administering the Ohio Coastal Management Program.”

– Mission, ODNR Office of Coastal Management

Ohio's Lake Erie Coast

Lucas | Ottawa | Sandusky | Erie | Lorain | Cuyahoga | Lake | Ashtabula

Lake Erie is Ohio's most valuable resource and part of our nation's 4,600-mile Great Lakes seacoast, the largest and most utilized inland sea in the world. Ohio's 312 miles of mainland and island shores, and 2.25 million acres of water and land below, occupy a favored position along this nationally significant shore. Although smallest by volume, Lake Erie is the most southern, productive and biologically diverse of all of the Great Lakes. More than 3 million Ohioans share Lake Erie as their primary source of drinking water and 23 percent of Ohioans live within the eight counties along Lake Erie's coast.

Lake Erie has influenced the growth of Ohio through productive agricultural lands, industries, international harbors and as a recreational destination. However, human pressures have left their mark on the lake environment. Much has changed since American pioneers found open prairies supporting prairie grasses ten feet high and lake waters brimming with sturgeon and whitefish. Woodlands have been cleared, prairies burned and wetlands tilled and drained. Lake Erie was the dumping ground for raw

sewage, chemical works, oil wells, mines, lumber yards and tanneries. Of the 300,000 acres of wetlands that once stretched from Sandusky to Toledo, less than 10 percent remain. Development has left more than 85 percent of the Lake Erie shore armored in an unnatural state. Shore erosion has dramatically shrunk the once expansive beaches that lined the coast. Invasive species such as zebra mussels and phragmites have forever changed Lake Erie's water and beaches. Because humans largely altered the natural coast, it is now necessary to manage activities and the Lake's resources in an effort to protect what remains. The Ohio Coastal Management Program seeks solutions to the problems that affect the Lake Erie coastal region.

Practices of coastal management have existed in Ohio since the early 1900s when the United States and Canada joined to sign the Boundary Waters Treaty, which recognized that degradation of the Great Lakes by any state, province or nation could have widespread effects upon the lakes and coastal residents. However,

coastal stewardship was still lacking. Until the early 1970s, the nation's waterways and shores were becoming increasingly polluted with little regulatory authority in place.

Then in 1972, with the approval of both the Clean Water Act and Coastal Zone Management Act, Ohio began developing a coastal management program. Governor James Rhodes placed this responsibility with the Ohio Department of Natural Resources (ODNR). Grants from the federal National Oceanic and Atmospheric Administration (NOAA) Office of Ocean and Coastal Resource Management helped ODNR accomplish this task. After unanimous approval of the Ohio Coastal Management Act of 1988, the Ohio Coastal Management Program was developed and federally approved on May 16, 1997.

The Ohio Coastal Management Program Document defines the Ohio Coastal Management Area; describes state and federal coastal legislation and management policies for Lake Erie; links state programs, regulations and laws from various state agencies in a coastal network;



and organizes state laws and regulations into nine issue areas including:

1. Coastal Erosion and Flooding,
2. Water Quality,
3. Wetlands and other Ecologically Sensitive Resources,
4. Ports and Shoreline Development,
5. Recreation and Cultural Resources,
6. Fish and Wildlife Management,
7. Environmental Quality,
8. Energy and Mineral Resources, and
9. Water Quantity.

The Ohio Coastal Management Program has been administered by various divisions within ODNR. To enhance stewardship, the Office of Coastal Management was created in 2002 to oversee administration of Ohio's coastal program. To better serve coastal communities' and constituents' needs, the Office was located on Lake Erie's coast.



Ohio Coastal Management Program Funding

Office of Coastal Management receives approximately \$2 million annually from the National Oceanic and Atmospheric Administration to implement the Ohio Coastal Management Program. This money is matched on a 1:1 basis with non-federal funds. Every year the Office of Coastal Management awards approximately \$1 million in grants to help carry out the goals outlined in the program.

There are four primary types of grants through which state and local partners obtain coastal funds: State Pass-through Program; Section 309 Enhancement Grant Program; Coastal Management Assistance Grant Program; and Coastal and Estuarine Land Conservation Program. A one-time Congressional appropriation of \$30 million, the Great Lakes Coastal Restoration Grant Program, was made available in 2001 to acquire and restore critical habitat, implement stormwater controls and clean contaminated sites along the Great Lakes: Erie, Huron, Michigan, Ontario and Superior. In Ohio, nearly \$4.5 million of the \$30 million was made available for both state and local projects in the Lake Erie Watershed.

In This Booklet

A wide variety of projects have been funded through the Ohio Coastal Management Program. These projects help carry out program goals and simultaneously enhance local communities and watersheds.

This booklet organizes projects funded through the Ohio Coastal Management Program into eight categories: acquisition; construction; education; planning; watershed plans; research/monitoring; restoration; and the Coastal and Estuarine Land Conservation Program. Each section contains a description of a category, highlights examples of what has been accomplished, and lists all of the projects that have been completed as of February 1, 2008. The appendices contain a complete listing of all completed, awarded and proposed projects as of the same date. Charts are also included that compare dollars funded by county, category and by funding mechanism. When possible, the document reflects final project costs and final grant amounts issued.

LAKE ERIE

Length: 241 miles

Breadth: 57 miles

Coast Length: 871 miles

Ohio's Coast: 312 miles

Average Depth: 62 feet

Maximum Depth: 210 feet

Volume: 116 cubic miles

Water Area: 9,910 sq. mi.

Land Drainage Area:

30,140 sq. mi.

Retention Time: 2.6 years

Outlets: Niagara River and Welland Canal

Types of Coastal Grants

State Pass-through Program grants are designated for projects by state partners including fellow ODNR divisions. These projects focus on tasks that support the implementation of the nine issue areas in the Ohio Coastal Management Program (listed on page 4). Partnering with experts at other state agencies helps advance the goals of the Ohio Coastal Management Program. These state partners include: the departments of Agriculture, Development, Health, and Transportation; the Ohio Environmental Protection Agency, the Ohio Historic Preservation Office, and the Ohio Lake Erie Commission. Recipients of State Pass-through funds are required to commit to a 1:1 non-federal match for the competitively awarded federal funds.

The Ohio Coastal Management Program was federally approved May 16, 1997.

Section 309 Enhancement Grant Program funds projects by both state and local entities that develop and implement changes to the Ohio Coastal Management Program as outlined in a NOAA-approved assessment and multi-year strategy. Ohio's most recent assessment and multi-year strategy was completed and approved by NOAA in 2006. To be eligible for Section 309 funds, a state must assess its coastal program and develop a strategy for enhancing priority areas. The nine priority enhancement areas set by federal statute are: public access; coastal hazards; ocean/Great Lakes resources; wetlands; cumulative and secondary impacts; marine debris; special area management plans; energy and government facility siting; and aquaculture. For federal fiscal years 2006 to 2010, Ohio's main focus will be on coastal hazards, Great Lakes resources, wetlands, cumulative and secondary impacts, and energy and government facility siting.

Coastal Management Assistance Grant (CMAG) Program largely focuses on projects by entities such as local governments, regional planning agencies, park districts and non-profit organizations, but colleges and state agencies may also apply. The Ohio Revised Code (O.R.C. §1506.02) mandates this grant program and specifies what these grants will be used for including: feasibility studies and engineering reports; habitat and endangered species protection and preservation; coastal hazard management issues; public access; historical, cultural, or aesthetic coastal resource protection and preservation; and redevelopment of deteriorating and underutilized ports and waterfronts. Approximately \$250,000 is made available annually to help facilitate the valuable initiatives and actions of local partners that are aimed at achieving the goals of wise and sustainable coastal resource management.

Coastal and Estuarine Land Conservation Program (CELCP) provides funding for acquiring high quality coastal properties threatened by development. Simultaneously, the sites provide Ohioans and visitors important public access and recreational opportunities. From 2003 through 2007, Ohio has been awarded more than \$20 million from the Program. Matched locally, this funding has preserved more than 3,000 acres of high quality, publicly accessible coastal wetlands, island and littoral properties, and other ecologically significant properties within Ohio's Lake Erie watershed.





Acquisition projects

funded by the Ohio Coastal Management Program protect remaining undeveloped natural resources near Ohio's coast. Tributaries, wetlands and headwater areas containing threatened habitat, affecting water quality, and/or improving the recreational value of the lake are sought. The goal is to preserve areas that will help improve Lake Erie for the public's benefit.



A majority of acquisition dollars are granted to local groups to purchase land from willing sellers. Public access is an essential component of all acquisition projects. Local communities, metroparks, nonprofit organizations and the ODNR continually work to identify and protect important coastal areas throughout the Lake Erie watershed.



The 2001 **Great Lakes Coastal Restoration Grant Program** was a one-time Congressional appropriation that enabled numerous acquisition projects by local and state entities. These projects resulted in the protection of over 240 acres of wetlands and floodplains, including more than 4,000 linear feet of riparian habitat along seven Lake Erie tributaries.

Existing natural areas and open space have been enhanced by the protection of additional adjacent habitat, such as in the **Meadowbrook Acquisition Project** by Danbury Township in Ottawa County. In this case, the area of preserved wildlife habitat was nearly doubled by the addition of 30 acres. This wetland area preserves habitat and helps filter and control the rate of runoff into Sandusky Bay.



Headwater areas, riparian forest and wetlands have been protected through projects such as the **Russell Uplands Preserve**. The Russell Township Park Commission in Geauga County worked with a local land trust and utilized multiple funding sources to acquire 118 acres of riparian forest. Approximately 16,000 linear feet of headwater streams of the Chagrin River, a designated State Scenic River, were protected from



development along with extensive floodplains and EPA Category 3 wetlands. Protecting and maintaining headwater reaches, flood plains and riparian forests helps Ohio communities protect their properties from erosion, maintain drinking water quality and ensure recreational opportunities are available in streams and Lake Erie.

Placing conservation easements on areas that are ecologically functional even though they are not pristine can also be a significant step toward maintaining the quality and functional integrity of waterways leading into Lake Erie. One example is the **Cuyahoga River West Bank Preservation** project completed by Cleveland Metroparks. When landfill and earthmoving activities began to threaten riparian corridor on four industrial zoned parcels located across the Cuyahoga River from the Ohio and Erie Canal Towpath Trail, Cleveland Metroparks worked to acquire conservation easements on the hillside portions of these parcels. These easements have protected the existing riparian corridor, lowered the threat of hillside erosion, and will enable natural resource restoration work along this segment of the river.

The **Kukay Property Acquisition** by the ODNR Division of Parks and Recreation is an example of an acquisition project that improved public access to the Lake Erie coast. This project added 10.7 acres of property to the Marblehead Lighthouse State Park in Ottawa County, furthering historic preservation opportunities at the park.



The Coastal and Estuarine Land Conservation Program is also an acquisition program. It is discussed in a separate section (page 32).

Acquisition

Protecting remaining undeveloped natural resources

*Project
Grantee
Grant Amount/Total Project
Cost
Description*

Lake Front Park Adjacent Property

City of Huron
\$12,500/\$25,000
Acquired property adjacent to Lake Front Park to preserve green space and provide future public access.

West Creek Land Acquisition and Stream Restoration

City of Parma
\$206,000/\$348,600
Acquired two areas totaling 23 acres. This linked and expanded the existing 180-acre West Creek Preserve. A stream restoration implementation plan was prepared, identifying a stream restoration program and funding opportunities. The plan was implemented improving 1,200 linear feet of stream, providing habitat restoration and enhancement, and erosion abatement.

Cuyahoga River West Bank Preservation

Cleveland Metroparks
\$89,500/\$179,000
Acquired four conservation easements totaling 13.6 acres in the Village of Brooklyn Heights along the Cuyahoga River. This acquisition has protected the riparian corridor, reduced the threat of hillside erosion, and enabled natural resource restoration.

Munson Township State Scenic Upper Chagrin River Preservation Project

Munson Township
\$120,000/\$510,000
Acquired 78 acres of riparian and wetland habitat along the Upper Main Branch of the Chagrin State Scenic River. A conservation easement was placed on these acres, and an easement was acquired on an adjacent 17 acres. This acquisition has ensured the site's permanent preservation and maintenance of its flood and erosion control and water quality benefits.

Russell Uplands Preserve Russell Township Park Commission

\$250,000/\$2,183,000
Acquired 118 acres of riparian forest; protected about 16,000 linear feet of headwater streams and extensive floodplains; and preserved approximately two acres of high quality wetlands.

Lower Grand River Floodplain Acquisition

Lake Metroparks
\$125,920/\$181,478
Acquired 14.52 acres of Grand River floodplain wetland. The park district has preserved the site as a natural area and allows passive recreation use as a river access point. Water quality is protected and enhanced by maintaining the natural floodplain.

City of Eastlake Ward Creek Riparian Corridor Acquisition and Preservation Project

City of Eastlake
\$368,520/\$608,356
Acquired 15.5 acres of wooded land along Ward Creek, a small tributary of the lower Chagrin River. A conservation easement was also placed on an adjacent 31 acres of land bordering Ward Creek. A total of 46.5 acres were preserved reducing erosion and protecting habitat and stream quality.

Meadowbrook Acquisition Project

Danbury Township Trustees
\$152,167/\$304,334
Acquired 30 acres partly located in the area known as Meadowbrook. Approximately half the area is made up of wetlands and located in a 100-year floodplain. This acquisition preserves wildlife habitat, a natural area and open space. This area is adjacent to 33.5 acres presently owned by Danbury Township.

Kukay Acquisition ODNR-Parks and Recreation

\$2,000,000/\$2,500,000
Acquired 10.7 acres of Lake Erie coastal property adjacent to Marblehead Lighthouse State Park.

Muddy Creek Corridor Acquisition

Sandusky County Park District
\$216,400/\$307,825
Acquired approximately 120 acres of floodplain and riparian corridor on Muddy Creek. This acquisition was a key part of a larger plan to protect and restore the Muddy Creek corridor in order to improve water quality and wildlife habitat, and to provide educational opportunities by demonstrating "Best Management Practices."

Acquisition

Mud Brook Preserve- Sensitive Wetland Addition

City of Hudson
\$149,000/\$188,376
 Acquired 29+ acres including 16 acres of sensitive wetland and more than 2,600 linear feet of Mud Brook and Powers Brook, tributaries to the Cuyahoga River. The property became part of the adjacent Mud Brook Preserve.

Grand River Riparian Forest Protection/ Acquisition

ODNR-Natural Areas and Preserves
\$204,000/\$616,659

Along the Grand River, 342 acres were protected with conservation easements.

Grand River Indian Point Acquisition

Lake Metroparks
\$68,720/\$88,945

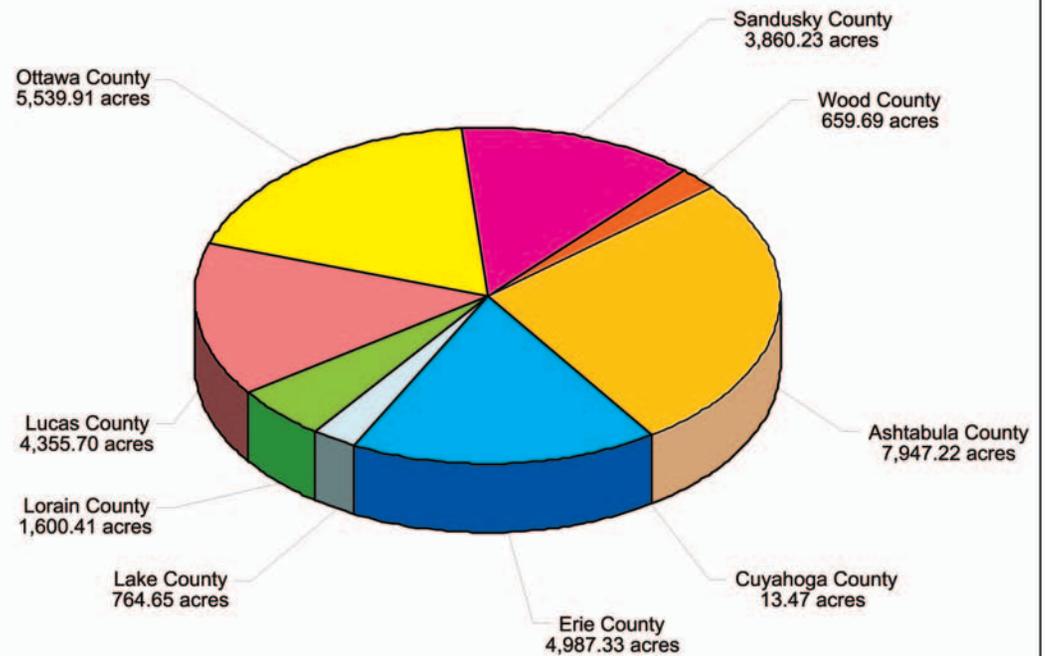
Acquired 12.4 acres of forested floodplain and hillside buffering 650 feet of the north bank of the state-designated "wild" portion of the Grand River. The parcel includes a 40-foot waterfall and will further enhance a 1,600-acre contiguous block of protected parkland on the Grand River and its Paine Creek tributary.

