

Year in Review

Things are looking up at Lake Soil and Water Conservation District. While I enjoyed the annual meetings of the past, the change to serving local fare made by local chefs at FARMAFARE has not only brought excitement and energy, but also increased attendance. It could be because the fantastic food and beverage offerings, but I believe the increased attendance reflects the support and appreciation for our work and the concern residents have with the care and protection of our county's natural blessings.

I have had the pleasure of being involved with the care and protection of our county's natural resources by signing a conservation easement protecting one of our county's farms. This was especially gratifying and important to me because of my truly fond memories of growing up on a farm in Lake County. As this report states 197 acres of agricultural land were protected and preserved this year alone through the efforts of our staff.

Having been part of the committee to create our 2012 Five Year Strategic Plan, it has been especially rewarding to hear reports at our monthly board meetings of work that our staff is performing. These updates are a continual confirmation of success that supports our stated goals and priorities. I take great pride in being involved with such dynamic, creative people and that I'm allowed to spend time each month in a process that helps protect and improve the environment of Lake County.

All of this is thanks to the ongoing support of our County Commissioners, exciting collaboration with other public and private agencies, organizations and local governments.

Skip Dugan
Lake SWCD Board of Supervisors Chair

District Highlights

It can be hard to put into words all of the work we do at Lake County Soil and Water Conservation District. The development of this annual report has given our staff a wonderful opportunity for to reflect back on the year and realize what a truly positive effect this conservation district has on Lake County, Lake Erie, our river and water resources, our people, our children and our wildlife. Reflecting on the past not only shows us where we have been, but also helps guide us into the future. The past informs our actions on the county and region's increasingly complex natural resource challenges. These challenges, whether flooding, water quality, Lake Erie algal blooms, pollution, land use planning or land preservation require watershed scale solutions and cooperative work between agencies, local governments, and private partnerships. All of our District programming – construction site erosion and sediment control, stream restorations, child and adult education, agricultural and natural resource landowner technical assistance, tree sales, rain barrel programs, or local government land use planning assistance – is watershed and natural resource protection focused.

This focus is evidenced in Watershed Action Plans the district has developed for many of the river/stream systems in our county. This cooperative process brings together governments, citizens, and businesses to ensure that priority issues from all parties are addressed in watershed plans. Once complete and adopted by local and state government, watersheds are eligible for state and federal grant funds to address these issues. As you'll see in this report, Arcola Creek currently has 2 such projects underway that are direct results of the partnerships created through the planning process. Lake SWCD along with our public and private partners currently has established watershed action plan coverage in all of Lake County.

Enjoy our 2015 report and as always, please don't hesitate to contact your SWCD office.

Dan Donaldson
District Administrator



Lake SWCD Staff Left to Right: Natalie Gertz-Young, Maurine Orndorff, John Niedzialek, Dan Donaldson, Chad Edgar

Natural Resource Impact

District Activities

Lake SWCD staff
Served 7000 residents

Led
61 Education programs

Performed 2115
Erosion and Sediment Control
site inspections

Made 155 Landowner
Technical Assistance site visits

Added and Preserved
197.7 acres of agricultural
land

Worked collaboratively to
acquire **\$1,161,000** to
restore streams and wetlands
and install stormwater control
measures

Distributed
5,475 Trees, **65** Rain
barrels, and **22** Compsters to
Homeowners

Served
225 Northeast Ohio residents
at FARMAFARE

Direct Impacts

Increases
awareness and support
of local agriculture and
local products

Encourages
communities and
individuals to adopt
efficient and effective
environmentally friendly
practices

Keeps
1109 pounds of
Nitrogen and **160**
pounds of Phosphorus
out of our streams
annually*

Reduces
sediment in streams
by **121.4 tons**
annually*

Captures
up to **910,000**
gallons of stormwater

Restores
ecological function to
800 acres of coastal
wetlands

**Figures determined by the Ohio
EPA STEPL model.*

Long Term Benefits

Increased Property Values, Reduced Stormwater Runoff and Atmospheric Carbon

Since 2004, **42,822** trees have been distributed through our tree sales. Surviving seedlings reduced atmospheric carbon by an estimated **474,209** pounds, raised property values by **\$478,584.50**, and intercepted **1,516,732** gallons of stormwater runoff. **

Healthy Wetlands
filter water more effectively. This results in lower drinking water costs.

