Great Lakes PHRAGMITES COLLABORATIVE

WELCOME!

Outreach and Education Methods for *Phragmites* Management

Mary Bohling, *Extension Educator, Michigan Sea Grant Extension*

The Webinar will begin shortly!

Phragmites Education and Outreach: What Tools are in the Toolbox?

Mary Bohling, SE MI Educator
Michigan Sea Grant College Program

Sea Grant Michigan

MICHIGAN STATE UNIVERSITY

NOAA

UNIVERSITY OF MICHIGAN

Sea Grant
Michigan

Mission: Enhance sustainability of Michigan's Great Lakes coasts

Activities: Research, Education and Outreach

Focus Areas:

Sustainable Coastal Communities & Economies
Healthy Coastal Ecosystems
Safe & Sustainable Seafood
Coastal Hazard Resilience

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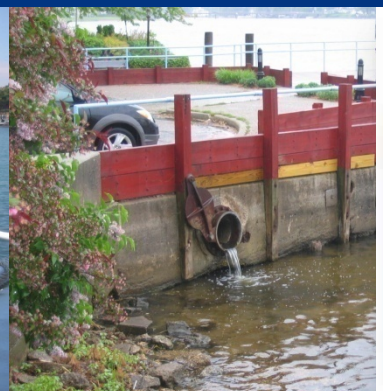
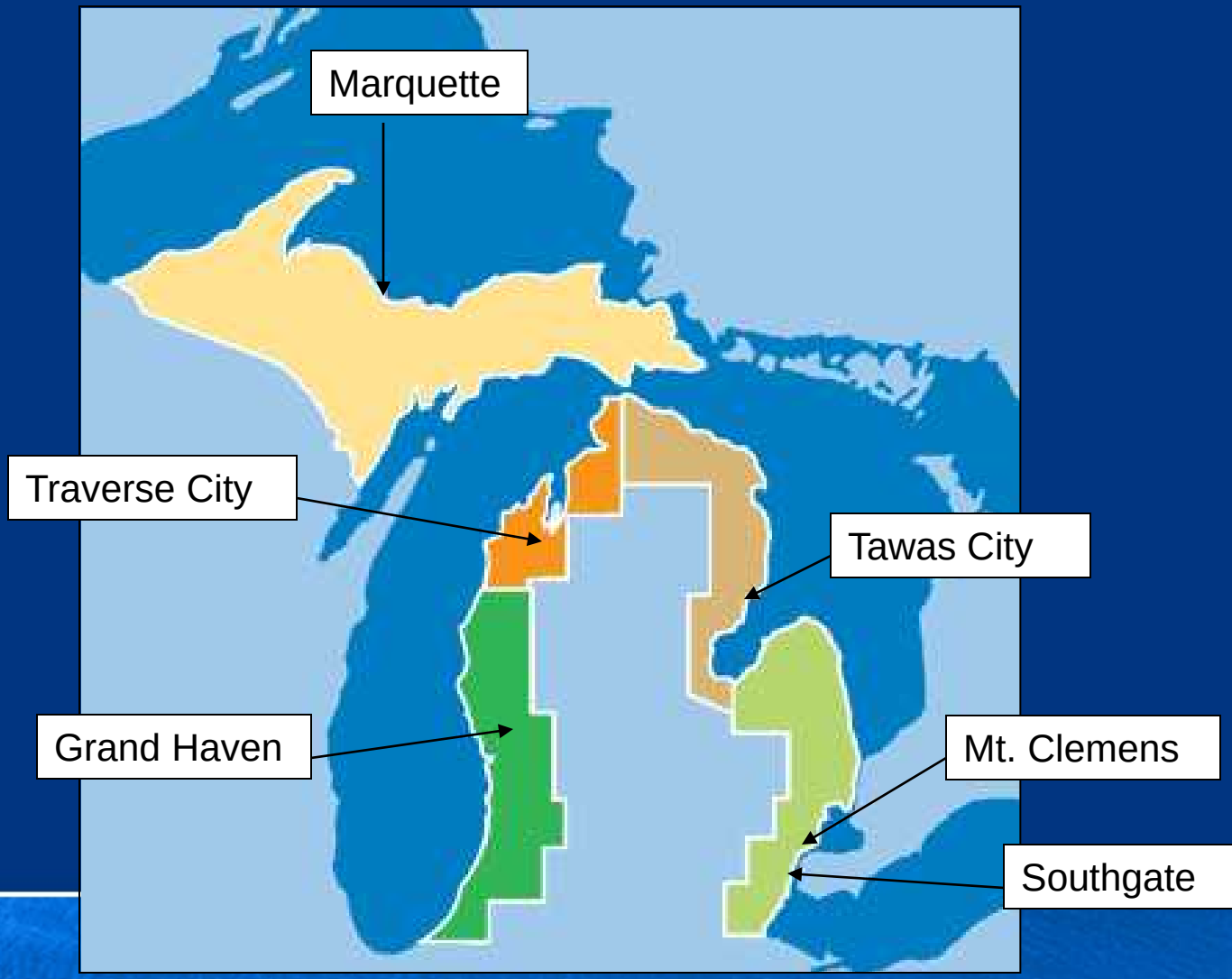