Wynn Road Site Acquisition for Ecosystem Restoration

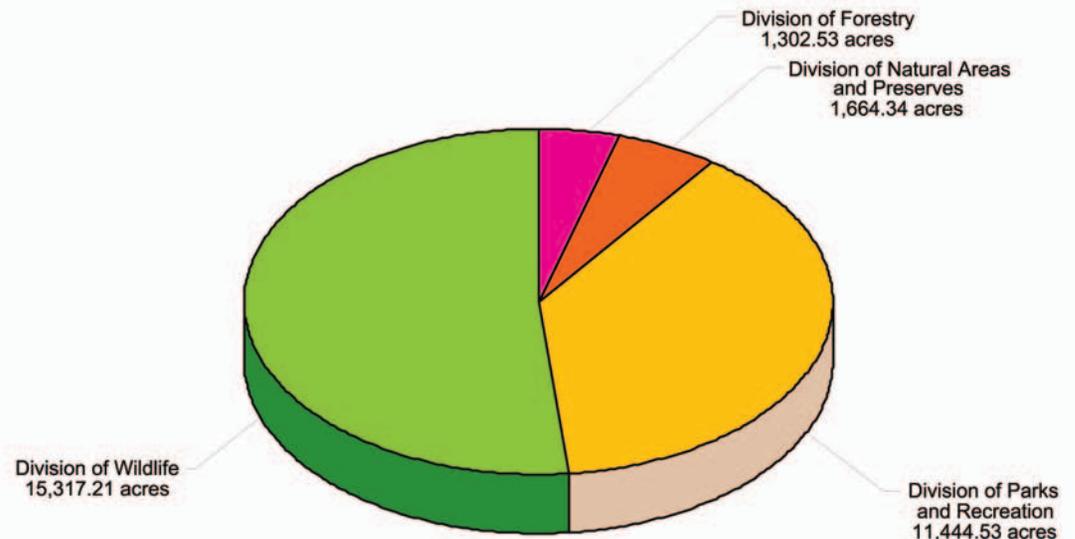
City of Oregon
\$204,000/\$262,704
 Acquired 57 acres of a coastal corridor upstream of Maumee Bay that will provide water quality protection and restoration.

Mentor Marsh Acquisition
City of Mentor
\$107,769/\$233,584
 Acquired 5.57 acres of prime coastal habitat as part of a larger project that acquired 99.7 acres along the Mentor Marsh.

ODNR Protected Lands, acreage by coastal county



ODNR Protected Lands, acreage by ODNr Division (within coastal counties)



Source: ODNr Division of Real Estate and Land Management, "2005 Land Inventory," 2005

Coastal Recreation Access

The allure of the shore: wind, waves, water, sand.



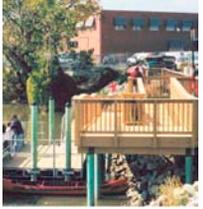
Ohio's 312-mile Lake Erie coast boasts 116 recreational access locations that are accessible to the public. These locales offer various activities and amenities such as beaches, fishing sites, picnic areas, playgrounds, trails and wildlife viewing opportunities. The sites represent state parks, nature preserves and wildlife areas, city and township parks, county metro-parks and fishing piers, among others.

Combined, the public areas consist of 44 miles of accessible shore, approximately 14 percent of the entire coast. The points were identified and field-checked in 2005 by the staff of the Office of Coastal Management. Erie County has the most publicly accessible recreation areas with 25 locations, followed by Cuyahoga and Lake counties (21

each), Ottawa County (17), Lorain County (13), Ashtabula County (11), Lucas County (7) and Sandusky County (1).

Private parks, beach clubs, marinas, restaurants, golf courses, private campgrounds, apartment complexes and trailer parks, are not included in the inventory. Coastal Recreation Access Identification maps can be found in Chapter 5: Outdoor Recreation and Tourism of the *Ohio Coastal Atlas Second Edition* and DVD edition. Marinas, docks and other boating access facilities are mapped separately in the chapter. This information can be downloaded from the Office of Coastal Management website and shown on interactive maps through the Lake Erie Map Viewer at www.ohiodnr.com/coastal/gis.





Construction projects

supported by the Ohio Coastal Management Program enhance existing public access sites or provide new access opportunities along Lake Erie. Improving coastal access to meet current and future demand is an important component of the Program. This emphasis on public access is supported in Ohio's 2003 Statewide Comprehensive Outdoor Recreation Plan that states: *"Water-based recreation activities continue to be among the most popular in our water-rich state. Fishing, swimming, beach activities, and boating all rank among Ohioans' favorite outdoor recreation pursuits."*

Although Lake Erie is the state's primary region for recreation and tourism, only 44 miles (14 percent) of Ohio's 312 miles of shore are publicly accessible. Ohio Coastal Management Program grants have been used from Toledo to Ashtabula to construct facilities that create and improve public access sites.

Access to improve education and awareness was the goal of a project in Toledo (Lucas County) along **Swan Creek**. The city of Toledo constructed a boat landing at the site of their Erie Street Market from which pontoon boat tours are conducted throughout the summer. The **interpretive public tours** provide a unique perspective of Swan Creek and the adjacent land use. The landing may also be used by canoeists, kayakers and anglers.

Topography has created challenges for many communities who desire to provide equal access for all of their residents and visitors. For those with physical disabilities, getting to the water for fishing or gaining access to beaches and scenic views can be very challenging. **Improving the accessibility of Ohio's coast** has been the focus of several coastal grant funded construction projects.

The city of Sandusky (Erie County) constructed two **wheelchair-accessible fishing stations** along its waterfront. The stations consist of platforms placed over large rock rip-rap shore

protection. With the addition of the platforms, Shoreline Park and the Municipal Boat Ramp site now offer safer access to the water's edge for fishing and scenic views.

The **Lakewood Park Lakefront Revitalization Project** provided an ADA compliant access ramp down a steep slope to give Lakewood (Cuyahoga County) residents and other visitors the opportunity to be closer to the lake. In addition to using an Ohio Coastal Management Program grant for the ramp, the city of Lakewood used other funding sources to improve upland park trails leading to the ramp and to construct a promenade at the bottom of the ramp that runs the length of the park along the shore.

Cleveland Metroparks used Ohio Coastal Management Program grant funding to add **ADA compliant access to historic Huntington Beach** (Cuyahoga County). Previous access to the beach at this bluff-top park was limited to stairways leading down to the beach. A handicap-designated parking area at the beach level with an access drive up to the main park area was added to this heavily used metropark.



Construction

Enhance existing public access sites and provide new access opportunities

Project
Grantee
Grant Amount/Total
Project Cost
Description

Walnut Beach Boardwalk
City of Ashtabula
\$15,400/\$23,053

Constructed a fully accessible boardwalk to Lake Erie with an observation/seating area at Walnut Beach.

Swan Creek Landing Tour Boat

City of Toledo
\$64,540/\$130,395

Constructed a floating dock and fully accessible ramp for a pontoon boat that is being used to provide educational tours on Swan Creek.

Put-In-Bay Ice Ramp Rehabilitation

Put-In-Bay Township
\$40,000/\$57,143

Renovated and improved the Put-In-Bay Ice Ramp to provide access for ice fisherman and eliminate a safety hazard.

Waterworks Park Multi-Purpose Trail System

City of Port Clinton
\$25,000/\$38,074

Linked existing recreational, historical and natural areas, provided shoreline access and created additional recreational and educational opportunities.

Walnut Beach Nature Trail

City of Ashtabula
\$15,000/\$34,800

Constructed a self-guided nature trail over the Lake Erie beach dunes and the Ashtabula River's estuary wetlands that includes observation decks and walkways.

Mentor Beach Park Shoreline Access

City of Mentor
\$26,146/\$50,291

Provided public access to Lake Erie shoreline by constructing a stairway, landing, and promenade next to the Mentor Beach Park Pavilion.

Emergency Boat Launch & Ice Ramp Rehabilitation Phase II

Put-in-Bay Twp. Trustees/ Put-in-Bay Twp. Port Authority
\$10,000/\$20,931

Rebuilt the ice ramp and emergency boat launch ramp to access Lake Erie at an alternate location.

City of Sandusky Fishing Stations

City of Sandusky
\$21,000/\$45,358

Increased recreational fishing opportunities for disabled citizens through the construction of two handicap accessible fishing stations. One located at Shoreline Park and the other at the Shelby Street Boat Launch Facility.

South Beach Utilization Project

ODNR-Parks and Recreation
\$8,759/\$15,984

Developed a multi-use trail and four picnic areas/public access stations at South Beach in East Harbor State Park.

Overlook Beach Park Stairway

City of Mentor-on-the-Lake
\$52,500/\$108,318

Provided safe, easy access to Overlook Beach and corrected a surface runoff problem that was causing erosion. Included handicap access to the top of the bluff and maintenance access to the beach.

Miller Park Beach Access

City of Avon Lake
\$74,530/\$149,060

Constructed a ramp to the beach area for safe public and emergency access off of the existing fishing pier.

Lakewood Park Lakefront Revitalization Project

City of Lakewood
\$65,250/\$130,500

Provide safe public access to the lakefront at Lakewood Park through the creation of an ADA accessible pathway to the "Lakewalk" area.

Huntington Beach ADA Beach Access

Cleveland Metroparks
\$50,000/\$100,000

ADA Parking spaces and an accessible walk were built to enable access to Huntington Beach.

Beach Access Trail at East Harbor State Park

ODNR - Parks and Recreation

\$5,500/\$11,000

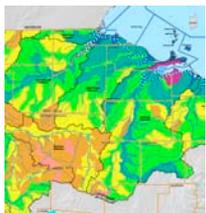
Since completed, pedestrians, bikers, rollerbladers, and others have a safe path from the campground to the public beach.

Marblehead Lighthouse Entrance Sign

ODNR - Parks and Recreation

\$7,200/\$15,245

New entrance sign was designed, created and installed at the Marblehead Lighthouse State Park. Additional interpretive signage was also installed around the complex to assist visitors.



Education

is a key component in maintaining a healthy balance between the use of Ohio's coastal resources and their preservation. Ohio Coastal Management Program partners work with local officials and residents throughout the Lake Erie watershed to ensure decisions are made with the best available information. For example, a key publication designed as a tool for local decision makers is the **Ohio Coastal Atlas**. This document combines maps, pictures, illustrations and text in an easy to understand format which is available in print, DVD and online at ohiodnr.com/coastal/gis. Sample Atlas maps are found throughout this document.



Ohio Coastal Management Program funding has been used to produce materials and conduct trainings for watershed coordinators in the western Lake Erie basin. The Ohio Environmental Council received funding for the **Northwest Ohio Sustainable Watershed Project**. In this project, watershed coordinators were given opportunities to learn ways to maintain sustainable funding sources to continue their mission of restoring and maintaining watersheds' biological integrity. Four training sessions were conducted during 2006 throughout northwest Ohio.



Program funding awarded to the ODNR Division of Soil and Water Conservation was shared with the **Old Woman Creek National Estuarine Research Reserve** in Erie County to construct a **permeable paving demonstration project**. A five-car parking



lot addition, using a permeable gravel-paved surface, was installed at the Old Woman Creek dormitory. The purpose was to reduce storm water runoff, expand public parking, and demonstrate the use of a permeable pavement system in the design of a public parking lot facility. Included in the project was a surface water retention swale that uses vegetation to absorb water and allow sheet flow into the estuary.

The Ohio Sea Grant College Program and partner agencies have developed and implemented the Lake Erie-wide **Ohio Clean Marinas Program** with Ohio Coastal Management Program funding. The Ohio Clean Marinas Program is a proactive partnership designed to encourage marina operators and boaters to use simple, innovative solutions to keep Ohio's coastal and inland waterway resources clean. The goal of the program is environmental stewardship by educating marinas and boaters to be more aware of environmental laws, rules and jurisdictions, and to get as many marinas as possible to follow best management practices. The Ohio Clean Marinas Program has obtained support from marina operators and state agencies and started an innovative, successful **Shrink-wrap Recycling Program** which keeps plastic out of landfills. The Ohio Clean Boater



Program was also developed and is being implemented as a part of the Ohio Clean Marinas Program through separate funding.

Other education projects included interpretative signage such as those at the Marblehead Lighthouse State Park. Educational displays and literature help relay the importance of natural, cultural and economic resources that improve the quality of life for coastal residents and visitors.

A key component in balancing coastal resources' use and preservation

Education

Project
Grantee
Grant Amount/Total
Project Cost
Description

Coastal Erosion Assistance Program (1998)

ODNR-Geological Survey
 \$88,109/\$148,040
 Provided technical assistance and on-site assessment services for coastal resource issues.

Great Lakes Vessels, 1815-1980: Image Database

Bowling Green State University
 \$10,482/\$19,392
 Completed a comprehensive and searchable image database of approximately 10,000 Great Lakes vessels from 1815-1980, including those that have operated on or are now shipwrecks in Lake Erie.

Coastal Erosion Assistance Program (1999)

ODNR-Geological Survey
 \$75,178/\$139,526
 Monitored and mapped erosion prone areas and provided technical assistance.

Computer System for Lake Erie Shipwreck Center

Great Lakes Historical Society
 \$5,645/\$13,652
 Provided a computer system at the Lake Erie Shipwreck Center in Vermilion for use by the public and researchers to access the Great Lakes vessel and shipwreck database.

Exhibits for Lake Erie Islands Regional Welcome Center

Ottawa County Visitors Bureau
 \$70,000/\$395,000
 Assisted with design of interactive displays and interpretive exhibits in the Lake Erie Islands Area Regional Welcome Center. The displays highlight Lake Erie's natural resources and related recreational activities.

Lake Erie Shipwreck Hydrographic Information Program

Ohio Historical Society and Great Lakes Historical Society
 \$30,000/\$30,000
 Provided recreational divers, shipwreck enthusiasts and others with current information about Lake Erie shipwrecks.

Coastal Atlas (2000)

ODNR-Geological Survey
 \$47,000/\$47,000
 Provided for the collection of geological resources to share with the public.

Coastal Hazards and Technical Assistance (2000)

ODNR-Geological Survey
 \$114,011/\$245,784
 Developed services to respond to requests and provide on-site evaluations. Provided educational materials to lakefront property owners and governmental agencies.

Ohio Maritime History: Ports and People of Lake Erie, 1880 - 1980

Bowling Green State University
 \$18,639/\$38,003
 Created two unique databases of Ohio maritime resources that are available at the Lake Erie Shipwreck Center in Vermilion.

Old Woman Creek Dormitory Paving

ODNR-Soil and Water
 \$5,000/\$12,800
 Installed permeable paving as a demonstration project at the dormitories.

Northeast Ohio Community Watershed Program

Ohio Environmental Council
 \$23,607/\$51,499
 Produced a funding source compilation, topical workshops, and networking meetings to build the long-term capacity of northeast Ohio watershed groups for developing community-based watershed action plans.

Coastal Hazards and Technical Assistance (2001)

ODNR-Geological Survey
 \$157,786/\$275,752
 Continued development of services to provide technical assistance and education to lake front property owners.

Underwater Archeological Resources

ODNR-Geological Survey
 \$77,000/\$100,750
 Researched known and unknown locations of Lake Erie shipwrecks using side scan sonar.

Lake Level Focus Initiative

ODNR-Watercraft
 \$3,000/\$3,000
 Produced and installed lake level water gauges at various public access points throughout the Lake Erie coast.

North Central Ohio Lake Erie Internet Mapping and GIS, Phase I

North Coast Regional Council of Park Districts
 \$120,000/\$1,746,000
 This project helped pay for a coastal and watershed protection tool that can be used by the NCRCPD and other agencies to prioritize critical habitat preservation and restoration areas to improve and protect coastal water quality. An interactive Internet mapping application for regional planning and public education in the North Central Ohio Lake Erie Watershed was also developed.

Coastal Hazards and Technical Assistance (2002)

ODNR-Geological Survey
 \$121,260/\$242,843
 Continued development of services to provide technical assistance and education to lake front property owners.

Lake Level Focus Initiative

ODNR-Parks and Recreation
 \$16,697/\$16,697
 Produced and installed displays at Marblehead Lighthouse for visitors.

Education

Ohio Clean Marinas Program (2002)

ODNR-Soil and Water
\$20,000/\$40,000

A voluntary initiative designed to help, support and give special recognition to marinas that implement Best Management Practices that are above and beyond regulatory requirements.

Chagrin River Watershed Landowner Guide

Chagrin River Watershed Partners, Inc.
\$10,000/\$10,000

Developed a booklet of "recipes" to guide and empower landowners to minimize their water quality impacts and understand the structure and function of the Chagrin River watershed.

Ohio Maritime Personnel Online Database Project Bowling Green State University

\$14,955/\$30,016

Expanded an existing database of personnel employed in the maritime trades and made them available via the Internet.

Lake Erie Coastal Ohio Natural Heritage Tourism Awareness

Lake Erie Coastal Ohio, Inc.
\$38,396/\$76,791

Produced a television PSA to promote Lake Erie resources and tourism and developed a Corridor Management Plan to assist in obtaining State and National Scenic Byway designation.

Ohio Clean Marinas Program (2003)

ODNR-Soil and Water
\$75,000/\$184,157

A voluntary initiative designed to help, support and give special recognition to marinas that implement Best Management Practices that are above and beyond regulatory requirements.

Underwater Archaeology and Preserve Management

ODNR-Geological Survey
\$10,000/\$10,000

Promoting and preserving underwater archeological resources through research and education.

Wetlands Exhibit

Sandusky Area Maritime Association
\$30,000/\$80,000

Developed an exhibit that focused on issues surrounding Lake Erie coastal wetlands.

Underwater Archaeology Management (2004)

Great Lakes Historical Society
\$34,349/\$102,798

Broadened public awareness of the historical, archaeological and cultural value of Ohio's submerged heritage. This was accomplished by offering public use of the Center's resources, updating and maintaining a Lake Erie Shipwreck GIS database, conducting public presentations, surveying and mapping a shipwreck, and supporting the activities of the Maritime Archaeological Survey Team.

Coastal Atlas (2004)

ODNR-Geological Survey
\$22,975/\$22,975

Collection of geological resources to share with the public.

Ohio Clean Marinas Program (2004)

ODNR-Soil and Water
\$70,405/\$145,405

A voluntary initiative designed to help, support and give special recognition to marinas that implement Best Management Practices that are above and beyond regulatory requirements.

Interpretive Programming

ODNR-Natural Areas and Preserves
\$10,098/\$20,196

A naturalist assisted with programs at Lake Erie nature preserves.

Coastal Zone Technical Assistance

ODNR-Geological Survey
\$111,372/\$328,997

Continued development of services to provide technical assistance and education to lake front property owners.

Coastal Awareness

ODNR-Natural Areas and Preserves
\$24,954/\$49,908

Increased awareness of DNAP and coastal issues for local stakeholders.

Peachman Lake Erie Research Center

Great Lakes Historical Society
\$35,000/\$122,632

Broadened public awareness of the historical, archaeological and cultural value of Ohio's submerged heritage by offering public use of the Center's resources, updating and maintaining a Lake Erie Shipwreck GIS database, conducting public presentations, surveying and mapping a shipwreck, and supporting the activities of the Maritime Archaeological Survey Team.