Cleaner Streams

Increased Revenue
Healthy bird and fish populations attract eco and water-based tourism

Reduced Flooding and Property Erosion

***Figures determined by the use of National Tree Benefit Calculator and International Society of Arboriculture tree growth factors.*

Conservation Education for All

Lake SWCD continues its legacy of providing Lake county with quality Conservation education programming.

In 2015 Lake SWCD connected with 6,652 Lake County and other Northeast Ohio residents.

Green Yards and Clean Water

Lake SWCD provides residents and landowners of all ages with backyard conservation workshops and materials.

In 2015 Lake SWCD...

held or presented at 23 public programs and community events

distributed 6,000 CrosSection newsletters, print and digital

made and distributed 65 Rain Barrels

sold 22 composters

delivered a conservation message to 3,694 Fair attendees at the Natural Resource Building



Top: Education Coordinator, Natalie Gertz-Young, makes a rain barrel during a workshop at the Mentor Marsh Nature Center. Second: Seed Balls given out at New Year, New Yard, a NEO-PIPE event. Third: A packed house for New Year, New Yard. Bottom: Native trees waiting to be purchased at Lake SWCD's 2015 Conservation Tree Seedling Sale.



Kids in the Creek & Watersheds in the Classroom

Lake SWCD is available to provide programming to all Lake county schools, scouting groups, youth leadership programs, and after-school clubs.

In 2015 Lake SWCD...

provided 35 programs for schools, camps, scouting groups and after-school programs

delivered a conservation message to 940 Lake County youth

offered 3 Educator trainings (one-on-one or group) on conservation topics and educational use of district equipment



Top: District Administrator, Dan Donaldson, stream monitoring in Paine Creek with students. Second: Education Coordinator, Natalie Gertz-Young, gives a lesson on non-point source pollution to Arthur Holden Leadership Institute students. Third: Perry Middle School students learn how to identify wildlife along Lake Erie shoreline with binoculars. Bottom: Ominous skies over the 2015 Area II Envirothon competition at Kent State University at Geauga.



We could not provide these quality educational opportunities without support from our friends and partners:

The Board of Lake County Commissioners
Northeast Ohio Public Involvement Public Education
Workgroup (NEOPIPE)
Lake Metroparks
The Holden Arboretum
Chagrin River Watershed Partners
ODNR Fisheries Research Station

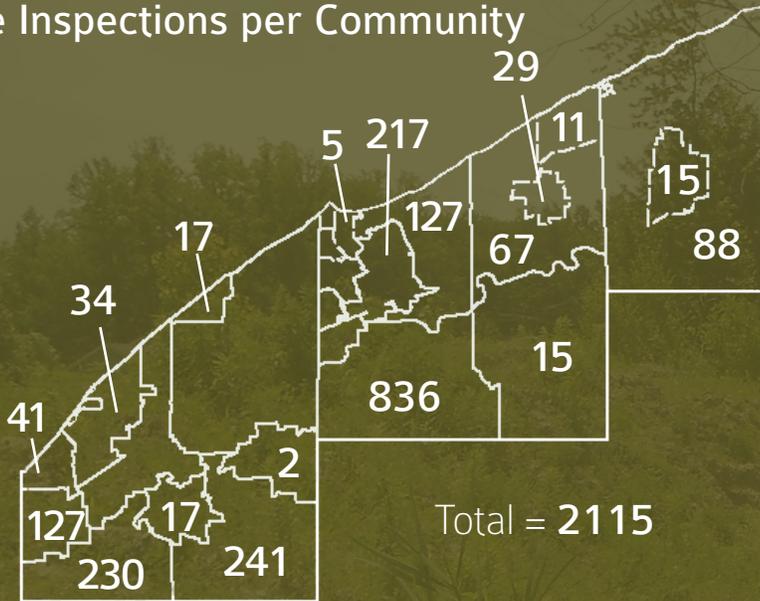
Ohio Sea Grant
Western Reserve Land Conservancy
Mentor Marsh Nature Center
Lakeland Community College
Lake County Stormwater Management Department
Lake County YMCA