MI Sea Grant Field Offices



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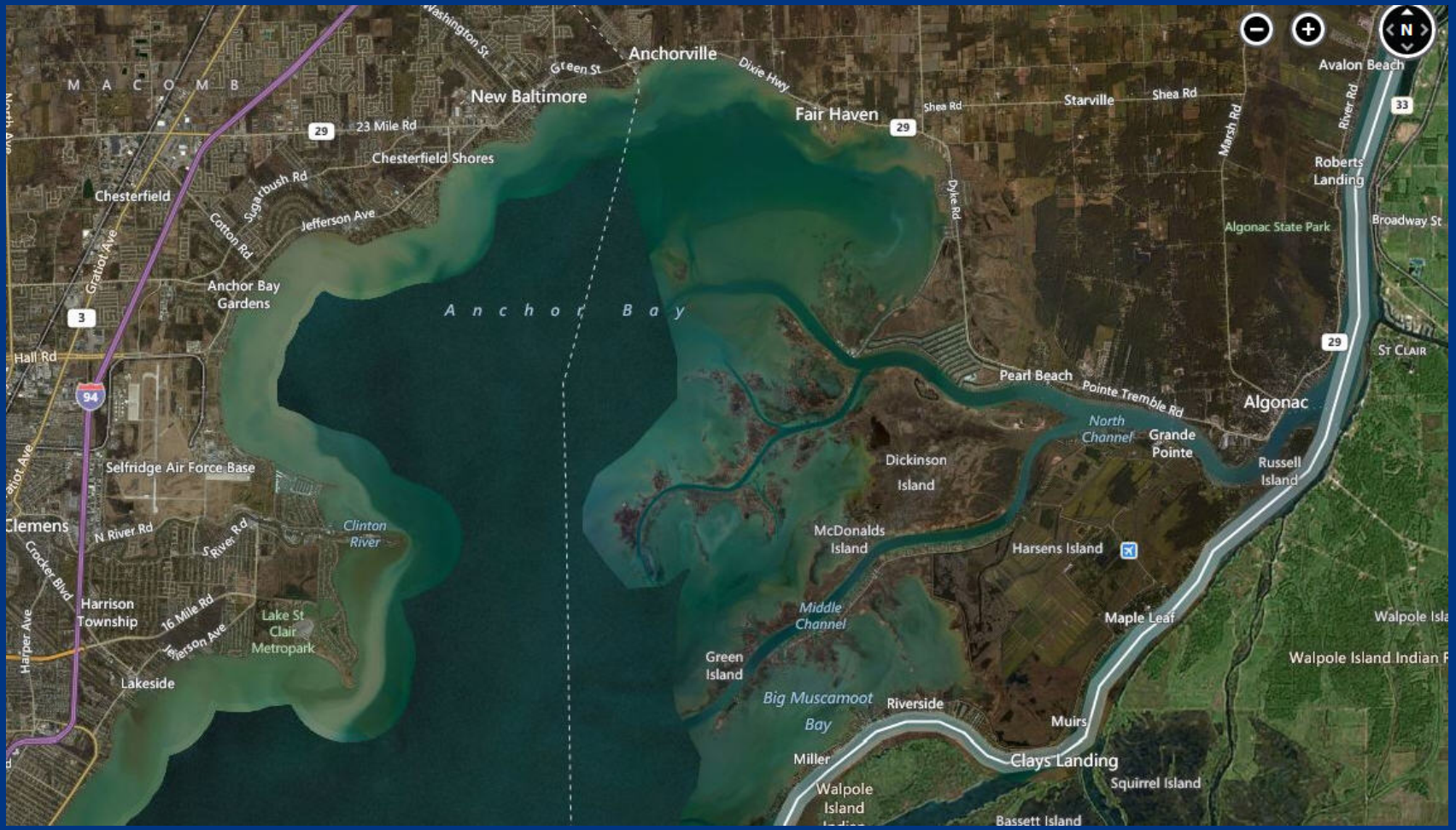
Lake St. Clair / Anchor Bay