Ohio Clean Marinas Program (2005)

ODNR-Soil and Water
\$50,000/\$65,329

A voluntary initiative designed to help, support and give special recognition to marinas that implement Best Management Practices that are above and beyond regulatory requirements.

Northwest Ohio Sustainable Watershed Project

Ohio Environmental Council
\$8,641/\$22,304

Provided four interactive fundraising workshops to build long-term financial sustainability for watershed groups.

Development of an Underwater Trailway for

Ohio's Lake Erie

Ohio Sea Grant
\$4,500/\$14,455

Data was collected about various shipwrecks in Ohio's Lake Erie waters. The information about each vessel, including underwater photos and videos are shared at www.ohioshipwrecks.org.

Superior | Michigan | Huron | Erie | Ontario

The **Great Lakes** span more than 750 miles from west to east. These vast inland freshwater seas provide water for consumption, transportation, power, recreation and a host of other uses for the more than 30 million people who live in the Great Lakes basin.

The Great Lakes are part of the largest system of fresh surface water on earth; containing roughly six quadrillion gallons of water or about 95 percent of the United States' fresh surface water and 18 percent of the world's freshwater supply. Only the polar ice caps contain more fresh water.

The magnitude of the Great Lakes water system is difficult to appreciate, even for those who live within the basin. The lakes cover a total surface area of 94,000

square miles. This is the equivalent to the combined land area of Ohio (40,953 square miles), Pennsylvania (44,820 square miles) and New Hampshire (8,969 square miles). If the entire volume of water in the Great Lakes was spread evenly over the continental United States, it would cover the land with about 10 feet of water.

Dubbed "the nation's fourth seacoast," the U.S. Great Lakes shore is more than 4,500 miles



long, longer than the Atlantic Coast. The total Great Lakes shore is

more than 10,000 miles long, including 35,000 islands.

Despite their large size, the Great Lakes are sensitive to the effects of a wide range of pollutants. The sources of pollution include the runoff of soils and farm chemicals from agricultural lands, the waste from cities, discharges from industrial areas and leachate from disposal sites. The large surface area of the lakes also makes them vulnerable to direct atmospheric pollutants that fall with rain or snow on the lake surface.

Outflows from the Great Lakes are relatively small (less than 1 percent per year) in comparison with the total volume of water.



Great Lakes by Size

Lake Superior is the largest Great Lake by volume. It is also the deepest and coldest of the five. Superior could contain all the other Great Lakes and three more Lake Eries.

Lake Michigan, the second largest, is the only Great Lake entirely within the United States. The southern basin of Lake Michigan is home to about eight million people in the Milwaukee and Chicago metropolitan areas.

Lake Huron, which includes the Georgian Bay, is the third largest lake by volume.

Lake Ontario, although slightly smaller in area, is much deeper and contains a larger volume of water than its upstream neighbor, Lake Erie. Ontario's average depth is 283 feet, compared with Lake Erie's average depth of 63 feet.

Lake Erie, the shallowest, most southern and most productive of the five Great Lakes, is exposed to the greatest effects from urbanization and agriculture. You can read more about Lake Erie throughout the Ohio Coastal Atlas found at: ohiodnr.com/coastal.



Planning

is an important component of coastal management. Plans must be current and comprehensive to achieve a sustainable coast. Early on, the federally approved Ohio Coastal Management Program identified the need for increased planning in the coastal region. Several types of planning projects have been funded through coastal grants including comprehensive community planning, public access planning, waterfront/port planning, restoration planning, and special area management planning.

Communities that engage in comprehensive land use or waterfront planning efforts provide direction and support for sustainable decision-making, and are in a better position to compete for implementation funds. Communities such as the city of Lorain are improving their economic base by planning to **reuse abandoned areas and brownfields along their waterways**, while also **improving public access and quality of life**. A coastal grant obtained by the city of Lorain and the Lorain Port Authority was used to study a 400-acre site along the Black River. Half of the site is a former landfill. The final master plan recommended a golf course development for the former landfill area and an expanded light industrial park for the western 200 acres. The industrial park will include an innovative stormwater management system of man-made streams to filter runoff, and a bike and hike trail along the river that will eventually provide access between county metroparks to the south and Lake Erie.

The **Lake Erie Shore Erosion Management Plan (LESEMP)** is a comprehensive review of erosion and mitigation techniques along Ohio's entire shore. Recognizing the need to provide a management plan for coastal communities, the LESEMP is moving toward the creation of a guidance document for local governments and private property owners which will outline possible erosion control alternatives that are best suited for a given reach of shore. The recommendations will be based on

the nearshore characteristics of a region as opposed to an individual property and will be implemented on a voluntary basis.

To date, one special area management plan has been funded through the Ohio Coastal Management Program. The **Mentor Marsh Watershed Special Area Management Plan (SAMP)** was initiated in 2000 by the Ohio Coastal Management Program in coordination with the Marsh Area Regional Coalition. The SAMP's purpose was to produce a comprehensive management plan to address growth management and natural resource protection. The final plan was published in 2004 and included an implementation plan focused on five critical themes. Benefits of the planning process included improved coordination of resource management and community revitalization efforts among various levels of government, nonprofit organizations, educational institutions and private enterprise; the identification of potential public health and safety problems such as wildfires; and a focus on restoration efforts of severely degraded and threatened biological communities. The Marsh Area Regional Coalition has continued to meet and remains committed to plan implementation.

Numerous Ohio Coastal Management Program grant projects have improved access to accurate, relevant and standardized data. Projects conducted at the state level have made data on ground water pollution potential, Lake Erie Watershed digital soils information, and other coastal features available to decision-makers and planners at the state and local levels. Much of this data is formatted for use in a **Geographic Information System (GIS)**. It is also accessible through the **Lake Erie GIS Map Viewer** and Internet Map Server product located on the Office of Coastal Management's website: ohiodnr.com/coastal/gis. Agencies, organizations and individuals can access and print customized maps based on Lake Erie watershed data using this product.

Watershed plans are discussed in the next section.

Plans must be current and comprehensive to achieve a sustainable coast

Planning

Project
Grantee
Grant Amount/Total
Project Cost
Description

Coastal Hazards and
Technical Assistance
(1997)

ODNR-Geological Survey
\$69,137/\$111,887
 Provided accurate, concise and timely technical information and assistance to the public about coastal erosion and flooding.

Cuyahoga Corridor
Towpath Study
Cuyahoga County
Planning Commission
\$22,322/\$31,888

Researched and examined potential opportunities to establish trailheads, recreation areas and waterfront access along the Towpath Trail extension.

Sherod Park Development
Study-Feasibility
City of Vermilion
\$31,942/\$45,632
 Developed a feasibility study to evaluate opportunities for an accessible beach and fishing pier.

Huron Linear Parkway Plan
City of Huron
\$32,843/\$46,918
 Developed a comprehensive plan to link recreational and development opportunities, to preserve, protect and enhance the shore.

Lake Metroparks Lakefront
Protection Study
Lake Metroparks
\$36,750/\$52,500
 Determined the most effective way to limit future shoreline erosion on three areas of Lake Metroparks property.

Upper Black River Master
Plan
City of Lorain
\$40,000/\$77,341
 Developed a plan to identify and develop commercial/light industrial port uses and integrate recreational opportunities.

Cooley Canal Master Plan
Lucas County
\$35,000/\$50,000
 Created a master plan that will preserve, protect and enhance the site's natural resources and recreational facilities for the benefit of Lake Erie.

Master Plan Revision
Village of Kelleys Island
\$33,500/\$57,710
 Revised existing Master Plan to identify coastal hazard areas and sewer districts. Recommended new subdivision regulations, evaluated shoreline zoning and the impact of tourism on the shore and community resources as well as the use of the coastal zone as a tourist attraction.

Special Area Management
Planning (1999)
Davey Resource Group
\$35,000/\$35,000
 Organized the Marsh Area Regional Coalition and began development of the plan.

Stream Restoration
Standards
ODNR-Soil and Water
\$18,783/\$18,783
 Developed mitigation guidance for development that has the potential to negatively affect small to medium size tributaries of Lake Erie through collection of reference data throughout the basin.

West Creek Valley
Management Plan
Cuyahoga County
Planning Commission
\$30,000/\$65,527
 Developed a plant to address issues of erosion, water pollution, habitat preservation, recreational opportunities, neighborhood connections and buffering from adjacent development.

Mentor Area Special Area
Management Plan (2000)
Davey Resource Group
\$16,000/\$16,000
 Inventoried existing conditions, identified strategic issues, and produced the Issue Characterization document.

A Comprehensive GIS For
Mentor Marsh and Its
Watershed
The Ohio State University
\$55,436/\$145,352
 Produced a functional and accessible Geographical Information System for the marsh and its watershed to be used in planning and decision making.

Showse Park Feasibility
Study
City of Vermilion
\$13,988/\$22,976
 Conducted a study to determine what park uses would be appropriate given an eroding shoreline and the community's needs and desire for beach access.

Planning

City of Port Clinton Comprehensive Coastal Land Area Master Plan

City of Port Clinton
\$25,000/
\$50,000

Developed a plan to provide access to Lake Erie and the Portage River while encouraging commercial and recreational uses and preserving natural features.



Waterfront Feasibility Study

Historic Vermilion, Inc.
\$13,734/\$27,469

Determined how to best utilize the riverfront and lakefront of downtown Vermilion while preserving the historic Harbortown area.

Sub-watershed Impervious Cover Analysis (2001)

Chagrin River Watershed
Partners, Inc.
\$9,589/\$9,589

Conducted a baseline study of one headwater stream to assess changes in channel morphology over time.

Cumulative and Secondary Impacts

Chagrin River Watershed
Partners, Inc.
\$44,000/\$44,000

Conducted a baseline study of three headwater streams to assess changes in channel morphology over time.

Mentor Special Area Management Plan (2001)

Davey Resource Group
\$60,000/\$60,000

Identified strategies to address the issues identified and produced the Strategy document.

GIS for Section 401 Enforcement (2001)

Ohio Environmental
Protection Agency
\$92,334/\$174,972
Developed Lake Erie drainage basin geographic information system.

Community Revitalization Plan for the Lower Big Creek Watershed

Northeast Ohio Areawide
Coordinating Agency
(NOACA)
\$60,000/\$123,447

NOACA collaborated with the City of Cleveland to complete the first of three phases in a comprehensive planning effort for the Lower Big Creek watershed. This first phase identified issues on stream recovery, streamside land uses, transportation, and community development elements. An initial problem assessment and strategic goals statement was completed to guide Phase 2 planning.

Eastern Lake County Coastal Comprehensive Plan

Lake County Planning
Commission
\$16,751/\$33,509
Produced a comprehensive coastal plan for the communities and port authorities of eastern Lake County to help guide future local government decisions.

McGarvey's Landing Marina Plans

Vermilion Port Authority
\$16,350/\$32,700
Created a master plan and design drawings for a transient, handicapped accessible marina.



Cumulative Impacts of Land Use Changes on Headwater Streams Chagrin River Watershed Partners, Inc.

\$36,000/\$36,000
Sampled 60 headwater streams to determine the impacts of land use change on headwater stream functions.

City of Aurora Natural Stream and Floodplain Restoration Study

City of Aurora
\$31,970/\$39,962
Conducted a comprehensive study of the Walden Watershed, a tributary to Tinkers Creek and the Cuyahoga River. Through this project, the City of Aurora avoided the use of traditional engineering solutions, such as gabion baskets and rip rap, to address flooding, erosion, and sedimentation problems and demonstrate the appropriateness of non-structural measures that address watershed problems while maintaining and enhancing natural stream and floodplain functions.

Mitigation Site Identification Chagrin River Watershed Partners, Inc.

\$17,999/\$31,891
Developed an inventory of potential stream and wetland mitigation sites in the Chagrin River watershed.

Plans must be current and comprehensive to achieve a sustainable coast

Mentor Area Special Management Plan (2002)

Davey Resource Group
\$70,000/\$70,000

Prioritized the strategies previously identified and developed an Implementation Plan. Created public outreach and education materials.

GIS for Section 401 Enforcement (2002)

Ohio Environmental Protection Agency
\$36,000/\$36,000

Developed a Lake Erie drainage basin geographic information system.

Steelhead Run Nature Preserve

Lake Metroparks
\$10,417/\$21,259

Conducted ecological assessments for areas proposed for use as nature preserve/wetlands, public access and riparian habitat along the Grand River in the Lakeview Bluffs redevelopment area.

Black River/Lorain Harbor Shoreline Master Plan

City of Lorain
\$27,322/\$54,643

Assessed the public access and commercial development potential of the iron ore pellet facility site located at the mouth of the Black River.

Lake Erie GIS

ODNR-Real Estate and Land Management
\$59,362/\$118,724

Established a web based information management tool for decision makers.

Dam removal in the Ottawa River, Ohio: A feasibility study needed for comprehensive regional planning.

University of Toledo and BGSU
\$39,990/\$80,421

Conducted a feasibility study on removal of a 1920s lowhead dam near RM 11 on the Ottawa River.

Community Revitalization Plan for Lower Big Creek, Cleveland, Ohio Phase 2 Northeast Ohio Areawide Coordinating Agency

\$43,256/\$129,726
Coordinated the Phase 2 Planning and Feasibility studies in the Lower Big Creek watershed, maintained a stakeholder Project Advisory Team, and continued to engage the public in plan development.

Sub-watershed Impervious Cover Analysis (2003)

Chagrin River Watershed Partners, Inc.
\$26,000/\$26,000

Documented an impervious cover analysis methodology and conducted an analysis for select Chagrin River subwatersheds.

Euclid Creek Watershed Planning Guide

Cuyahoga County Planning Commission
\$40,000/\$87,755

Developed a guide that will be a comprehensive tool for the watershed communities for framing future planning and policy decisions on economic development, community health, and ecological restoration based on a watershed planning approach.

Site Planning Forum

Chagrin River Watershed Partners, Inc.
\$10,000/\$20,000

Identified barriers to the implementation of alternative site design practices such as low impact development techniques and conservation development.



Mentor Area Special Management Plan (2003)

Davey Resource Group
\$70,000/\$70,000

Produced a comprehensive management plan to address growth management and natural resource protection. Process was directed by the Marsh Area Regional Coalition.

Chagrin River Watershed Mitigation Site Identification

Chagrin River Watershed Partners, Inc.
\$10,000/\$20,000

Developed a list of potential wetland mitigation sites and a detailed methodology. Produced a wetland setback model ordinance and case studies of enacting local wetland protection.



Planning

Western Lake County Coastal Comprehensive Plan

Lake County Planning Commission
\$19,999/\$39,997

Developed a comprehensive coastal plan for the communities and port authorities of western Lake County.

Lake Erie GIS ODNR-Real Estate and Land Management \$80,000/\$160,000

Coordinated efforts for geographic information systems in the Lake Erie Watershed.

Lake Erie Erosion Management Plan Phase I ODNR-Real Estate and Land Management \$50,000/\$100,000

A foundation for expanded technical assistance and regulatory decision making capabilities was created.

Lake Erie Access Program ODNR-Real Estate and Land Management \$39,248/\$78,496

Continued database refinement for public access point along Lake Erie.

Remapping the CEA: Coastal Hazards and Technical Assistance: Coastal Atlas for Ohio Shore

ODNR-Geological Survey
\$203,925/\$407,850
Initiated coastal erosion remapping and the geological coastal atlas.

Mill Creek Greenway Connector Trail Cleveland Metroparks \$90,000/\$219,539

Accomplished the design and engineering for the construction of .7 miles of a 2.5 mile all purpose trail.

Feasibility Study for Public Access: Dike 14, Cleveland, OH City of Cleveland \$50,000/\$109,394

Completed a study to help the City of Cleveland develop alternatives that will allow the public to safely access the site and enjoy the flora and fauna.



Rehabilitation Study for the Former US Coast Guard Cleveland Harbor Station North of Whiskey Island

City of Cleveland
\$50,000/\$100,010
Produced a study that incorporated a community dialog process along with an existing conditions assessment, a detailed rehabilitation program including cost estimates, and renderings of the future building use.

Updating Parking Requirements to Minimize Impervious Cover Chagrin River Watershed Partners, Inc. \$20,000/\$20,000

Examined parking requirements and needs and developed model parking codes to minimize excess impervious cover.

Bayfront Corridor Extension

City of Sandusky
\$14,072/\$28,155
Completed a study to extend the existing Bayfront Corridor to create a new 8-mile lakefront trail and open space corridor.

Lake County Coastal Priority Projects Feasibility Study

Lake County Planning Commission
\$17,000/\$67,140
Provided detailed data/information such as cost and construction time estimates to local decision makers on priority projects identified in two years of community planning initiatives to promote recreational, economic, and social destinations.

Evaluating the Effectiveness of Riparian and Wetland Setback Zoning Chagrin River Watershed Partners, Inc. \$40,000/\$40,000

Analyzed research on riparian and wetland functions and appropriate setbacks to maintain those functions as land is developed.

Alternative Sewage Treatment Systems & Conservation Design in Unsewered Areas Chagrin River Watershed Partners, Inc. \$15,000/\$15,000

Developed case studies identifying where alternative sewage treatment methods have successfully been used with conservation design development in areas with soils and climate similar to northeast Ohio.

Ohio Coastal Resource Inventory GIS Support ODNR-Real Estate and Land Management \$150,000/\$177,763

Geographically referenced visualization of coastal data.



Outdoor Recreation Planning and Design Project ODNR-Real Estate and Land Management \$15,000/\$30,000

Inventoried projects in coastal counties administered by the Division of Real Estate and Land Management

Water Well Log Data Retrieval Enhancements ODNR-Water \$9,333/\$24,375

Enhanced the water well log database process.

Great Lakes Charter Annex 2001 with Great Lakes States and Provinces ODNR-Administration \$50,521/\$144,853

Developed agreements regarding water withdrawal from the Great Lakes with other Great Lakes states and provinces.