Protecting our Built Environment

The District reviewed 266 Erosion and Sediment Control Site Plans and conducted 2115 individual on site inspections on 252 acres of new construction in Lake County.

Our Natural Resource Specialists provide detailed plan review, routine inspections, guidance on gaining and maintaining compliance, providing education and routine assistance to municipalities, property owners, and consultants.

Site Inspections per Community

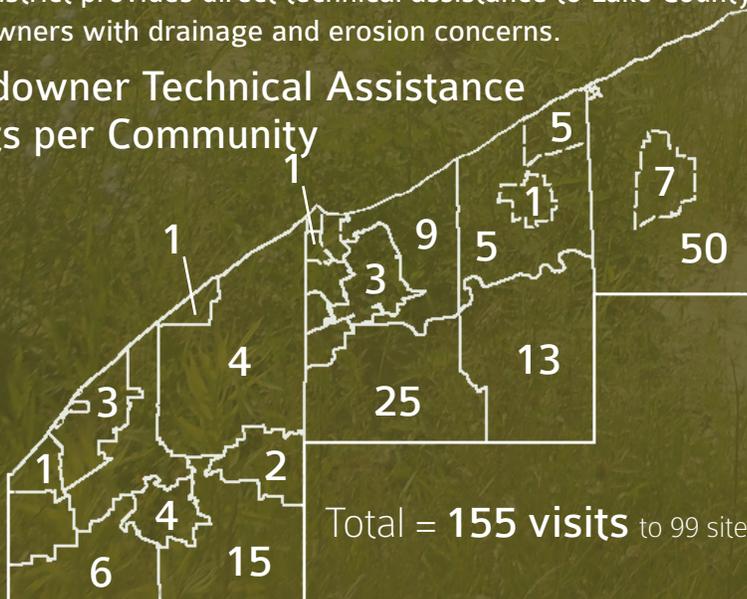


Ensuring erosion and sediment controls are in place on the county's 252 disturbed acres keeps:

121.4 tons of Sediment, **1109** pounds of Nitrogen and **160** pounds of Phosphorus out of our streams annually.

The District provides direct technical assistance to Lake County landowners with drainage and erosion concerns.

Landowner Technical Assistance Visits per Community



Top: Sediment-laden tributary joins Ellison Creek. Sediment is the #1 pollutant in Ohio's streams, rivers and Lake Erie. Second: Stormwater BMPs keep sediment out of streams. This construction drive is poorly constructed and maintained, causing sediment pollution. Third: A homesite properly seeded, strawed and in compliance. Bottom: Properly installed silt fence prevents sediment from reaching waterways.

Permanent Land Preservation

Agricultural Easements

The program provides funding through state and federal programs to purchase conservation easements from owners of quality farmland. This allows farmland to stay in agricultural use in perpetuity.

9 farms and **431.7** acres have been preserved in Lake County. **2** farms for a total of **197.7** acres were preserved in 2015.

Total # of acres under agricultural easement by community



Conservation Easements

Lake SWCD holds conservation easements for both public and privately owned properties. These properties are valuable natural areas and are preserved in perpetuity.

27 properties and **2113** acres have been preserved in Lake County.

Total # of acres under conservation easement by community



The county's **3544.7** acres of protected property prevents:

425 tons of Sediment, **7.6** tons of Nitrogen and **1.3** tons of Phosphorus out of our streams annually.