GLRI-DU

- **Grant Amount:**
  - $974,037 of federal GLRI funding via the U.S. EPA; DU contributed $25,000 of eligible match
- **Partners:**
  - Michigan DNR, Michigan Sea Grant/MSU, U.S. EPA, SEMCOG, Clay Twp., Ira Twp., Wildlife and Wetlands Solutions, Inc., and several private landowners
- **Timeline:**
  - Grant awarded to DU on 8/23/2010. Education and outreach is currently ongoing. We anticipate a final prescribed burn on Michigan DNR lands followed by monitoring and final reporting to EPA to be complete by the grant period end date of 6/30/2014.

GLRI-DU

- **Goals:**
  - Treat 1,200 acres of invasive Phragmites on both public and private lands on Anchor Bay and the St. Clair Flats.
  - Treatment includes a combination of aerial and ground herbicide application followed by spot treatment and burning or mowing.
  - Additional goals include offering education opportunities and outreach to local communities regarding Phragmites control and spread.
  - This effort builds on several Phragmites successes in the area, including the Lake St. Clair Coastal Project (funded by the National Coastal Wetlands Conservation) that treated 864 acres of Phragmites.

Project Elements

- Research
- Project Development
- Treatment
- Monitoring
- Follow-up Treatment

Education and Outreach

- Education & Outreach

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Why Education & Outreach?

- Increase Capacity
- Increase Awareness
- Build Support
- Spread the Science
- Eliminate Duplication
- Distill Complicated Information
- Set the Stage for Future Funding
- Generate Positive Media Buzz

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Tools

- Fact Sheets
- Maps
- Posters
- Presentations
- Photos/Graphics
- Workshops
- Events/Celebrations
- Curriculum
- Websites
- Displays/Signage
- Video
- Media Materials
- Booklets
- Stakeholder Groups

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Workshops/Meetings

- Public Meetings
- Teacher Training
- Land Manager Workshops
- Private Landowner Workshops

SEMCOG UNIVERSITY

Workshop: Developing a Lake St. Clair Phragmites Control Strategy
March 14, 2014
9:00 am -11:30 am
Lake St. Clair Metropark Activity Center (view site map)
31300 Metro Parkway, Harrison Township, MI 48045
(586) 463-4581

SEMCOG and the Michigan Sea Grant are jointly sponsoring this SEMCOG University to engage SEMCOG member counties and local governments within a 37-community target area for which Phragmites has already been mapped, in developing a strategy for controlling invasive Phragmites.

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Impacts to Wildlife

- Negatively impacts specialists
- Increases in some generalists
- Changes in food web
- Changes in wetland use (nesting/brood rearing)

Impacts to Human Values

- Recreation
- Property values
- Aesthetics
- Infrastructure

Herbicides

- Water approved formulation
- Glyphosate / Imazapyr
- Adjuvant & dye
- Application method – site specific
  - Boom sprayer
  - Backpack sprayer
  - Hand swiping
  - Aerial treatment
- Alternation of herbicides to avoid resistance

Selected Samples

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Fact Sheets

RESTORING THE MARSH
PHRAGMITES REMOVAL AND MONITORING

PROJECT AREA

The marsh restoration project area includes Lake St. Clair Metropark, areas of Harrison Township and St. John's Marsh in Algonac.

Great Lakes marshes are valuable wetland habitats, full of nutrients that help support diverse plant and animal life. They also provide ecological services such as water filtration and flood protection along the coast. However, many marsh habitats are threatened by pollution, development and non-native aquatic invasive species, like Phragmites.

RESTORING THE MARSHES

Phragmites australis, an invasive plant, quickly spreads through marsh and wetland areas, robbing the fish, plants and wildlife of nutrients and space; blocking access to the water; and spoiling shoreline views. Once it has become established, removal by hand is nearly impossible.

As Phragmites overtook the Lake St. Clair marshes, for example, removing the invader and restoring the natural balance of the marshes required strong measures. Natural resource managers devised a plan to eradicate and manage invasive Phragmites that included herbicide applications and controlled burns.

The marsh restoration project area includes Lake St. Clair Metropark, areas of Harrison Township and St. John's Marsh in Algonac.

WHAT WAS DONE?