Plans must be current and comprehensive to achieve a sustainable coast

Planning

**Ground Water
Potentiometric Surface
Mapping in the Lake Erie
Basin**

ODNR-Water
\$42,904/\$85,807
Created maps for ground water flow for Ashtabula, Lake, Geauga, Cuyahoga, Lorain, Medina and Portage counties.

**Lake Erie Boating
Facilities/No Discharge
Zone Application**

ODNR-Watercraft
\$12,050/\$24,100
Updated Lake Erie boating facilities database and drafted no discharge application.

Annex 2001 Support (2004)

ODNR-Water
\$21,200/\$42,400
Developed agreements regarding water withdrawal from the Great Lakes with other Great Lakes states and provinces.

**Coastal Erosion Area
Remapping (2004)**

ODNR-Geological Survey
\$55,501/\$55,501
Monitored and mapped erosion prone areas.

**Sheffield Lake Proposed
Boat Ramp Sedimentation
Study**

City of Sheffield Lake
\$4,500/\$9,000
Produced a report describing the amount and nature of sedimentation that can be expected at the proposed ramp location and how that might affect the proposed boat ramp, dock and breakwater design.



**Ground Water Pollution
Potential Mapping in the
Lake Erie Basin**

ODNR-Water
\$43,311/\$87,298
Created maps and reports to show the vulnerability of ground water for contamination in Allen and Auglaize counties.

**Continued Assistance for
Coastal GIMS**

ODNR-Real Estate and Land Management
\$20,000/\$40,000
Updated information regarding geographic information systems to assist with decision making.

Annex 2001 (2005)

ODNR-Water
\$36,484/\$75,506
Developed agreements regarding water withdrawal from the Great Lakes with other Great Lakes states and provinces.

**Statewide Digital Soils Info-
Lake Erie Watershed**

ODNR-Information Technology
\$12,500/\$40,161
Produced and distributed digital soils data for Lake Erie watershed counties.

Coastal Erosion Area (2005)

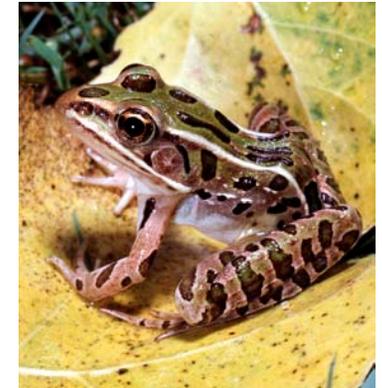
ODNR-Geological Survey
\$58,346/\$105,682
Monitored and mapped erosion prone areas along Ohio's Lake Erie shore.

**Euclid Creek Restoration –
Subwatershed Planning**

Cuyahoga Soil and Water Conservation District
\$43,292/\$86,741
Determined the needs and methods to address coastal nonpoint pollution and examine the restoration alternatives, feasibility, costs, and application within the lower Euclid Creek sub-watershed.

**Ground Water
Potentiometric Surface
Mapping**

ODNR-Water
\$34,000/\$81,173
Created maps for ground water flow for Erie, Huron, Ashland and Richland counties.



**Ground Water Pollution
Potential Mapping in the
Lake Erie Basin**

ODNR-Water
\$38,656/\$77,323
Created maps and reports to show the vulnerability of ground water for contamination in Wyandot and Putnam counties.

**Community Plan for the Mill
Creek Watershed**

Cuyahoga County Board of Health
\$39,322/\$87,918
Developed a Comprehensive Community Plan that included a gap analysis of information necessary for the completion of a State Endorsed Watershed Action Plan.

Planning

Balanced Growth Program Implementation (2005) Ohio Lake Erie Commission \$50,000/\$345,968

The Ohio Lake Erie Commission adopted recommendations for a program to achieve balanced growth in the Ohio Lake Erie Watershed. The program helps communities plan for the location and design of development.

Sandusky Parks and Recreation Comprehensive Master Plan

City of Sandusky
\$39,655/\$98,904

Developed a master plan for parks within the city, focused on waterfront access and development that is fiscally responsible, effective and efficient.

National Wetlands Inventory

ODNR - Coastal
\$66,807/\$116,807

Digital images were acquired and verified to support research in the Lake Erie coastal counties.

Balanced Growth Program Implementation(2006) Ohio Lake Erie Commission \$55,000/\$221,342

Lake Erie Commission continued work to implement balanced growth practices in Ohio. During this grant cycle staff worked towards the following goals: 1) Encourage local governments to utilize balanced growth principles to provide coastal protection, 2) Develop and implement education program concerning the use of best local land use practices to achieve balanced growth, and 3) Support watershed pilot projects by providing information, guidance, technical assistance and public education.

Lorain Diked Disposal Site Preliminary Master Plan Lorain Port Authority \$25,000/\$50,000

Provided detailed preliminary plans and engineering estimates for the overall site development of the 58-acre Lorain Diked Disposal Site including a general design layout for proposed uses, utility extensions, lighting, public preservation areas, and accessibility.

Chagrin Watershed Nonpoint Pollution Best Practices Case Studies Chagrin River Watershed Partners \$14,969/\$14,969

Two case studies were developed to show the costs of traditional subdivision design and storm water management and highlight the cost saving and benefits of conservation development and low impact development.

Ground Water Pollution Potential Mapping in the Lake Erie Basin ODNR - Water \$33,000/\$66,085

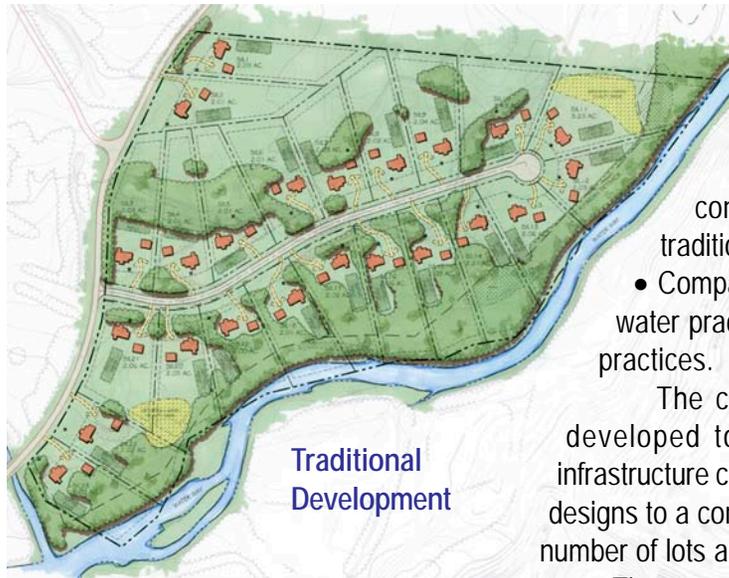
Created maps and reports to show the vulnerability of ground water for contamination in Van Wert and Paulding counties.

Balanced Growth Program Indicators Ohio Lake Erie Commission \$25,000/\$46,418

The Balanced Growth Task Force recommended the development of indicator measurements to track changes and to attempt to attribute these to balanced growth activities. The three indicator categories are as follows: Programmatic accomplishments, land use changes and Water quality improvement.



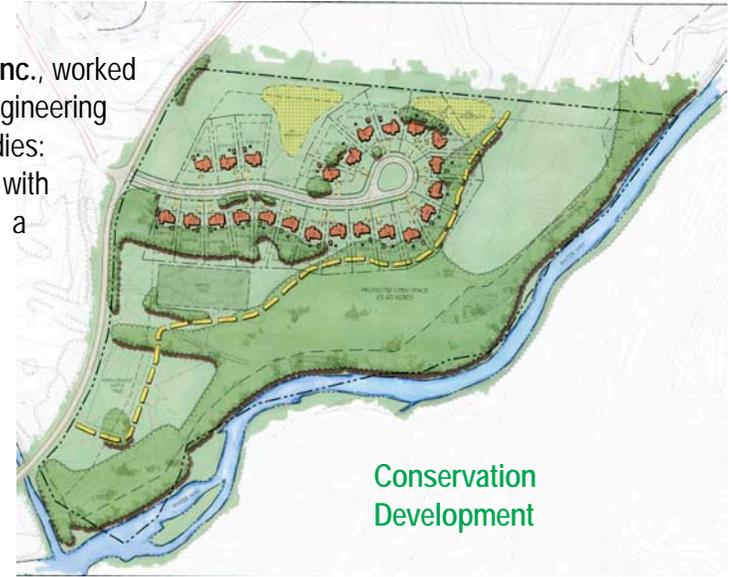
Planning Case Study: Traditional Design vs. Conservation Development



The Chagrin River Watershed Partners, Inc., worked with Oxbow Engineering, Inc. and Polaris Engineering Inc. to develop the following two case studies:

- Compare infrastructure costs associated with conservation development design compared to a traditional subdivision design, and
- Compare the use of low impact development storm water practices to traditional storm water management practices.

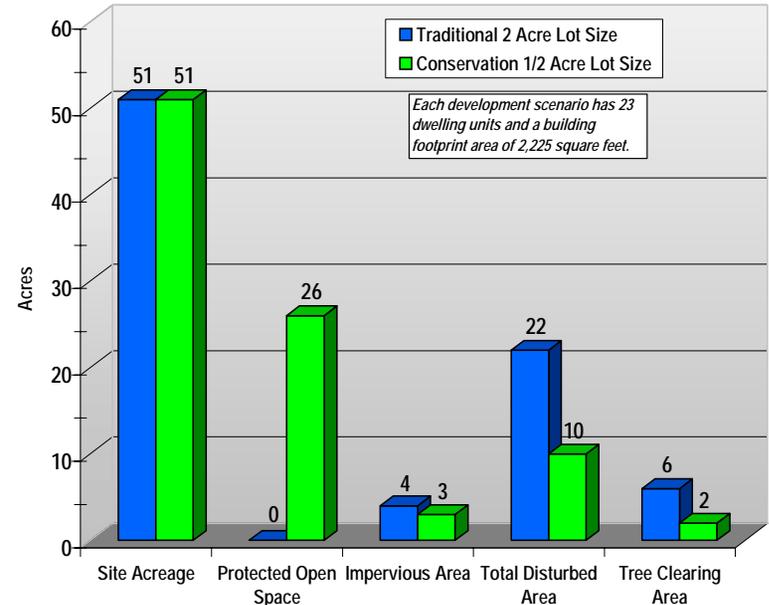
The conservation development case study was developed to visually and numerically compare the infrastructure costs of 2- and 3-acre lot traditional subdivision designs to a conservation development design with the same number of lots and a minimum of 40 percent designated open space. The case study shows that the overall infrastructure costs



are less for the conservation development compared to the traditional development design. The infrastructure costs included storm water management, erosion and sediment control, drinking water and waste water systems, site preparation, and road installation. The 2-acre lot comparison is featured here.

Traditional vs Conservation Development Costs

	Traditional (2 Acre lot size)	Conservation (1/2 Acre lot size)
Site Work	\$163,805	\$108,363
Pavement	\$144,977	\$111,131
Drinking Water	\$230,000	\$230,000
Sanitary System	\$276,000	\$252,630
Storm Water Management	\$54,400	\$62,000
Erosion Control	\$91,500	\$63,357
Finish Grade	\$176,620	\$115,125
Total	\$1,137,302	\$942,606
Total Per Lot	\$49,448	\$40,983
Total Cost Saving:		\$195,000 overall \$8,500 per lot





Watershed Plans address

challenges created when water resources and habitats are affected by human activities that cross jurisdictional boundaries. *The Ohio Watershed Coordinator Grant Program 2006 Annual Report* states that watershed partnerships are recognized as the appropriate organizational framework for managing nonpoint source pollution, whether from agriculture, mining, forestry, home septic systems, or contaminated urban runoff. As locally-organized partnerships, watershed groups work across political boundaries for the good of the whole watershed and are the most capable establishment to address issues affecting multiple jurisdictions.

The Watershed Coordinator Grant Program began in 2000 under the ODNR Division of Soil and Water Conservation. Since its inception, the main priority of each watershed coordinator has been to work with local stakeholders to **develop a comprehensive Watershed Action Plan**. Each plan sets forth priority actions to restore and maintain the watershed's chemical, physical and biological integrity.

Watershed coordinators use the Ohio Environmental Protection Agency's, "A Guide to Developing Local Watershed Action Plans in Ohio." This guidance requires that all watershed plans developed within the Ohio Lake Erie Watershed describe how Ohio Coastal Nonpoint Pollution Control Program management measures will be implemented within the watershed. This Program is featured on page 26.

The Ohio Coastal Management Program has provided **funding for watershed coordinators** within the Lake Erie Watershed through the ODNR Division of Soil and Water Conservation. Watershed partnerships that have received funding include: Ashtabula River, Grand River, West Creek, Portage River, Black River, Euclid Creek Subwatershed, Sandusky River and Old Woman Creek.

Stormwater Specialists have been trained in stream hydrology, stormwater management, and overall watershed restoration principles and practices by the Division of Soil and Water Conservation. Stormwater specialists promote stream management, stormwater quality best management practices, and construction site erosion and sediment controls, which protect water quality and stream integrity. These specialists have provided technical assistance and helped build the capacity of local governments for stormwater management. Examples of assistance include: drafting new ordinances, improving technical guidance materials and Best Management Practice manuals, and conducting workshops and other outreach related efforts. The Ohio Coastal Management Program has provided funding to the ODNR Division of Soil and Water Conservation to fund Stormwater Specialists in Lucas and Cuyahoga counties.

Lake Erie Watershed map: See page 27

Great Lakes Watershed map: See page 15



Appropriate framework for managing coastal nonpoint source pollution

Watershed Plans

Project

Grantee

Grant Amount/Total

Project Cost

Description

Coastal Nonpoint Pollution Control Program (1998)

ODNR-Soil and Water
\$53,000/\$106,000

Reviewed and updated the Ohio Nonpoint Source Management Program.

Arcola Creek Watershed Plan Development (1999)

ODNR Soil and Water to Lake SWCD
\$49,000/\$49,000

Initiated coordinated efforts to develop a watershed plan for Arcola Creek.

Coastal Nonpoint Pollution Control Program (1999)

ODNR-Soil and Water
\$69,000/\$138,000

Developed a Coastal Nonpoint Pollution Control Program to comply with 1990 Coastal Zone Area Reauthorization Act Section 6217.

Arcola Creek Watershed Plan (2000)

ODNR Soil and Water to Lake SWCD
\$50,000/\$50,000

Developed a comprehensive watershed study for Arcola Creek.

Coastal Nonpoint Pollution Control Program (2000)

ODNR-Soil and Water
\$53,999/\$107,999

Developed and implemented the Coastal Nonpoint Pollution Control Program.

Coastal Nonpoint Pollution Control Program (2001)

ODNR-Soil and Water
\$163,000/\$326,000

Implementation of the Coastal Nonpoint Pollution Control Program.

Coastal Nonpoint Pollution Control Program (2002)

ODNR-Soil and Water
\$125,000/\$250,000

Implementation of the Coastal Nonpoint Pollution Control Program.

Watershed Coordinators Program (2002)

ODNR-Soil and Water
\$80,000/\$160,000

Supported two watershed coordinators within the Lake Erie basin, West Creek and Grand River.

Stormwater Specialist Program (2002)

ODNR-Soil and Water
\$90,000/\$180,000

Provided technical assistance to build the capacity of local governments in stormwater management.

Stormwater Management

ODNR-Soil and Water
\$25,000/\$25,000

Provided technical assistance to stakeholders on the usage of impervious surface.

Lake Erie Watershed Information Management System Development

ODNR-Soil and Water
\$125,000/\$250,000

Developed a comprehensive information system for soil and water conservation districts in the Lake Erie watershed.

Coastal Nonpoint Pollution Control Program (2003)

ODNR-Soil and Water
\$116,000/\$232,000

Implementation of the Coastal Nonpoint Pollution Control Program.

Stormwater Specialists Program (2003)

ODNR-Soil and Water
\$70,000/\$140,000

Provided technical assistance to build the capacity of local governments in stormwater management.

Watershed Coordinators Program (2003)

ODNR-Soil and Water
\$74,200/\$148,400

Supported two watershed coordinators with the Lake Erie basin, West Creek and Grand River.

Coastal Nonpoint Pollution Control Program (2004)

ODNR-Soil and Water
\$114,000/\$228,000

Implementation of the Coastal Nonpoint Pollution Control Program.

Stormwater Specialists Program (2004)

ODNR-Soil and Water
\$60,000/\$120,000

Provided technical assistance to build the capacity of local governments in stormwater management.

Watershed Coordinators Program (2004)

ODNR-Soil and Water
\$66,780/\$133,560

Supported two watershed coordinators within the Lake Erie basin; West Creek and Grand River.

Stormwater Specialists Program (2005)

ODNR-Soil and Water
\$49,500/\$100,000

Provided technical assistance to build the capacity of local governments in stormwater management.

Watershed Plans

Black River Watershed

Action Plan

Lorain County Board of Commissioners

\$28,759/\$59,506

Prepared state endorsable watershed action plans for three sub-watersheds in the Black River Watershed. Plans focus on developing implementation activities and management measures to address nonpoint source pollution.

Coastal Nonpoint Pollution Control Program (2005)

ODNR – Soil and Water

\$71,223/\$849,090
Implementation of the Coastal Nonpoint Pollution Control Program.

Watershed Coordinators Program (2006)

ODNR – Soil and Water

\$59,200/\$118,400
Supported watershed coordinators in the Lake Erie basin.

Ashtabula River Watershed Coordinator (2006)

ODNR - Natural Areas and Preserves

\$55,631/\$111,262

Supported a watershed coordinator in the Lake Erie basin.

Portage River Watershed

Action Plan/ Coastal

Management Measures

Toledo Metropolitan Area Council of Governments

\$23,133/\$46,267

Developed a comprehensive watershed action plan intended to achieve a focus for future water quality projects and decisions in agreement with agricultural practices, drinking water supplies, habitat restoration, floodplain protection and economic development.

Watershed Action Plan –

Sandusky River – Tiffin

Sandusky River Watershed Coalition

\$40,264/\$81,724

Created a state endorsable watershed action plan that addresses coastal nonpoint management measures, and integrates and updates where necessary, previous comprehensive community plans within the watershed.