Work In Watersheds

The District was a participant in the development of the Central Lake Erie Basin (CLEB) Watershed Collaborative in 2014 and 2015. The collaboration brought together watershed professionals from 17 organizations whose missions include the preservation and stewardship of watersheds that drain into Lake Erie. The collaborative continues to meet quarterly to explore strategies to improve watersheds, educate the public, implement projects to improve water quality and habitat, reduce redundancy and grow organizational capacity.

Lake SWCD worked with the United States Army Corps of Engineers this past summer to collect erosion and sediment transport data in the Marsh Creek-FLE and McKinley-FLE watersheds. A new program utilized the START (Sediment Transport Analysis and Regional Training) Assessment coupled with field work to identify areas of higher sedimentation and help prioritize flooding, erosion and watershed restoration efforts.

McKinley Creek-Frontal Lake Erie

The McKinley Creek-Frontal Lake Erie Watershed Action Plan is taking shape. Issues identified by Stakeholders are being incorporated into the plan as Best Management Practices selected to suit the soil hydrologic characteristics of the subwatersheds.

Lower Grand River

Work continues on the Lower Grand River Watershed Action Plan update. The plan was originally submitted to the Ohio EPA and ODNR by the Grand River Partners in August of 2005 but was not granted endorsement. Lake SWCD began revising the plan in 2013 to bring it into compliance with the new watershed action planning parameters outlined by the State at that time. The parameters are changing once again- this time by the USEPA, and Ohio EPA is currently working to define the new paradigm.

Although the rules of the game continue to change, the goals of watershed planning do not. Having a vision for the wise use of the natural resources of the Grand River will benefit the community and the region into the next century.

Marsh Creek-Frontal Lake Erie

We partnered with the Cleveland Museum of Natural History (CMNH) to obtain a Coastal and Estuarine Land Conservation Program (CELCP) grant to purchase privately owned property in the Marsh and bring more of the Marsh under management by the CMNH. We collaborated with The Nature Conservancy for funding to treat invasives in the Marsh and upstream along Marsh Creek.

Lake SWCD has established benchmarks for water quality monitoring in the Marsh and regularly takes samples at 9 sites. We are working with the CMNH to assess changes in the Marsh salinity and nutrient levels.

Our staff also helped reforest the Mentor Marsh with Freeman Maple seedlings. These seedlings were collected on the Marsh's remaining patch of swamp forest and grown by Klyn Nursery in Perry Township.

Left: Lake SWCD staff pass Freeman maple saplings down into the swamp forest. Right: Mentor Marsh swamp forest.





Arcola Creek

Watershed Action Plan implementation is underway in the Arcola Creek Watershed, following endorsement of the plan in 2013. The first two grant-funded watershed restoration projects will be constructed in Madison Village in the summer of 2016.

A grant was awarded by the EPA Surface Water Improvement Fund (SWIF) to install bio-infiltration practices along Main Street in Madison Village. Bio-infiltration planters, trees and permeable pavers will increase infiltration of stormwater, reduce runoff and flooding and beautify the downtown business district. The project is in the design stages and will be constructed by the end of June.

Through a partnership with Chagrin River Watershed Partners and the Lake County Stormwater Management Department, 600 feet of Arcola Creek in Madison Village will be restored with funding from an EPA 319 grant. This first restoration project in the watershed is located in Fairview Cemetery. It will be constructed in the summer of 2016. We have engaged the Science Club of Madison South Elementary in monitoring the stream quality prior to the project and following up after the restoration is complete.

In 2015 Lake SWCD...

was awarded 2 grants to complete projects in the Arcola Creek watershed

has 1 stream restoration underway in the Arcola Creek watershed

has 1 stormwater retrofit project underway in the Arcola Creek watershed



Clockwise starting top left: Volunteers pulled invasive garlic mustard and picked up trash along Arcola Creek in Madison Village; John Pogacnik shows hikers salamander eggs in South Ridge Reservation; 5th graders from Madison South Elementary collect macro invertebrates in stretch of Arcola Creek in Fairview Cemetery; 5th graders from Madison South Elementary identify macro invertebrates.