- The Michigan Department of Natural Resources approved a control plan and the Michigan Department of Environmental Quality approved the required permits.
- Trained professionals followed the plan.
- First, an herbicide was applied by helicopter and on the ground.
- Then, controlled burns were used to remove dead Phragmites. Burning the stalks allowed sunlight to penetrate the ground and native plant seeds to germinate.
- Managers will continue to monitor the project area and will encourage the re-establishment of native species in the marshes.

TECHNOLOGY

Natural resource managers used Geographical Information System (GIS) technology to determine how and where to reduce and remove Phragmites to allow native plants to regenerate.

YEAR 1 FALL
Herbicide, a chemical used to kill plants, was applied by helicopters and on the ground with sprayers. Trained professionals used Glyphosate, an EPA-approved aquatic herbicide to spray the plants. People were not allowed into the treatment area.

YEAR 2 SPRING
Controlled burns (in combination with the herbicide) were used to remove dead Phragmites, allowing sunlight to penetrate the ground.

YEAR 2 FALL
Herbicide application on the ground continued. The only herbicides that are effective in controlling Phragmites are broad spectrum, meaning they affect other plant species. However, native plants recover within a few years after initial herbicide treatment.

ONGOING
Managers will continue to study the project area while maintaining and protecting the recovering wetlands. There are many tools they use, including:

- Flooding, changing water levels, diking;
- Removing plants by mowing, dredging or burning;
- Applying herbicides or other chemicals to help prevent the growth and spread of invasive species; and
- Adding nest structures, plants and other habitat improvements to make it hospitable for native species to return.

PHRAGMITES AUSTRALIS, COMMON REED

While invasive Phragmites may look like a pretty wetland grass, in the Great Lakes region it is one tough invasive species. Also known as common reed, Phragmites is an aggressive plant that quickly outcompetes native plants and displaces animals.

PHRAGMITES FACTS

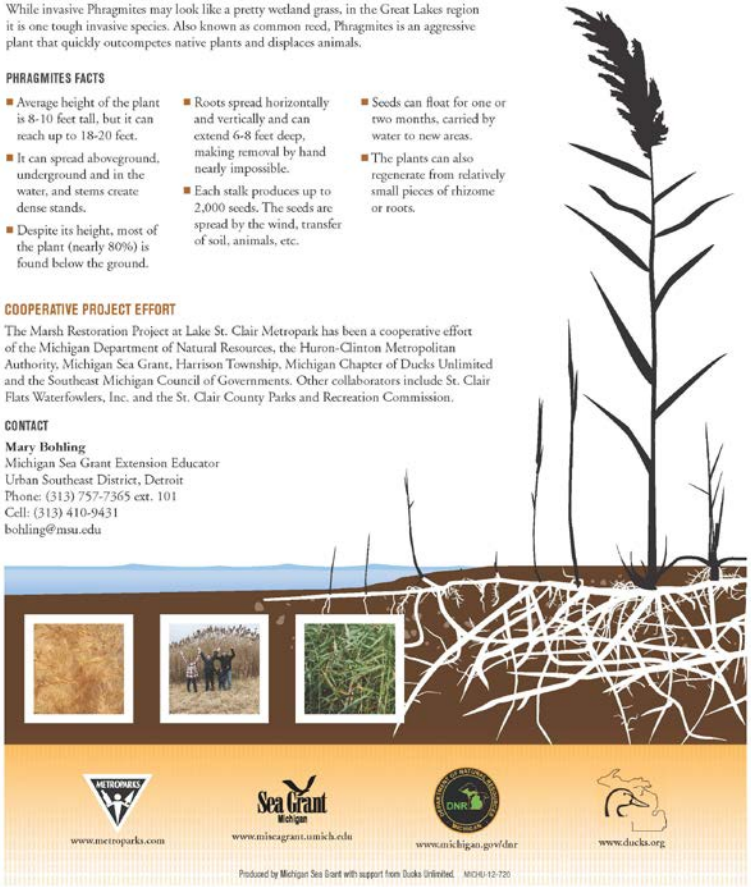
- Average height of the plant is 8-10 feet tall, but it can reach up to 18-20 feet.
- It can spread aboveground, underground and in the water, and stems create dense stands.
- Despite its height, most of the plant (nearly 80%) is found below the ground.
- Roots spread horizontally and vertically and can extend 6-8 feet deep, making removal by hand nearly impossible.
- Each stalk produces up to 2,000 seeds. The seeds are spread by the wind, transfer of soil, animals, etc.
- Seeds can float for one or two months, carried by water to new areas.
- The plants can also regenerate from relatively small pieces of rhizome or roots.