Watershed Coordinators

Program (2006)

ODNR – Soil and Water

\$53,280/\$106,560

Continued step down support for two watershed coordinators in the Lake Erie watershed on the Grand River and West Creek.

Coastal Nonpoint Pollution Control Program

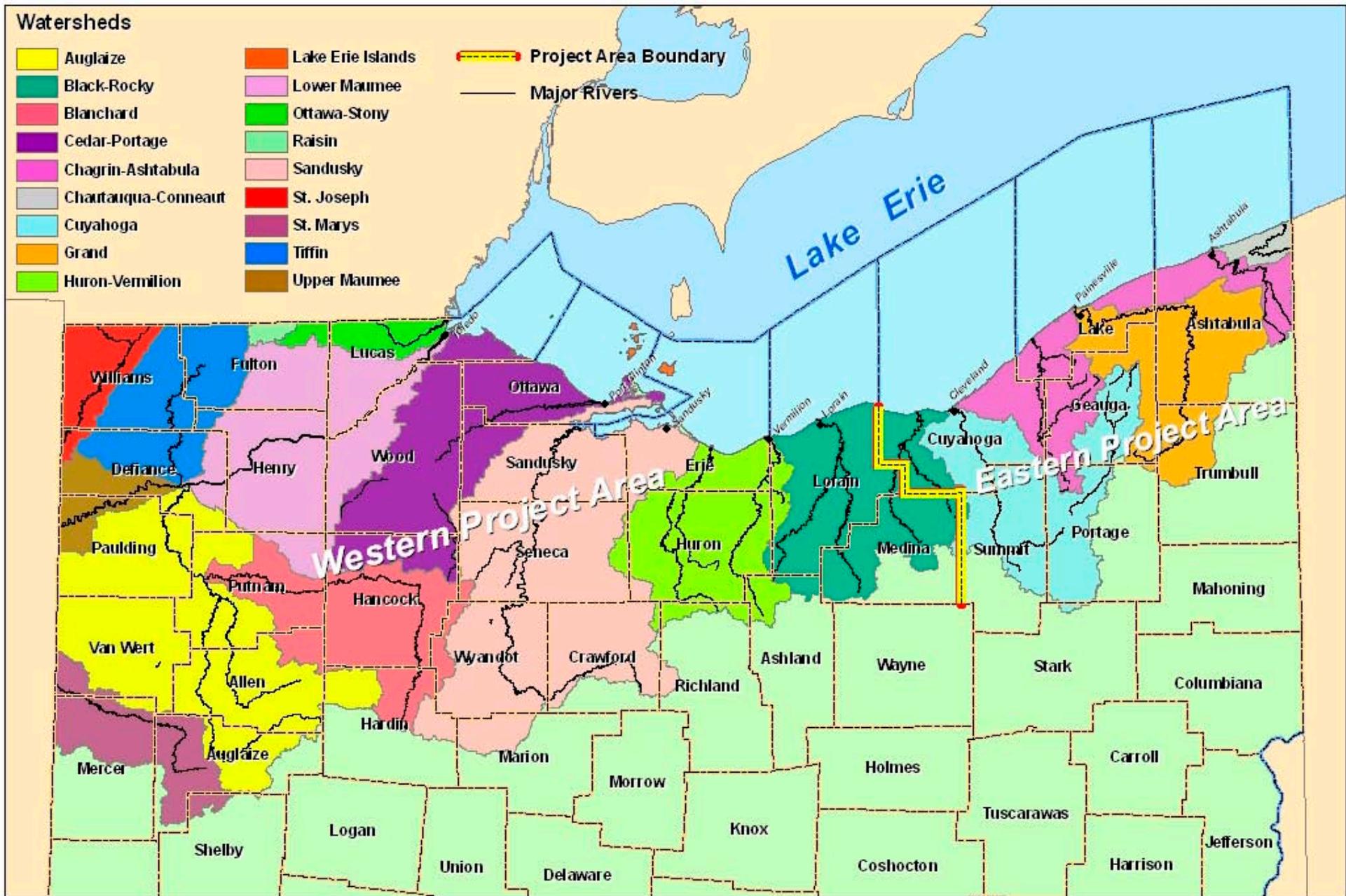
Nonpoint source pollution, which includes habitat alteration, is now responsible for most water quality problems in Lake Erie and its tributaries. Whereas large point source polluters are more easily identified and regulated, almost everyone contributes to nonpoint source pollution on a daily basis. This makes controlling nonpoint source pollution a much greater challenge.

To target eliminating the sources of nonpoint source pollution affecting coastal water quality, Congress enacted section 6217 of the Coastal Zone Act in November 1990. It requires that each state with an approved coastal zone management program develop and submit for approval a Coastal Nonpoint Pollution Control Program (CNPCP).

Ohio's CNPCP, administered by ODNR's Division of Soil and Water Conservation, received conditional approval on June 4, 2002. Since then, Ohio has gained approval on 49 measures. Through Ohio's watershed coordinator program, Ohio has received conditional approval for the remaining 14 management measures under review by NOAA and the U.S. Environmental Protection Agency.

Nonpoint source pollution includes:

- Contaminants that originate diffusely on the land and run off with rain or snow
- Sediment that erodes from unprotected construction sites, farm fields, and streambanks
- Bacteria and pathogens that enter the water from septic systems and combined sewer overflows
- Pesticides, fertilizers, road salt, pet waste, and heavy metals that wash off yards, parking lots, and golf courses
- Physical changes to tributary streams (a.k.a. habitat alteration) including straightening, deepening, widening, damming or otherwise altering a river's natural form and flow





Research and Monitoring

play an integral part in improving the health of the Lake Erie coast. The Ohio Coastal Management Program uses its ability to fund research projects to ensure current and accurate information regarding the health of the Lake Erie and the coastal area is available to decision makers.

In the **Western Lake Erie Coastal Sanitary Surveys** project, researchers identified failed septic systems and educated homeowners on how to reduce untreated sewage discharged into Lake Erie and coastal tributaries. Septic systems in Lucas and Ottawa counties were monitored to determine if untreated sewage was released into small tributaries, which eventually flow to Lake Erie. The dye testing and monitoring demonstrated that septic system failures were occurring, and repairs and replacements were necessary. This project was conducted by the Toledo Metropolitan Area Council of Governments.

Water Quantity Assessments review the cumulative impacts of water withdrawals within a watershed as opposed to reviewing each withdrawal individually. With Ohio Coastal Management Program funding, the ODNR Division of Water has compiled these assessments throughout the Lake Erie watershed. Research has been or is currently being done in the Ashtabula, Grand, Chagrin, Sandusky and Auglaize river basins. This project uses a holistic approach to water quantity management to determine the total effects of water withdrawal on Lake Erie.

Blanding's turtles are a species of "special interest" in Ohio. The **Re-establishment of Blanding's Turtles in Lake Erie Coastal Plain Marshes** project was awarded to the ODNR Division of Natural Areas and Preserves who then contracted with Cleveland Metroparks to conduct this unique study. While

they are not considered endangered at this time, Blanding's turtles could soon become endangered if conservation measures are not implemented to preserve their habitat. The habitat of Blanding's turtles was studied at various sites



throughout the Lake Erie Watershed.

Captive-bred Blanding's turtles were then introduced into suitable wetland habitats in these areas. A portion of this long term study that began in 2001 received funding from the Ohio Coastal Management Program.

The ODNR Division of Natural Areas and Preserves was also awarded Ohio Coastal Management Program

funds to work with researchers at the Ohio State University Mansfield Campus to perform **research on Common Reeds** (*Phragmites* sp.). Work on the "Phragmites Abundance and Benthic Biodiversity in Great Lakes Coastal Wetlands" project was completed at the Old Woman Creek National Estuarine Research Reserve just east of the city of Huron in Erie County; however, the research results can be applied to other wetland locations. The goal of the research was to learn the effects of herbicides used to control *Phragmites* on other plant life near the herbicide application site. Research results have enabled field managers to ensure that the methods they are using to eradicate this invasive reed grass do not create additional problems that may need future attention.

Research/Monitoring

Current and accurate information regarding the health of the Lake Erie coast

Project

Grantee

Grant Amount/Total

Project Cost

Description

Mussel Embryo/Larva Cultivation

University of Toledo

\$36,743/\$68,631

Enhanced current techniques of aquaculture, which could be used to rescue and repopulate native freshwater mussels threatened by pollution and non-indigenous species.

Western Lake Erie Coastal Sanitary Surveys

Toledo Metropolitan Area Council of Governments

\$30,014/\$44,904

Identified failed septic systems, educated homeowners, and reduced untreated sewage discharges into Lake Erie and coastal tributaries.

Coastal Wetlands

ODNR-Natural Areas and Preserves

\$46,240/\$46,240

To advance the acquisition and preservation of high quality coastal wetlands.

Evaluation of Nonchemical Lamprey Control Methods

ODNR-Wildlife

\$10,377/\$32,580

Collected data and evaluated the effectiveness of two nonchemical sea lamprey control methods in the Grand River.

Sheldon Marsh Water Level Monitoring

ODNR-Geological Survey

\$72,972/\$85,399

Water level monitoring was conducted to research ground water contribution at Sheldon Marsh State Nature Preserve.

Feasibility of Lake Erie Region for Nature Based Tourism

Bowling Green State University

\$54,607/\$110,344

This feasibility study analyzed the perceptions of current and potential tourists concerning a three county area as a sustainable nature-based tourism destination.

Sediment Trend Analysis in Maumee Bay Lake Erie

Toledo-Lucas County Port Authority

\$65,530/\$96,530

A Sediment Trend Analysis for Maumee Bay. The sediment transport mapping will be used for planning the siting and design of new sediment disposal areas and for improved shipping channel maintenance.

Investigation of Wolf Creek Bacterial Impact on

Maumee Bay State Park Beach

Toledo Metropolitan Area Council of Governments

\$35,016/\$72,720

This study examined the top layer of sediments to determine the sources and longevity of the bacteria.

Water Quantity Assessment Huron, Vermilion, Black and Rocky River Basins

ODNR-Water

\$28,664/\$57,328

Evaluated a holistic approach to conduct a regional water quantity assessment in the watershed of the Huron, Vermilion, Black and Rocky rivers.

Development of GIS Tools for Integration of Coastal Fish Habitat Management

Case Western Reserve University

\$46,294/\$113,217

Developed GIS-based maps that contained information on habitats located in watershed tributaries to assist in modeling the effects of upstream land-use changes and effects of non-point source pollution on downstream and coastal area fish productivity.

Irrigation Water Study (2002)

ODNR-Soil and Water

\$15,000/\$15,000

Researched effects of irrigated cropland on pollution in the Lake Erie watershed.

Water Quantity Assessment for the Chagrin, Grand & Ashtabula River Basins

ODNR-Water

\$33,537/\$67,075

Evaluated a holistic approach to conduct a regional water quantity assessment in the watershed of the Chagrin, Grand and Ashtabula rivers.

Sand Monitoring in Nearshore Disposal Sites (2003)

ODNR-Geological Survey

\$47,000/\$47,000

Monitored sand movement in nearshore disposal sites along the eastern Ohio shore.

Coastal Biological GIS Specialist (2003)

ODNR-Natural Areas and Preserves

\$39,743/\$79,486

Updated natural heritage database with data layers from the Lake Erie watershed.

Avian Distribution, Population Status, & Implication for Management of the Maumee Bay State Park Wetland

ODNR-Parks and Recreation

\$1,115/\$2,230

Birds were sampled at Maumee Bay State Park to determine population characteristics and habitat needs.

Information to Support Placing Sand as Mitigation During Construction

ODNR-Geological Survey

\$32,000/\$32,000

Monitored sand movement in nearshore disposal sites along the eastern Ohio shore.

Research/Monitoring

Hydrological Investigation at Mentor Marsh

The Ohio State University Research Foundation
\$50,000/\$50,000

This study measured, recorded, and analyzed surface water hydrology and selected water quality parameters at key flow points for Mentor Marsh.

Phragmites Abundance and Benthic Biodiversity in Great Lakes Coastal Wetlands

ODNR-Natural Areas and Preserves
\$26,107/\$58,041

Researched removal methods for Phragmites and the effects on the local environment.

Re-establishment of Blanding's Turtles in Lake Erie Coastal Plain Marshes

ODNR-Natural Areas and Preserves
\$22,240/\$46,070

Researched and released Blanding's Turtles in Lake Erie wetlands.

Coastal Biological GIS Specialist (2004)

ODNR-Natural Areas and Preserves
\$44,982/\$89,964

Updated natural heritage database with data layers from the Lake Erie watershed.

Flood Protection & Mitigation through Dam, Dike & Levee Inspection

ODNR-Water
\$20,269/\$56,186

Inventoried levees in the Lake Erie watershed.

Water Quantity Assessment for the Sandusky River basin

ODNR-Water
\$42,447/\$88,894

Evaluated a holistic approach to conduct a regional water quantity assessment in the Sandusky River Watershed.

Sand Monitoring (2005)

ODNR-Geological Survey
\$27,618/\$96,237

Monitored sand movement in nearshore disposal sites along the eastern Ohio shore.

Irrigation Water Study (2005)

ODNR-Soil and Water
\$5,777/\$11,554

Conducted an accurate needs assessment of Irrigation Water Usage in the Lake Erie Basin.

Coastal Biological GIS Specialist (2005)

ODNR-Natural Areas and Preserves
\$49,819/\$100,859

Updated natural heritage database with data layers from the Lake Erie watershed.

Habitat Research and Development Unit (HRU)

ODNR – Geological Survey
\$18,296/\$18,296

Technical assistance and geological support was given for the Middle Harbor Habitat Restoration. Additional geological support was given as requested.

Lake Erie Watershed Habitat Mapping

ODNR – Natural Areas and Preserves
\$60,053/\$60,053

Produced a habitat map of Ohio's Coastal Management Area, updated the Ohio Natural Heritage Database, created a rare species hotspots GIS layer for the coastal region, updated GIS layers used in the Natural Heritage Database, including conservation sites and boundaries of non-ODNR properties for the Lake Erie watershed, and updated invasive species control GIS database and data on natural areas restoration within the coastal region.



Accelerate the recovery of Lake Erie coastal ecosystems

Restoration projects accelerate the recovery of

the health, integrity and sustainability of Lake Erie coastal ecosystems. Environmental/ecological restoration is the deliberate attempt to restore degraded, damaged or destroyed ecosystems through active human intervention. The practice of environmental restoration includes erosion control, reforestation and habitat improvement. Grant funds allocated for such projects help achieve a goal of the Ohio Coastal Management Program: attaining a healthy coast.

In Geauga County, the Geauga Park District was awarded a Great Lakes Coastal Restoration Grant to perform restoration activities on Silver Creek. The **Silver Creek Restoration project** restored stream integrity (meanders, streamside habitat and flow), reduced nonpoint source pollution movement downstream, restored natural floodplains, and established educational opportunities regarding stream restoration and bioengineering principles. As a result of the project, the Geauga Park District was also able to provide valuable information on restoration tools that other entities can use to stabilize exposed dam impoundments resulting from dam removal projects.

State nature preserves contain some of the finest examples of plant communities from pre-settlement times. While at these preserves, visitors can see now-rare native plant species. Using Ohio Coastal Management Program funding, the ODNR Division of Natural Areas and Preserves has undertaken the **Inventory and Control of Invasive Plants project**. Invasive species are aggressive non-native invaders that eventually displace native plant communities. Through this project, the Division has utilized Geographic Information System (GIS) technology to inventory the location of invasive plants in the numerous state nature preserves in the Lake Erie coastal region. The Division has also begun to remove those invasive plants and uses GIS to track the methods used and monitor the success of the various methods.

Project
Grantee
Grant Amount/Total
Project Cost
Description

Silver Creek Restoration
 Geauga Park District
\$190,000/\$486,844
 This project restored stream integrity (meanders, streamside habitat, and flow), reduced nonpoint source pollution movement downstream, restored natural floodplains and established educational opportunities on stream restoration and bioengineering principles. Valuable information was also provided on restoration tools needed to stabilize exposed dam impoundments created by dam removal.

Aquatic Nuisance Species Control (2001)
 ODNR-Natural Areas and Preserves
\$97,872/\$195,744
 Removal of invasive plant species from state nature preserves.

Inventory and Control of Invasive Plants (2003)
 ODNR-Natural Areas and Preserves
\$37,570/\$75,140
 Removal of invasive plant species from state nature preserves.

Inventory and Control of Invasive Plants (2004)
 ODNR-Natural Areas and Preserves
\$47,999/\$95,998
 Removal of invasive plant species from state nature preserves.

Inventory and Control of Invasive Plants (2005)
 ODNR-Natural Areas and Preserves
\$44,939/\$90,225
 Removal of invasive plant species from state nature preserves.

Inventory and Control of Invasive Species (2006)
 ODNR - Natural Areas and Preserves
\$55,109/\$120,739
 Removal of invasive plant species from state nature preserves along Lake Erie.



The Coastal and Estuarine Land Conservation Program's (Program)

purpose is to protect coastal and estuarine areas that have significant conservation, recreation, ecological, historical or aesthetic values, or that are threatened by conversion from their natural or recreational state to other uses. The Program provides funding for acquisition projects that ensure conservation of these areas for the benefit of future generations. Priority is given to lands that can be effectively managed and protected and that have significant ecological value.

The Program was established by the U.S. Department of Commerce, Justice, and State Appropriations Act of 2002, and Congress provided initial program funding in federal fiscal year 2003. By the end of calendar year 2007, public entities in Ohio had received more than \$20 million in awards from the Program for 19 projects. Of these projects, 13 have been fully or partially completed. For these 13 projects, approximately \$13 million in program funds has leveraged more than \$28.6 million additional federal, state and local dollars (and land match value) for total project expenditures of \$41,769,939. These 13 projects have collectively purchased more than 3,000 acres of high quality, publicly accessible coastal wetlands, island and littoral properties, and other ecologically significant properties within the Lake Erie watershed. The projects awarded and completed in this time period originated under the Congressionally directed funding process of the Program.