Featured Project: Restoration of the Mentor Marsh

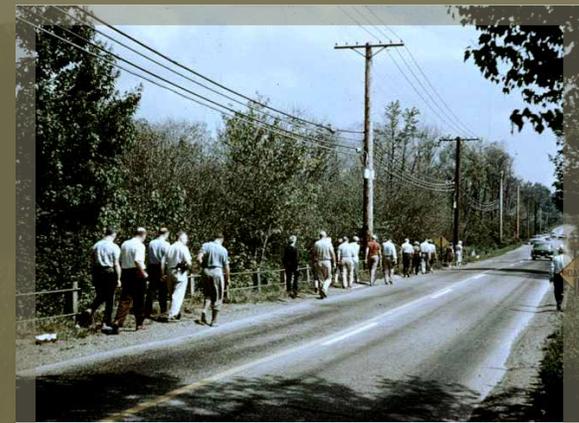
The Mentor Marsh is a coastal and estuarine marsh, and is considered to be the largest natural and undiked marsh along the Lake Erie shoreline. It is hydraulically connected to Lake Erie and is directly influenced by lake levels, evidenced by fish passing into the Marsh directly from the Lake. The Marsh is approximately 715 acres of peat and muck soil wetland along the Lake Erie lake-plain.



Area History

The Mentor Marsh has a unique natural and human history. After the last ice age the Grand River changed direction from its outlet at the present day Mentor lagoons to its current outlet in Fairport Harbor, leaving a 1.5 mile-long meander we now call the Mentor Marsh.

Originally surveyed in 1796, the Mentor Marsh was a mix of open water, marshy grasses, alder thickets, and hardwood forest with a thick shrubby understory. This swamp forest and adjacent upland forest became of particular interest due to its incredible woody plant diversity. This diversity caused the area to be declared a National Landmark in 1966. The Mentor Marsh's importance continued to be recognized when the area



was made Ohio's first State Nature Preserve in 1971 and a National Audubon Society Important Birding Area in 1995.

The 1950s through the 1970s were a time of rapid change for the Mentor Marsh. During this time period the Marsh was contaminated with salt from nearby land uses and brine well eruptions on adjacent properties. Salt from these areas contaminated the wetland soil of the Marsh and killed off the swamp forest vegetation. An openwater cattail marsh replaced the woody vegetation.

Invasion of *Phragmites australis*

By the 1980's a foreign invasive species, *Phragmites australis* or common reed grass, had invaded the marsh. *Phragmites* is a salt-tolerant grass from Eurasia. It provides little for our native wildlife and has crowded out the native marsh species which provide food, shelter and homes for the birds, fish, insects, mammals, reptiles and amphibians that call the Marsh home.

Phragmites is not only detrimental to the health and well being of wildlife, but also to humans, as it is highly flammable. From the mid 1980s until today there have been 12 major Marsh fires. This is of particular concern for the safety of Marsh-adjacent landowners. The fires have cost the City of Mentor, neighboring communities and landowners 1.58 million dollars, adjusted to 2013 inflation, to extinguish the blazes and repair damaged property.



Ongoing Restoration

After the 2003 fire The Cleveland Museum of Natural History began clearing the Phragmites away from the newly replaced Wake Robin Boardwalk, in hopes of preventing future fire damage. They were surprised by the diversity of native plants that sprouted from the seedbank. This "test plot" is the inspiration for the current restoration efforts which include aerial and ground level herbicide treatment, followed by either removal of the biomass for alternative fuel research, or mashing of the phragmites with a Marshmaster equipped with a specialized roller, and planting of native swamp forest trees and shrubs.