The Program also allows Congress to request a list of competitively selected projects, combined from all qualifying states, and prioritized on a national level. To participate in the competitive funding process, the ODNR Office of Coastal Management developed a Coastal and Estuarine Land Conservation Program Plan using NOAA federal guidelines. Ohio has participated in the competitive funding process for

federal fiscal years 2007 and 2008, applying for six projects (maximum three allowed per year). Two of Ohio's projects were nationally ranked sufficiently high for funding in 2007.

To be eligible for funding under the Program, a project must:

- Be located in the Lake Erie watershed, and meet the national criteria described above;
- Match federal Program funds with non-federal funds at a 1:1 ratio;
- Be held in public ownership (fee simple or conservation easements) and provide conservation in perpetuity; and,
- Provide the general public access or other public benefit, as appropriate/consistent with resource protection.



• [Federal Coastal and Estuarine Land Conservation Program coastalmanagement.noaa.gov/land/welcome.html](http://coastalmanagement.noaa.gov/land/welcome.html)

• [Ohio CELCP and Plan ohiodnr.com/coastal/reg/celcp.htm](http://ohiodnr.com/coastal/reg/celcp.htm)

CELCP

*Project
Grantee
Grant Amount/Total Project
Cost
Description*

North Bass Island

**ODNR
\$1,987,000/\$17,400,000**

The 589 acre North Bass Island acquisition includes nearly 2.5 miles of undeveloped shore, 58 acres of natural coastal wetlands, unique geologic features, and numerous state and federal endangered species. Total project cost was \$17.4 million. This includes \$6.8 million appropriated by the General Assembly for this purpose in the state's 2003-04 capital budget and \$2.4 million in other state funds. The remaining \$8 million was funded through federal grants from the CELCP and the Department of Interior's Land and Water Conservation Fund. The state plans to preserve the

island's natural setting by offering low-impact recreation such as primitive camping sites, hiking trails, and opportunities for hunting, fishing, swimming and nature study.

North Bass Island/

Honey Point

**ODNR
\$200,000/\$400,000**
ODNR purchased this 3.9 acre beach on North Bass Island to supplement the prior acquisition.

Pond Brook Wetland

**Summit County
\$579,000/\$3,290,000**
The 231 acre Pond Brook wetland parcel in Summit County is located at the headwaters of the largest tributary of the Cuyahoga River. The land features a very diverse, mature beech-maple deciduous forest and approximately 90 acres of high-quality wetlands.

East Sandusky Bay

**Erie MetroParks
\$2,483,700/\$5,298,700**
The East Sandusky Bay Preserve MetroPark consists of nearly 1,200 acres and provides visitors unique opportunities to enjoy interpretive hikes and to sight numerous bird species, including bald eagles, from its vantage point along a major migratory flyway.

East Sandusky Bay (Wyandot Wetlands)

**Erie MetroParks
\$1,464,735/\$2,929,470**
Wyandot Wetlands Meadow Preserve (83 acres) was added to the East Sandusky Bay Preserve MetroPark in spring, 2006, and expands the area of protected coastal wetlands.

Grand River Watershed

**Lake MetroParks
\$989,477/\$1,980,197**
This grant was used to acquire three properties adjacent to Lake MetroPark property within the Grand River watershed. The first was a 35.5 acre property located along a Big Creek tributary adjacent to Girdled Road Reservation. The second was an 80-acre parcel located north of Hell Hollow in the Paine Creek drainage. The final purchase was a 54.5-acre parcel along the Grand River. Federal funds were matched by 123 acres adjacent to Girdled Road Reservation acquired through the Clean Ohio Fund.

Mentor Marsh

**City of Mentor
\$976,489/\$3,000,000**
Funds from CELCP were used in part to acquire 97 acres adjacent to Mentor Marsh State Nature Preserve. The 97 acre Mentor Marsh acquisition and the Mentor Marsh State Nature Preserve are part of the 640 acres of wetlands that make up Mentor Marsh.

Grand River Big Bend

**Lake MetroParks
\$290,113/\$620,000**
This 55-acre parcel of riverfront property in the city of Painesville will preserve water quality, wildlife habitat and provide greater river access to the public. This land, now known as Lake MetroParks Beauty's Landing, contains important floodplain wetlands and 3,400 feet of frontage on the Grand River.

Maumee River
Metroparks of the
Toledo Area
\$1,296,065/\$3,296,065

This 28 acre riverfront parcel includes 2,300 feet of frontage along the Maumee River. The project site consists of a mixture of old field, young wooded areas, and open water, offering accessibility to the river for people in the urban center of Toledo.



Bratenahl Preserve
Phase I

**Village of Bratenahl
\$466,500/\$933,325**

This property contains 11.5 acres of high quality mature forest, a riparian corridor, the 100-year floodplain of Dugway Creek, and a rare estuarine environment on the Lake Erie coast within the designated Coastal Management Area. The property contains old growth woods that provide habitat for migrating birds. Many rare bird species have been observed on site.

Firelands Scout
Reserve

**Lorain County Metro
Parks
\$600,000/\$1,200,000**

The 453-acre Firelands Scout Reservation in Lorain County containing approximately 8,800 linear feet of the East Fork of the Vermilion River and 8,400 linear feet of tributaries will be permanently preserved. Over 75 percent of the property is covered with mature bottomland forest, upland deciduous forest, and hemlock stands. The camp also contains a 23-acre lake and approximately 14 acres of high quality wetlands, including marshes, oxbow swamps, and wet woods that provide wildlife habitat and improve water quality.

Forest Ridge Preserve
City of Moreland Hills
\$674,388/\$1,348,777

This 52-acre property, located adjacent to the Cleveland Metroparks' South Chagrin Reservation, contains 7,000 linear feet of headwater streams that feed the Chagrin River, a state of Ohio Scenic River within the Lake Erie basin. The mature forests on site provide habitat for six state-listed rare plant and animal species. Protecting Forest Ridge from development will prevent further slumping and sedimentation on the ravines, and will help preserve water quality in the Chagrin River.

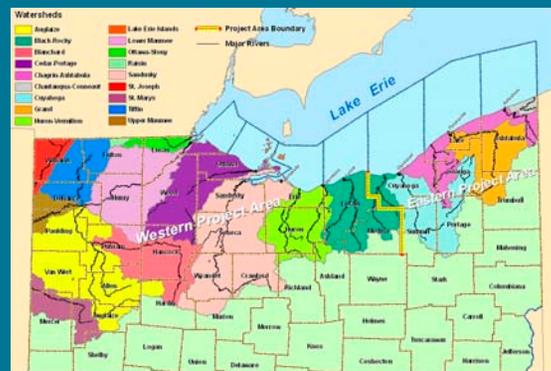
Mayer Preserve
Geauga County
\$733,421/\$1,630,000

The 135-acre Mayer Preserve contains mature deciduous forest, 14 acres of wetlands, 1,600 linear feet of frontage along the East Branch of the Chagrin State Scenic River, 12 acres within the 100-year floodplain, and 15,498 linear feet of high quality streams. Surveys have documented 249 plant species on the preserve which will link together three other preserved properties: the 230-acre Lake Metroparks Farmpark Reservation, the 90-acre Chester Township public park, and 30 acres deed restricted by the Western Reserve Land Conservancy.

Appendix A: Complete Listing of Ohio Coastal Management Program Projects by County

Year
Project Title
Grantee
Grant Amount/Total Project Cost
Category
Status

(See large watershed map page 27)



Ashtabula County

1998
Walnut Beach Boardwalk
City of Ashtabula
\$15,400/\$23,053
Construction
Completed

1999
Walnut Beach Nature Trail
City of Ashtabula
\$15,000/\$34,800
Construction
Completed

2006
Saybrook Township Comprehensive Plan
Saybrook Township
\$18,825/\$37,650
Planning
Awarded

2006
Ashtabula River Watershed Coordinator
ODNR – Natural Areas and Preserves
\$55,631/\$111,262
Watershed Plans
Completed

2007
City of Geneva Comprehensive Plan
City of Geneva
\$21,250/\$42,500
Planning
Awarded

2007
Ashtabula River Watershed Coordinator
ODNR - Natural Areas and Preserves
\$65,491/\$130,982
Watershed Plans
Awarded

Cuyahoga County

1998
Cuyahoga Corridor Towpath Study
Cuyahoga County Planning Commission
\$22,321/\$31,888
Planning
Completed

2000
West Creek Valley Management Plan
Cuyahoga County Planning Commission
\$30,000/\$65,527
Planning
Completed

2001
Cuyahoga River West Bank Preservation
Cleveland Metroparks
\$89,500/\$179,000
Acquisition
Completed

2001
West Creek Land Acquisition and Stream Restoration
City of Parma
\$206,000/\$348,600
Acquisition
Completed

2001
Community Revitalization Plan for the Lower Big Creek Watershed
Northeast Ohio Areawide Coordinating Agency
\$60,000/\$123,447
Planning
Completed

2003
Lakewood Park Lakefront Revitalization Project
City of Lakewood
\$65,250/\$130,500
Construction
Completed

2003
Community Revitalization Plan for Lower Big Creek, Cleveland, Phase 2
Northeast Ohio Areawide Coordinating Agency
\$43,256/\$129,726
Planning
Completed

Cuyahoga County
(cont.)

2003
Euclid Creek Watershed Planning Guide
Cuyahoga County Planning Commission
\$40,000/\$87,755
Planning
Completed

2004
Feasibility Study for Public Access: Dike 14, Cleveland, OH
City of Cleveland
\$50,000/\$109,394
Planning
Completed

2004
Mill Creek Greenway Connector Trail
Cleveland Metroparks
\$90,000/\$219,539
Planning
Completed

2004
Rehabilitation Study for the Former US Coast Guard Cleveland Harbor Station North of Whiskey Island
City of Cleveland
\$50,000/\$100,010
Planning
Completed

Federal FY 2004
Lake Erie Shoreline (Canal Basin)
City of Cleveland Parks Dept.
\$2,968,350/NA
CELCP
Awarded

Federal FY 2004
Bratenahl Preserve Phase I
\$466,500/\$933,325
CELCP
Completed

Federal FY 2004
Forest Ridge Preserve
City of Moreland Hills
\$674,388/\$1,348,777
CELCP
Completed

2005
Community Plan for the Mill Creek Watershed
Cuyahoga County Board of Health
\$39,322/\$87,918
Planning
Completed

2005
Euclid Creek Restoration - Subwatershed Planning
Cuyahoga Soil and Water Conservation District
\$43,292/\$86,741
Planning
Completed

Federal FY 2005
Flats East Bank Riverfront Park
City of Cleveland Parks Department
\$1,464,735/NA
CELCP
Awarded

2006
Huntington Beach ADA Beach Access
Cleveland Metroparks
\$50,000/\$100,000
Construction
Completed

2006
Mill Creek Watershed Action Plan
Cuyahoga County Board of Health
\$38,238/\$78,336
Watershed Plans
Awarded

2006
Supporting Balanced Growth in the Chippewa Creek Watershed
Cuyahoga River Community Planning Organization
\$35,950/\$74,150
Watershed Plans
Awarded

Federal FY 2007
Bratenahl Coastal and Riparian Forest Preserve Phase II
Village of Bratenahl
\$714,000/\$1,428,000
CELCP
Awarded

2007
Big Creek Watershed Management Plan
Cuyahoga River Community Planning Organization
\$19,950/\$43,800
Watershed Plans
Awarded

2007
Euclid Beach Fishing Pier Feasibility Study
Northeast Shores Development Corp
\$11,000/\$22,875
Planning
Awarded

Erie County

1998
Huron Linear Parkway Plan
 City of Huron
 \$32,843/\$46,918
 Planning
 Completed

1998
Sherod Park Development Study-Feasibility
 City of Vermilion
 \$31,942/\$45,632
 Planning
 Completed

1999
Master Plan Revision
 Village of Kelleys Island
 \$33,500/\$57,710
 Planning
 Completed

1999
Lake Erie Shipwreck Center Computer System
 Great Lakes Historical Society
 \$5,645/\$13,652
 Education
 Completed

2000
Lake Front Park Adjacent Property
 City of Huron
 \$12,500/\$25,000
 Acquisition
 Completed

2001
City of Sandusky Fishing Stations
 City of Sandusky
 \$21,000/\$45,358
 Construction
 Completed

2001
Old Woman Creek Dormitory Paving
 ODNR-Soil and Water
 \$5,000/\$12,800
 Education
 Completed

2001
Waterfront Feasibility Study
 Historic Vermilion, Inc.
 \$13,734/\$27,469
 Planning
 Completed

2001
Sheldon Marsh Water Level Monitoring
 ODNR-Geological Survey
 \$72,972/\$85,399
 Research/Monitoring
 Completed

2002
McGarvey's Landing Marina Plans
 Vermilion Port Authority
 \$16,350/\$32,700
 Planning
 Completed

Federal FY 2003
East Sandusky Bay
 Erie MetroParks
 \$2,483,700/\$5,298,700
 CELCP
 Completed

2004
Wetlands Exhibit
 Sandusky Area Maritime Association
 \$30,000/\$80,000
 Education
 Completed

2004
Bayfront Corridor Extension
 City of Sandusky
 \$14,077/\$28,155
 Planning
 Completed

2005
Sandusky Parks and Recreation Comprehensive Master Plan
 City of Sandusky
 \$39,655/\$98,904
 Planning
 Completed

Federal FY 2005
East Sandusky Bay (Wyandot Wetlands)
 Erie MetroParks
 \$1,464,735/\$2,929,470
 CELCP
 Completed

2006
Maritime Museum of Sandusky Video Presentation
 Sandusky Area Maritime Association
 \$5,000/\$15,000
 Education
 Awarded

2006
Kelleys Island Monitoring Wells
 ODNR-Mineral Resources
 \$19,987/\$39,974
 Research/Monitoring
 Awarded

2006
Lake Erie Basin Watershed Coor-Two Years
 ODNR-Soil and Water
 \$70,000/\$140,000
 Watershed Plans
 Awarded

2007
East Sandusky Bay Extension Project- MHD Property
 City of Sandusky
 \$150,000/\$150,000
 Acquisition
 Awarded

2007
Sandusky Area Maritime Curriculm Guide
 Sandusky Area Maritime Museum
 \$5,000/\$14,000
 Education
 Awarded

Geauga County

2001
Munson Township State Scenic Upper Chagrin River Preservation Project
 Munson Township
 \$120,000/\$848,000
 Acquisition
 Completed

2001
Russell Uplands Preserve
 Russell Township Park Commission
 \$250,000/\$2,183,000
 Acquisition
 Completed

2001
Silver Creek Restoration
 Geauga Park District
 \$190,000/\$486,844
 Restoration
 Completed

Federal FY 2004
Mayer Preserve
 Geauga County
 \$733,421/\$1,630,000
 CELCP
 Completed

Lake County

1998
Lake Metroparks Lakefront Protection Study
 Lake Metroparks
 \$36,750/\$52,500
 Planning
 Completed

1999
Mentor Beach Park Shoreline Access
 City of Mentor
 \$25,146/\$50,291
 Construction
 Completed

1999
Special Area Management Planning
 Davey Resource Group
 \$35,000/\$35,000
 Planning
 Completed

1999
Arcola Creek Watershed Plan Development
 ODNR-Soil and Water to Lake SWCD
 \$49,000/\$49,000
 Watershed Plans
 Completed

2000
A Comprehensive GIS For Mentor Marsh and Its Watershed
 The Ohio State University
 \$55,436/\$145,532
 Planning
 Completed

2000
Mentor Area Special Area Management Plan
 Davey Resource Group
 \$16,000/\$16,000
 Planning
 Completed

2000
Arcola Creek Watershed Plan
 ODNR-Soil and Water to Lake SWCD
 \$50,000/\$50,000
 Watershed Plans
 Completed

2001
City of Eastlake Ward Creek Riparian Corridor Acquisition and Preservation Project
 City of Eastlake
 \$368,520/\$608,356
 Acquisition
 Completed

2001
Lower Grand River Floodplain Acquisition
 Lake Metroparks
 \$125,920/\$181,478
 Acquisition
 Completed

2001
Cumulative and Secondary Impacts
 Chagrin River Watershed Partners, Inc.
 \$44,000/\$44,000
 Planning
 Completed

2001
Eastern Lake County Coastal Comprehensive Plan
 Lake County Planning Commission
 \$16,751/\$33,509
 Planning
 Completed

2001
Mentor Area Special Management Plan
 Davey Resource Group
 \$60,000/\$60,000
 Planning
 Completed

2001
Sub-watershed Impervious Cover Analysis
 Chagrin River Watershed Partners, Inc.
 \$9,589/\$9,589
 Planning
 Completed

2002
Overlook Beach Park Stairway
 City of Mentor-on-the-Lake
 \$52,500/\$108,319
 Construction
 Completed

2002
Cumulative Impacts of Land Use Changes on Headwater Streams
 Chagrin River Watershed Partners, Inc.
 \$36,000/\$36,000
 Planning
 Completed

2002
Mentor Area Special Management Plan
 Davey Resource Group
 \$70,000/\$70,000
 Planning
 Completed

Lake County (cont.)

2002 <u>Mitigation Site Identification</u> Chagrin River Watershed Partners, Inc. \$17,999/\$31,891 Planning Completed	2003 <u>Chagrin River Watershed Mitigation Site Identification</u> Chagrin River Watershed Partners, Inc. \$10,000/\$20,000 Planning Completed	2003 <u>Sub-watershed Impervious Cover Analysis</u> Chagrin River Watershed Partners, Inc. \$26,000/\$26,000 Planning Completed	2004 <u>Alternative Sewage Treatment Systems and Conservation Design in Unsewered Areas</u> Chagrin River Watershed Partners, Inc. \$15,000/\$15,000 Planning Completed	2004 <u>Hydrological Investigation at Mentor Marsh</u> The Ohio State University Research Foundation \$50,000/\$50,000 Research/Monitoring Completed
2002 <u>Steelhead Run Nature Preserve</u> Lake Metroparks \$10,417/\$21,259 Planning Completed	2003 <u>Mentor Area Special Management Plan</u> Davey Resource Group \$70,000/\$70,000 Planning Completed	2003 <u>Western Lake County Coastal Comprehensive Plan</u> Lake County Planning Commission \$19,999/\$39,997 Planning Completed	2004 <u>Evaluating the Effectiveness of Riparian and Wetland Setback Zoning</u> Chagrin River Watershed Partners, Inc. \$40,000/\$40,000 Planning Completed	Federal FY 2004 <u>Grand River</u> Lake Metroparks \$989,477/\$1,980,197 CELCP Completed
2003 <u>Chagrin River Watershed Landowner Guide</u> Chagrin River Watershed Partners, Inc. \$10,000/\$10,000 Education Completed	2003 <u>Site Planning Forum</u> Chagrin River Watershed Partners, Inc. \$10,000/\$20,000 Planning Completed	2004 <u>Grand River Indian Point Acquisition</u> Lake Metroparks \$68,720/\$88,945 Acquisition Completed	2004 <u>Updating Parking Requirements to Minimize Impervious Cover</u> Chagrin River Watershed Partners, Inc. \$20,000/\$20,000 Planning Completed	Federal FY 2005 <u>Mentor Marsh</u> City of Mentor \$976,489/\$3,000,000 CELCP Completed
		2004 <u>Lake County Coastal Priority Projects Feasibility Study</u> Lake County Planning Commission \$17,000/\$67,140 Planning Completed		2006 <u>Mentor Marsh Acquisition</u> City of Mentor \$107,769/\$233,584 Acquisition Completed

Lake County
(cont.)

Federal FY 2006
Grand River Big Bend
Lake Metroparks
\$290,113/\$620,000
CELCP
Completed

2007
City of Willowick Public
Access Aquisition
City of Willowick
\$60,612/\$121,224
Acquisition
Awarded

Lorain County

1998
Upper Black River
Master Plan
City of Lorain
\$40,000/\$77,341
Planning
Completed

2000
Showse Park Feasibility
Study
City of Vermilion
\$13,988/\$27,976
Planning
Completed

2002
Miller Park Beach
Access
City of Avon Lake
\$74,530/\$149,060
Construction
Completed

2002
Black River/Lorain
Harbor Shoreline Master
Plan
City of Lorain
\$27,322/\$54,643
Planning
Completed

Federal FY 2004
Firelands Scout
Reserve
Lorain County Metro
Parks
\$600,000/\$1,200,000
CELCP
Completed

2004
Sheffield Lake
Proposed Boat Ramp
Sedimentation Study
City of Sheffield Lake
\$4,500/\$9,000
Planning
Completed

2005
Black River Watershed
Action Plan
Lorain County Board of
Commissioners
\$28,759/\$59,506
Watershed Plans
Completed

2006
City of Lorain
Wastewater Plant
Relocation Feasibility
Study
City of Lorain
\$50,000/\$270,700
Planning
Awarded

2006
Lorain Diked Disposal
Site Preliminary Master
Plan
Lorain Port Authority
\$25,000/\$50,000
Planning
Completed

2007
Riverwalk Extension
Lorain Port Authority
\$78,250/\$156,500
Construction
Awarded

Lucas County

1998
Swan Creek Landing
Tour Boat
City of Toledo
\$64,540/\$130,395
Construction
Completed

1998
Cooley Canal Master
Plan
Lucas County
\$35,000/\$50,000
Planning
Completed

2001
Investigation of Wolf
Creek Bacterial Impact
on Maumee Bay State
Park Beach
Toledo Metropolitan
Area Council of
Governments
\$35,016/\$72,720
Research/Monitoring
Completed

Lucas County (cont.)

2001
Sediment Trend Analysis in Maumee Bay Lake Erie
 Toledo-Lucas County Port Authority
 \$65,530/\$96,530
 Research/Monitoring Completed

2002
Dam removal in the Ottawa River, Ohio: A feasibility study needed for comprehensive regional planning.
 University of Toledo and BGSU
 \$39,990/\$80,421
 Planning Completed

2003
Avian Distribution, Population Status, and Implication for Management of the Maumee Bay State Park Wetland
 ODNR-Parks and Recreation
 \$1,115/\$2,230
 Research/Monitoring Completed

2004
Wynn Road Site Acquisition for Ecosystem Restoration
 City of Oregon
 \$204,000/\$262,704
 Acquisition Completed

Federal FY 2005
Maumee River
 Metroparks of the Toledo Area
 \$1,296,065/\$3,296,065
 CELCP Completed

2006
Maumee Bay State Park Shoreline and Restoration Plan
 Toledo Metropolitan Area Council of Governments
 \$47,566/\$95,632
 Planning Awarded

Federal FY 2006
Keil Farm
 Metroparks of the Toledo Area
 \$1,403,765/\$2,807,530
 CELCP Awarded

2007
Toledo Lighthouse Restoration Plans and Specifications
 Toledo Harbor Lighthouse Preservation Society
 \$48,000/\$103,000
 Planning Awarded

Ottawa County

1998
Put-In-Bay Ice Ramp Rehabilitation
 Put-In-Bay Township
 \$40,000/\$57,143
 Construction Completed

1998
Waterworks Park Multi-Purpose Trail System
 City of Port Clinton
 \$25,000/\$38,074
 Construction Completed

1999
Emergency Boat Launch and Ice Ramp Rehabilitation Phase II
 Put-in-Bay Twp. Trustees/Put-in-Bay Twp. Port Authority
 \$10,000/\$20,931
 Construction Completed

1999
Exhibits for Lake Erie Islands Regional Welcome Center
 Ottawa County Visitors Bureau
 \$70,000/\$395,000
 Education Completed

2000
City of Port Clinton Comprehensive Coastal Land Area Master Plan
 City of Port Clinton
 \$25,000/\$50,000
 Planning Completed

2001
Kukay Acquisition
 ODNR-Parks and Recreation
 \$2,000,000/\$2,500,000
 Acquisition Completed

2001
Meadowbrook Acquisition Project
 Danbury Township Trustees
 \$152,167/\$304,334
 Acquisition Completed

Ottawa County (cont.)

2001 South Beach Utilization Project

ODNR-Parks and Recreation
\$8,759/\$15,984
Construction
Completed

Federal FY 2003 North Bass Island

ODNR
\$1,987,000/\$17,400,000
CELCP
Completed

Federal FY 2004 North Bass Island/Honey Point

ODNR
\$200,000/\$400,000
CELCP
Completed

2005 Beach Access Trail/East Harbor State Park

ODNR-Parks and Recreation
\$5,500/\$11,000
Construction
Completed

2005 Marblehead Lighthouse Entrance Sign

ODNR-Parks and Recreation
\$7,200/\$15,246
Construction
Completed

Federal FY 2007 Port Clinton Waterfront

City of Port Clinton
\$875,000/\$1,750,000
CELCP
Awarded

2007 East Harbor State Park Shoreline Erosion Survey

ODNR - Parks and Recreation
\$12,500/\$24,717
Research/Monitoring
Awarded



Portage County

2001
City of Aurora Natural Stream and Floodplain Restoration Study
City of Aurora
\$31,970/\$39,962
Planning
Completed

Sandusky County

2001
Muddy Creek Corridor Acquisition
Sandusky County Park District
\$216,400/\$307,825
Acquisition
Completed

Summit County

2001
Mud Brook Preserve-Sensitive Wetland Addition
City of Hudson
\$149,000/\$188,376
Acquisition
Completed

Federal FY 2006
Pond Brook Wetland
Summit County Metroparks
\$579,000/3,329,000
CELCP
Completed

Western Project Area

1998
Western Lake Erie Coastal Sanitary Surveys
 Toledo Metropolitan Area Council of Governments
 \$30,014/\$44,904
 Research/Monitoring Completed

2001
North Central Ohio Lake Erie Internet Mapping and GIS, Phase I
 North Coast Regional Council of Park Districts
 \$120,000/\$174,000
 Education Completed

2001
Underwater Archeological Resources
 ODNR-Geological Survey
 \$77,000/\$100,750
 Education Completed

2003
Underwater Archaeology and Preserve Management
 ODNR-Geological Survey
 \$10,000/\$10,000
 Education Completed

2004
Ground Water Pollution Potential Mapping in the Lake Erie Basin
 ODNR-Water
 \$43,311/\$87,298
 Planning Completed

2004
Water Quantity Assessment for the Sandusky River Basin
 ODNR-Water
 \$42,447/\$88,894
 Research/Monitoring Completed

2005
Ground Water Potentiometric Surface Mapping
 ODNR-Water
 \$34,000/\$81,173
 Planning Completed

2005
Northwest Ohio Sustainable Watershed Project
 Ohio Environmental Council
 \$8,641/\$22,304
 Education Completed

2005
Portage River Watershed Action Plan/Coastal Management Measures
 Toledo Metropolitan Area Council of Governments
 \$23,133/\$46,267
 Watershed Plans Completed

2005
Watershed Action Plan - Sandusky River - Tiffin
 Sandusky River Watershed Coalition
 \$40,264/\$81,724
 Watershed Plans Completed

2006
Water Quantity Auglaize River
 ODNR-Water
 \$46,109/\$92,217
 Research/Monitoring Awarded

2006
Ground Water Pollution Potential Mapping in the Lake Erie Basin
 ODNR-Water
 \$33,000/\$66,085
 Planning Completed

2006
Ground Water Pollution Potential Mapping in the Lake Erie Basin
 ODNR-Water
 \$38,656/\$77,323
 Planning Completed

2006
Ground Water Potentiometric Surface Mapping
 ODNR-Water
 \$34,000/\$69,917
 Planning Awarded

2007
Water Quantity Assessment Portage River
 ODNR - Water
 \$15,504/\$31,008
 Planning Awarded

2007
Vermilion River Watershed Coordinator
 ODNR - Natural Areas and Preserves
 \$120,000/\$240,708
 Watershed Plans Awarded

2007
Potentiometric Surface Mapping in the Lake Erie Basin Wood, Hancock, Hardin and Marion
 ODNR - Water
 \$35,098/\$70,201
 Planning Awarded

2007
Ground Water Pollution Potential Mapping in the Lake Erie Basin Defiance and Ashland
 ODNR - Water
 \$35,866/\$ 71,746
 Planning Awarded

Eastern Project Area

2000
Evaluation of Nonchemical Lamprey Control Methods
 ODNR-Wildlife
 \$10,377/\$32,580
 Research/Monitoring Completed

2001
Northeast Ohio Community Watershed Program
 Ohio Environmental Council
 \$23,607/\$51,499
 Education Completed

2003
Grand River Riparian Forest Protection/Acquisition
 ODNR-Natural Areas and Preserves
 \$204,000/\$616,659
 Acquisition Completed

2003
Sand Monitoring in Nearshore Disposal Sites
 ODNR-Geological Survey
 \$47,000/\$47,000
 Research/Monitoring Completed

2003
Water Quantity Assessment for the Chagrin, Grand and Ashtabula River Basins
 ODNR-Water
 \$33,537/\$67,074
 Research/Monitoring Completed

2004
Information to Support Placing Sand as Mitigation During Construction
 ODNR-Geological Survey
 \$32,000/\$32,000
 Research/Monitoring Completed



2006
Chagrin Watershed Nonpoint Pollution Best Practices Case Studies
 Chagrin River Watershed Partners
 \$14,968/\$14,968
 Planning Completed

2006
Riparian Corridor Connectivity Analysis and Urban Sewersheds
 Chagrin River Watershed Partners, Inc.
 \$76,307/\$76,307
 Planning Awarded

2007
Lake Erie Watershed Coordinators (West Creek and Grand River)
 ODNR –Soil and Water
 \$47,752/\$95,104
 Watershed Plans Awarded

Lake Erie Watershed

1997
Coastal Hazards and Technical Assistance
 ODNR-Geological Survey
 \$69,137/\$111,887
 Planning Completed

1998
Coastal Erosion Assistance Program
 ODNR-Geological Survey
 \$88,109/\$148,040
 Education Completed

1998
Mussel Embryo/Larva Cultivation
 University of Toledo
 \$36,743/\$68,631
 Research/Monitoring Completed

1998
Coastal Nonpoint Pollution Control Program
 ODNR-Soil and Water
 \$53,000/\$106,000
 Watershed Plans Completed

1999
Coastal Erosion Assistance Program
 ODNR-Geological Survey
 \$75,178/\$139,526
 Education Completed

1999
Stream Restoration Standards
 ODNR-Soil and Water
 \$18,783/\$18,783
 Planning Completed

1999
Coastal Wetlands
 ODNR-Natural Areas and Preserves
 \$46,240/\$46,240
 Research/Monitoring Completed

1999
Coastal Nonpoint Pollution Control Program
 ODNR-Soil and Water
 \$69,000/\$138,000
 Watershed Plans Completed

1999
Great Lakes Vessels, 1815-1980: Image Database
 Bowling Green State University
 \$10,482/\$19,392
 Education Completed

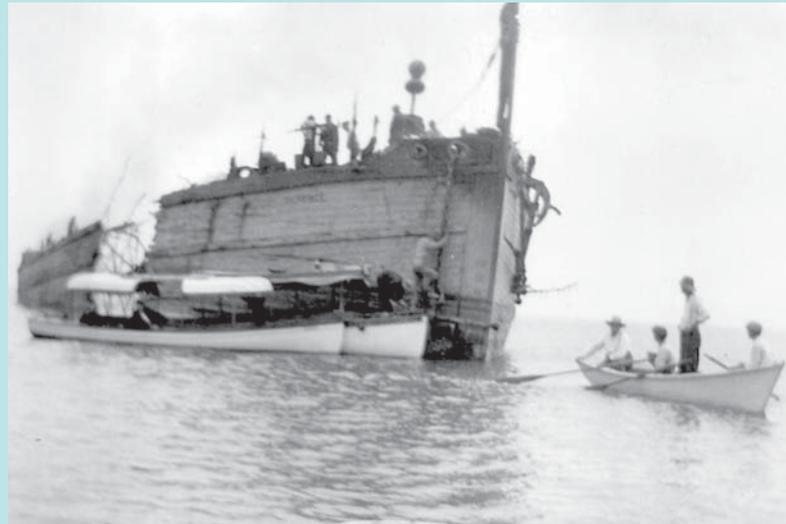
2000
Coastal Atlas
 ODNR-Geological Survey
 \$47,000/\$47,000
 Education Completed

2000
Coastal Hazards and Technical Assistance
 ODNR-Geological Survey
 \$114,011/\$245,784
 Education Completed

2000
Lake Erie Shipwreck and Hydrographic Information Program
 Ohio Historical Society and Great Lakes Historical Society
 \$30,000/\$30,000
 Education Completed

2000
Coastal Nonpoint Pollution Control Program
 ODNR-Soil and Water
 \$53,999/\$107,999
 Watershed Plans Completed

2000
Ohio Maritime History: Ports and People of Lake Erie, 1880 - 1980
 Bowling Green State University
 \$18,639/\$38,003
 Education Completed



Lake Erie Watershed (cont.)

2001
Coastal Hazards and Technical Assistance
 ODNR-Geological Survey
 \$157,786/\$275,752
 Education
 Completed

2001
GIS for Section 401 Enforcement
 Ohio EPA
 \$92,334/\$174,972
 Planning
 Completed

2001
Feasibility of Lake Erie Region for Nature Based Tourism
 Bowling Green State University
 \$54,607/\$110,344
 Research/Monitoring
 Completed

2001
Aquatic Nuisance Species Control
 ODNR-Natural Areas and Preserves
 \$97,872/\$195,744
 Restoration
 Completed

2001
Coastal Nonpoint Pollution Control Program
 ODNR-Soil and Water
 \$163,000/\$326,000
 Watershed Plans
 Completed

2002
Ohio Clean Marinas Program
 ODNR-Soil and Water
 \$20,000/\$40,000
 Education
 Completed

2002
Coastal Hazards and Technical Assistance
 ODNR-Geological Survey
 \$121,260/\$242,843
 Education
 Completed

2002
Lake Level Focus Initiative
 ODNR-Parks and Recreation
 \$16,697/\$16,697
 Education
 Completed

2002
Lake Level Focus Initiative
 ODNR-Watercraft
 \$3,000/\$3,000
 Education
 Completed

2002
GIS for Section 401 Enforcement
 Ohio EPA
 \$36,000/\$36,000
 Planning
 Completed

2002
Lake Erie GIS
 ODNR-Real Estate and Land Management
 \$59,362/\$118,724
 Planning
 Completed

2002
Development of GIS Tools for Integration of Coastal Fish Habitat Management
 Case Western Reserve University
 \$46,924/\$113,217
 Research/Monitoring
 Completed

2002
Irrigation Water Study
 ODNR-Soil and Water
 \$15,000/\$15,000
 Research/Monitoring
 Completed

2002
Water Quantity Assessment Huron, Vermilion, Black, Rocky River Basins
 ODNR-Water
 \$28,664/\$57,328
 Research/Monitoring
 Completed

2002
Coastal Nonpoint Pollution Control Program
 ODNR-Soil and Water
 \$125,000/\$250,000
 Watershed Plans
 Completed

2002
Stormwater Management
 ODNR-Soil and Water
 \$25,000/\$25,000
 Watershed Plans
 Completed



2002
Stormwater Specialist Program
ODNR-Soil and Water
\$90,000/\$180,000
Watershed Plans
Completed

2002
Watershed Coordinators Program
ODNR-Soil and Water
\$80,000/\$160,000
Watershed Plans
Completed

2003
Ohio Clean Marinas Program
ODNR-Soil and Water
\$75,000/\$184,157
Education
Completed

2003
Lake Erie Coastal Ohio Natural Heritage Tourism Awareness
Lake Erie Coastal Ohio, Inc.
\$38,396/\$76,791
Education
Completed

2003
Ohio Maritime Personnel Online Database Project
Bowling Green State University
\$14,955/\$30,016
Education
Completed

2003
Lake Erie Access Program
ODNR-Real Estate and Land Management
\$39,248/\$78,496
Planning
Completed

2003
Lake Erie Erosion Mgt. Plan Phase I
ODNR-Real Estate and Land Management
\$50,000/\$100,000
Planning
Completed

2003
Lake Erie GIS
ODNR-Real Estate and Land Management
\$80,000/\$160,000
Planning
Completed

2003
Remapping the CEA: Coastal Hazards and Technical Assistance: Coastal Atlas for Ohio Shoreline
ODNR-Geological Survey
\$203,925/\$407,850
Planning
Completed



2003
Coastal Biological GIS Specialist
ODNR-Natural Areas and Preserves
\$39,743/\$79,486
Research/Monitoring
Completed

2003
Inventory and Control of Invasive Plants
ODNR-Natural Areas and Preserves
\$37,570/\$75,140
Restoration
Completed

2003
Coastal Nonpoint Pollution Control Program
ODNR-Soil and Water
\$116,000/\$232,000
Watershed Plans
Completed

2003
Stormwater Specialists Program
ODNR-Soil and Water
\$70,000/\$140,000
Watershed Plans
Completed

2003
Lake Erie Watershed Information Management System Development
ODNR-Soil and Water
\$125,000/\$250,000
Watershed Plans
Completed

Lake Erie Watershed (cont.)