Restoration Partners

Cleveland Museum of Natural History

Lake County Soil and Water Conservation District

City of Mentor

Mentor City Schools

Lake County Commissioners-Department of Utilities

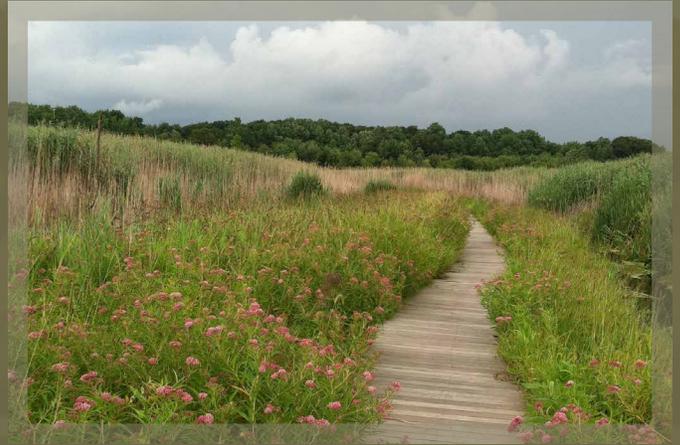
City of Mentor Fire Department

Ohio Department of Natural Resources – Divisions of
Natural Areas and State Parks

Ohio Lake Erie Commission -Linda Sekura

The many private landowners that have donated
property or allowed restoration activities on their
properties

Opposite page, top to bottom: Neuhaus Pond on a summer evening; Burroughs Nature Club walks south on swamp forest-lined Corduroy road in 1961; Phragmites australis at the western edge of the Marsh. This page Left to right, top to bottom: Aerial view of the restoration captured by drone; 2013 Marsh fire; Wake robin boardwalk with native swamp milkweed, Asclepias incarnata, in full bloom; Marshmaster with specialized roller; Helicopter in-between aerial applications of herbicide.



Board of Supervisors 2015

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Larry Klco – Vice Chair
Dick Kennelly – Secretary
Brad Shawhan – Treasurer
Jeff Hyrne – Fiscal Agent

District Staff 2015

Dan Donaldson – District Administrator
Chad Edgar – Resource Protection Specialist
Natalie Gertz-Young – Education/Information Coordinator
John Niedzialek – Resource Protection Specialist
Maurine Orndorff – Watershed Coordinator

Acknowledgments

It takes many supporters to make our District successful . The Lake SWCD Board of Supervisors extends appreciation to the following:

Lake County Commissioners
Lake County Depts—Building, Engineer,
General Health District, Planning Commission,
Prosecutor, Stormwater Management, GIS
Lake County Fair Board
Lake Metroparks
Ohio Department of Natural
Resources—Divisions of Soil & Water
Conservation, Wildlife, Forestry, Natural
Areas & Preserves - Scenic Rivers, Real
Estate & Land Management, & Coastal
Zone Management
Natural Resources Conservation Service,
USDA
Western Reserve Resource Conservation &
Development Council
Ohio EPA Division of Surface Water
United States EPA
US Army Corp of Engineers
Villages of Fairport Harbor, Grand
River, Kirtland Hills, Lakeline, Madison, North
Perry, Perry, Timberlake & Waite Hill
Cities of Eastlake, Kirtland, Mentor,
Mentor-on-the-Lake, Painesville, Wickliffe,
Willoughby, Willoughby Hills & Willowick
Townships of Concord, Leroy, Madison,
Painesville, Perry

Blackbrook Audubon Society
Bluestone Perennials
Boy Scouts of America
Chagrin River Watershed Partners, Inc.
Cleveland Museum of Natural History
Educators from across Lake County
Girl Scouts of America
The Holden Arboretum
Lake County Farm Bureau
Lake County YMCA Outdoor Family Center
Lake Erie College
Lakeland Community College
Mastin-Grantham Educational Fund
Mentor Marsh Board
Northeast Ohio Public Involvement
Public Education Workgroup (NEO PIPE)
Nursery Growers of Lake County Ohio
Ohio Lake Erie Commission
Ohio State University
Ohio State University Extension
Ohio Wine Producers Association
U.S. Senators Sherrod Brown & Rob Portman
U.S. Congressman David Joyce
State Senators John Eklund & Kenny Yuko
State Representatives Ron Young & John Rogers
Western Reserve Land Conservancy

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