2003
Watershed Coordinators Program
 ODNR-Soil and Water
 \$74,200/\$148,400
 Watershed Plans Completed

2004
Clean Marinas Program
 ODNR-Soil and Water
 \$70,405/\$145,405
 Education Completed

2004
Coastal Atlas
 ODNR-Geological Survey
 \$22,975/\$22,975
 Education Completed

2004
Coastal Awareness
 ODNR-Natural Areas and Preserves
 \$24,954/\$57,269
 Education Completed

2004
Coastal Zone Technical Assistance
 ODNR-Geological Survey
 \$111,372/\$328,997
 Education Completed



2004
Interpretive Programming
 ODNR-Natural Areas and Preserves
 \$10,098/\$24,188
 Education Completed

2004
Underwater Archaeology Management
 Great Lakes Historical Society
 \$34,349/\$102,798
 Education Completed

2004
Annex 2001 Support
 ODNR-Water
 \$21,200/\$59,662
 Planning Completed

2004
Coastal Erosion Area Remapping
 ODNR-Geological Survey
 \$55,501/\$55,501
 Planning Completed

2004
Continued Assistance for Coastal GIMS
 ODNR-Real Estate and Land Management
 \$20,000/\$40,000
 Planning Completed

2004
Great Lakes Charter Annex 2001 with Great Lakes States and Provinces
 ODNR-Administration
 \$50,521/\$144,853
 Planning Completed

2004
Lake Erie Boating Facilities/No Discharge Zone Application
 ODNR-Watercraft
 \$12,050/\$24,100
 Planning Completed

2004
Ground Water Potentiometric Surface Mapping in the Lake Erie Basin
 ODNR-Water
 \$42,904/\$85,808
 Planning Completed

2004
Ohio Coastal Resource Inventory GIS Support
 ODNR-Real Estate and Land Management
 \$150,000/\$177,763
 Planning Completed

2004
Outdoor Recreation Planning and Design Project
 ODNR-Real Estate and Land Management
 \$15,000/\$30,000
 Planning Completed

2004 <u>Water Well Log Data Retrieval Enhancements</u> ODNR-Water \$9,333/\$24,375 Planning Completed	2004 <u>Coastal Nonpoint Pollution Control Program</u> ODNR-Soil and Water \$114,000/\$228,000 Watershed Plans Completed	2004 <u>Re-establishment of Blanding's Turtles in Lake Erie Coastal Plain Marshes</u> ODNR-Natural Areas and Preserves \$22,240/\$46,070 Research/Monitoring Completed	2005 <u>Annex 2001</u> ODNR-Water \$36,484/\$75,506 Planning Completed	2005 <u>Irrigation Water Study</u> ODNR-Soil and Water \$5,777/\$11,554 Research/Monitoring Completed
2004 <u>Coastal Biological GIS Specialist</u> ODNR-Natural Areas and Preserves \$44,982/\$89,964 Research/Monitoring Completed	2004 <u>Phragmites Abundance and Benthic Biodiversity in Great Lakes Coastal Wetlands</u> ODNR-Natural Areas and Preserves \$26,107/\$58,041 Research/Monitoring Completed	2004 <u>Watershed Coordinators Program</u> ODNR-Soil and Water \$66,780/\$133,560 Watershed Plans Completed	2005 <u>Coastal Erosion Area</u> ODNR-Geological Survey \$58,346/\$105,682 Planning Completed	2005 <u>Sand Monitoring</u> ODNR-Geological Survey \$27,618/\$96,237 Research/Monitoring Completed
2004 <u>Flood Protection and Mitigation through Dam, Dike and Levee Inspection</u> ODNR-Water \$20,269/\$56,186 Research/Monitoring Completed	2004 <u>Stormwater Specialists Program</u> ODNR-Soil and Water \$60,000/\$120,000 Watershed Plans Completed	2005 <u>Clean Marinas Program</u> ODNR-Soil and Water \$50,000/\$65,329 Education Completed	2005 <u>Statewide Digital Soils Info-Lake Erie Watershed</u> ODNR-Information Technology \$12,500/\$40,161 Planning Completed	2005 <u>Inventory and Control of Invasive Plants</u> ODNR-Natural Areas and Preserves \$44,939/\$90,225 Restoration Completed
2004 <u>Habitat Research and Development (HRU)</u> ODNR-Geological Survey \$18,296/\$18,296 Research/Monitoring Completed	2004 <u>Inventory and Control of Invasive Plants</u> ODNR-Natural Areas and Preserves \$47,999/\$95,998 Restoration Completed	2005 <u>Peachman Center</u> Great Lakes Historical Society \$35,000/\$122,632 Education Completed	2005 <u>Coastal Biological GIS Specialist</u> ODNR-Natural Areas and Preserves \$49,819/\$100,859 Research/Monitoring Completed	2005 <u>Coastal Nonpoint Pollution Control Program</u> ODNR-Soil and Water \$71,223/\$849,090 Watershed Plans Completed

Lake Erie Watershed (cont.)

2005 Stormwater Specialists Program

ODNR-Soil and Water
\$49,500/\$100,000
Watershed Plans
Completed

2005 Watershed Coordinators Program

ODNR-Soil and Water
\$59,200/\$118,400
Watershed Plans
Completed

2005 Balanced Growth Program Implementation

Ohio Lake Erie
Commission
\$50,000/\$345,968
Planning
Completed

2006
Inventory and Control of Invasive Species
ODNR- Natural Areas and Preserves
\$55,109/\$120,739
Restoration
Completed

2006
Ohio Clean Marinas Program
ODNR-Soil and Water
\$75,000/\$150,000
Education
Awarded

2006
Development of an Underwater Trailway for Ohio's Lake Erie
Ohio Sea Grant
\$4,500/\$14,455
Education
Completed

2006
Peachman Lake Erie Shipwreck Research Center
Great Lakes Historical Society
\$31,875/\$86,825
Education
Awarded

2006
Coastal Erosion Area Remapping
ODNR-Geological Survey
\$147,196/\$274,214
Planning
Awarded

2006
Lake Erie Shore Erosion Management Plan and Coastal Erosion Area Support
ODNR-Geological Survey
\$110,781/\$110,781
Planning
Awarded

2006
National Wetlands Inventory
ODNR-Coastal
\$66,807/\$116,807
Planning
Completed

2006
Balanced Growth Economic Analysis
Ohio Lake Erie Commission
\$13,997/\$13,997
Planning
Awarded

2006
Statewide Digital Soils Info-Lake Erie Watershed
ODNR-Soil and Water
\$20,000/\$20,000
Planning
Awarded

2006
Lake Erie Agricultural Irrigation Management
ODNR-Soil and Water
\$24,000/\$48,000
Research/Monitoring
Awarded

2006
Sand Monitoring
ODNR-Geological Survey
\$48,559/\$97,119
Research/Monitoring
Awarded

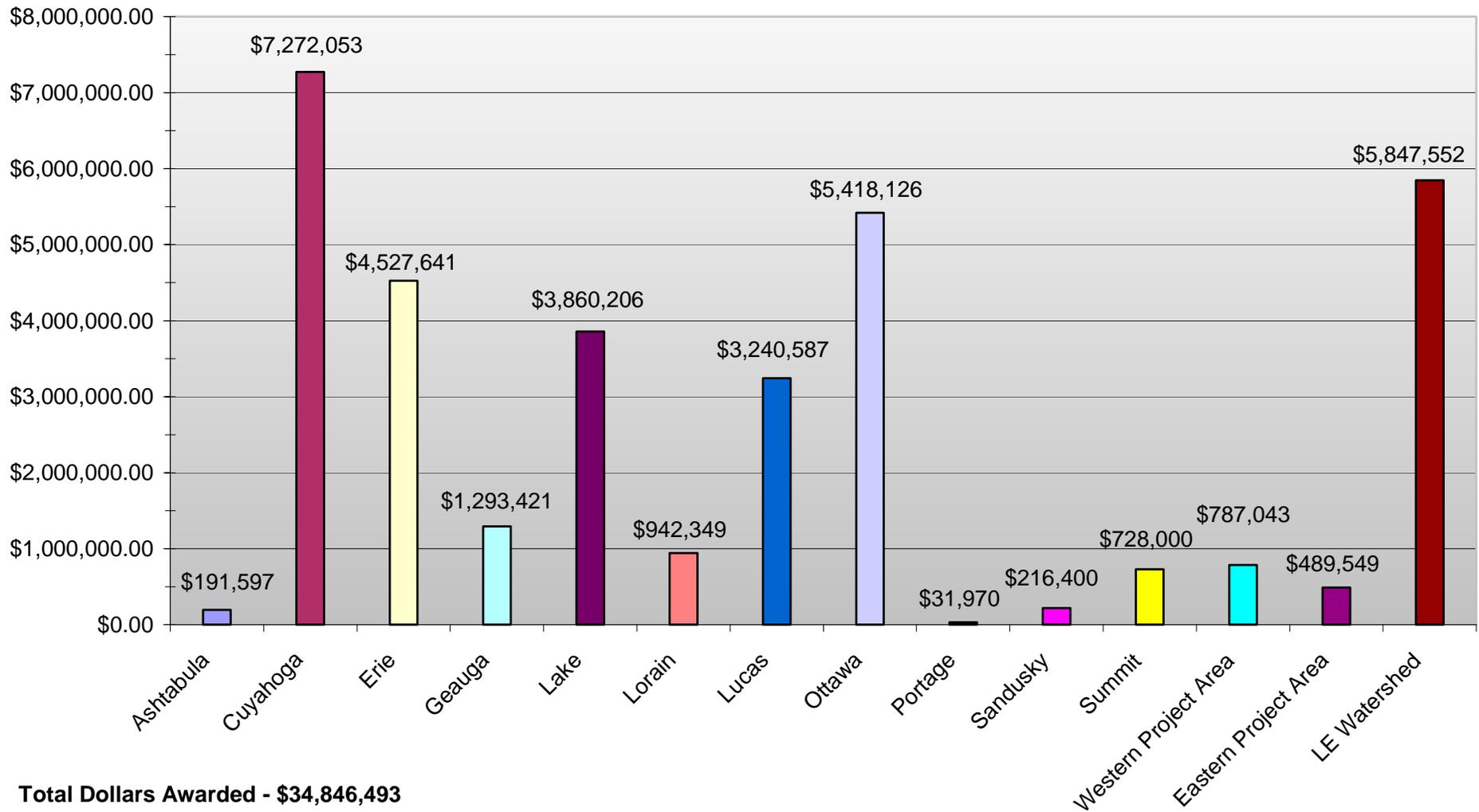
2006
Coastal Nonpoint Pollution Control Program
ODNR-Soil and Water
\$96,000/\$192,000
Watershed Plans
Awarded



2006 <u>Watershed Coordinators Program</u> ODNR-Soil and Water \$53,280/\$106,560 Watershed Plans Completed	2007 <u>Initial Monitoring Guidelines - Voluntary Wind Energy Cooperative Agreement Model</u> ODNR- Wildlife \$25,000/\$25,000 Research/Monitoring Awarded	2007 <u>Coastal Nonpoint Pollution Control Program Continued Development and Implementation</u> ODNR –Soil and Water \$36,790/\$73,580 Watershed Plans Awarded	2007 <u>Nautical Archaeology Training and Survey</u> Great Lakes Historical Society \$5,938/\$27,063 Education Awarded	2007 <u>Peachman Lake Erie Shipwreck Research Center</u> Great Lakes Historical Society \$26,000/\$41,000 Education Awarded
2006 <u>Balanced Growth Program Implementation</u> Ohio Lake Erie Commission \$55,000/\$221,342 Planning Completed	2007 <u>Ohio Clean Marinas Program</u> ODNR –Soil and Water \$75,000/\$150,000 Education Awarded	2007 <u>Balanced Growth Program Implementation</u> Ohio Lake Erie Commission \$45,000/\$201,042 Planning Awarded	2007 <u>Lake Erie Watershed Habitat GIS Coordination</u> ODNR- Natural Areas and Preserves \$60,000/\$60,000 Planning Awarded	2007 <u>Balanced Growth Economic Analysis</u> Ohio Lake Erie Commission \$13,997/\$13,997 Planning Awarded
2006 <u>Lake Erie Watershed Habitat Mapping</u> ODNR – Natural Areas and Preserves \$60,053/\$60,053 Research/Monitoring Completed	2007 <u>Avian and Bat Resource Pre-construction Monitoring</u> ODNR - Wildlife \$26,000/\$26,000 Research/Monitoring Awarded	2007 <u>Inventory and Control of Invasive Plants</u> ODNR – Natural Areas and Preserves \$77,693/ \$157,037 Research/Monitoring Awarded	2007 <u>Lake Erie Home Sewage Treatment System</u> ODNR-Soil and Water \$35,000/\$70,000 Watershed Plans Awarded	
2006 <u>Balanced Growth Indicators</u> Ohio Lake Erie Commission \$25,000/\$46,418 Planning Completed				

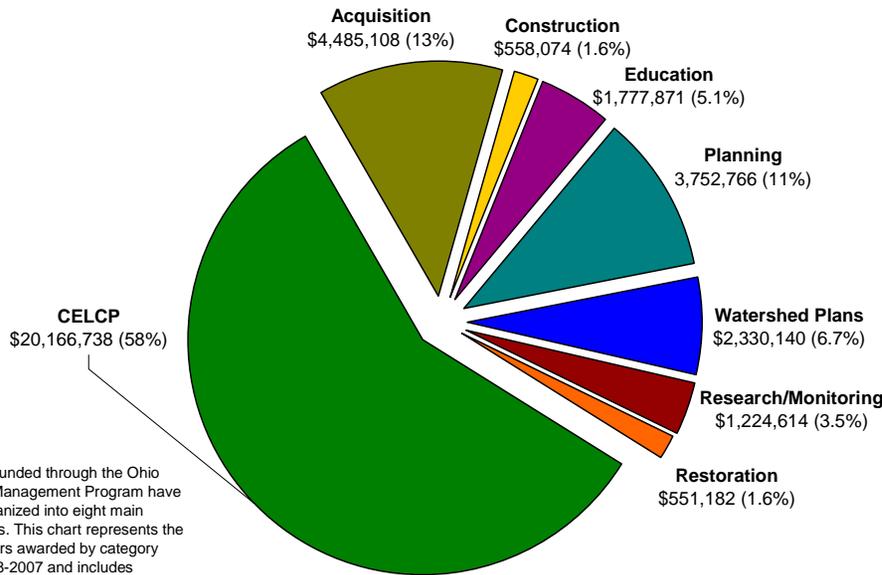
Appendix B

Geographic Distribution of Grant Award Dollars



This chart illustrates the geographic distribution of dollars awarded through the Ohio Coastal Management Program during 1998-2007. Projects that were conducted in or impacted more than one county have been assigned to the Western or Eastern Project Area or to the Lake Erie Watershed (see map on page 27).

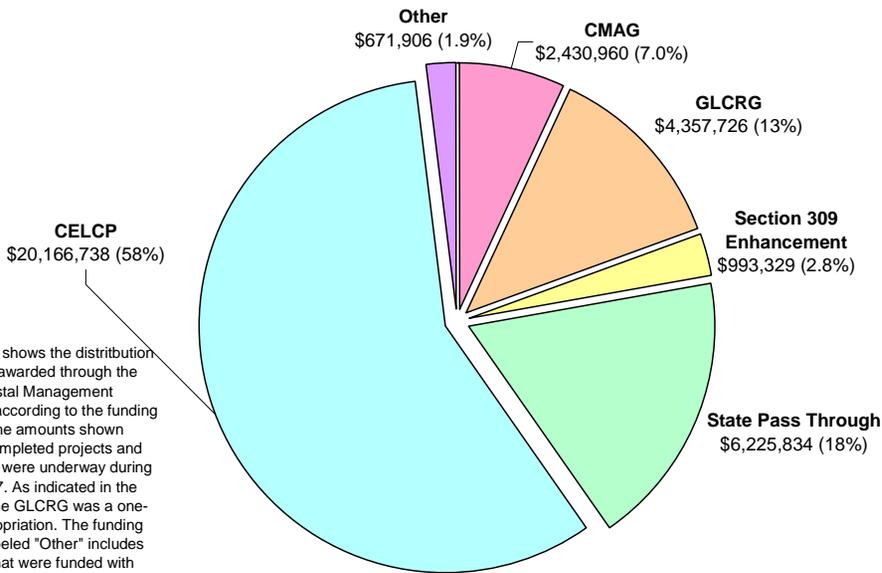
Category Distribution of Grant Award Dollars



Projects funded through the Ohio Coastal Management Program have been organized into eight main categories. This chart represents the total dollars awarded by category from 1998-2007 and includes completed projects as well as those that are underway.

Total Dollars Awarded - \$34,846,493

Distribution by Funding Source of Grant Award Dollars



This chart shows the distribution of dollars awarded through the Ohio Coastal Management Program according to the funding source. The amounts shown include completed projects and those that were underway during 1998-2007. As indicated in the booklet, the GLCRG was a one-time appropriation. The funding source labeled "Other" includes projects that were funded with dollars from other coastal program projects that did not occur or did not use all of their awarded funds.

Total Dollars Awarded - \$34,846,493

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