COOPERATIVE PROJECT EFFORT

The Marsh Restoration Project at Lake St. Clair Metropark has been a cooperative effort of the Michigan Department of Natural Resources, the Huron-Clinton Metropolitan Authority, Michigan Sea Grant, Harrison Township, Michigan Chapter of Ducks Unlimited and the Southeast Michigan Council of Governments. Other collaborators include St. Clair Flats Waterfowlers, Inc. and the St. Clair County Parks and Recreation Commission.

CONTACT

Mary Bohling
Michigan Sea Grant Extension Educator
Urban Southeast District, Detroit
Phone: (313) 757-7365 ext. 101
Cell: (313) 410-9431
bohling@msu.edu



www.metroparks.com
www.miseagrant.umich.edu
www.michigan.gov/dnr
www.ducks.org

Produced by Michigan Sea Grant with support from Ducks Unlimited. MICHU-12-720

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Fliers

HURON-CLINTON METROPARKS

PHRAGMITES control

Phragmites australis, giant reed

A healthy wetland ecosystem

This fall, the Michigan Department of Natural Resources and Environment (MDNRE), the Huron-Clinton Metroparks and the Charter Township of Harrison will continue efforts to control giant reed (phragmites) at several sites within the Lake St. Clair watershed. The intent of the project is to protect and restore valuable coastal marshes and wetlands within the watershed by controlling phragmites, an invasive wetland grass.

This activity is part of the Marsh Restoration Project, at Metro Beach Metropark, St. John's Marsh and Harrison Township. This four year project, funded by a U.S. Fish and Wildlife Service grant, is a cooperative effort of the MDNRE, the Huron-Clinton Metroparks, the Charter Township of Harrison, the Great Lakes/Atlantic Regional Office of Ducks Unlimited, Michigan Sea Grant, and the Southeast Michigan Council of Governments. Other partners and contributors include St. Clair Flats Waterfowlers, Inc. and the St. Clair County Parks and Recreation Commission. The project aims to restore and improve wildlife habitat and ensure the long-term ecological sustainability of Great Lakes coastal marshes.

Phragmites will be chemically treated at Metro Beach Metropark, St. Johns Marsh and Harrison Township owned property along the Vanter DeBeuff Drain. The chemicals used in this treatment will be glyphosate and imazapyr. All treatment will be done in accordance with permits issued to the project administrator, the Great Lakes/Atlantic Regional Office of Ducks Unlimited, by the MDNRE Water Bureau and in accordance with product labels. Treatment will take place between September 7 and September 30, 2010. Questions regarding the treatment can be directed to Ernie Kafcas, MDNRE Wildlife, 586-465-7214 or Paul Muelle, Huron-Clinton Metroparks, 810-494-6052.

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Booklets

EDUCATIONAL RESOURCES

POSTER

- Ducks are fascinating creatures. Learn more about our native waterfowl with the Dabblers and Divers poster. This poster and other publications are available through www.miseagrant.com

ONLINE CURRICULUM

More information about water quality, marshes and invasive species is available through Michigan Sea Grant's online curriculum resources.

- **Teaching with Great Lakes Data** includes lessons, activities and data sets. The curriculum includes a lesson about Phragmites, marshes and water quality. See: www.greatlakeslessons.com
- **Fisheries Learning on the Web (FLOW)** features lessons and activities about wetlands, and invasive and native plants and animals. Activities demonstrate important wetland functions and the challenges of making land-use decisions. See: www.projectflow.us

TAKE A HIKE!

Lake St. Clair Metropark Nature Center
Go for a hike through the marsh and visit the exhibits at the Nature Center that feature frogs, birds, fish and snakes that are part of the Lake St. Clair marsh. See: www.metroparks.com

GET OUTDOORS WITH THE MICHIGAN DEPARTMENT OF NATURAL RESOURCES

Explore boating, birdwatching, and camping at Michigan State Parks and Recreation Areas. Search for "get outdoors" to find outdoor opportunities and events.

CONTACT

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Michigan Sea Grant Extension Educator
Urban Southeast District, Detroit
Phone: (313) 757-7365 ext. 101
Cell: (313) 410-9431
bohling@msu.edu

RESTORING LAKE ST. CLAIR MARSHES

Many marsh habitats are threatened by pollution, development and non-native aquatic invasive species, like Phragmites. *Phragmites australis* or the common reed, is one of the tallest and toughest invasive grasses in the Great Lakes region. It can grow up to 20 feet tall and up to 30 feet of roots in one year.

In the Lake St. Clair area, natural resource managers devised a plan to eradicate and manage Phragmites in the marsh. The marsh restoration project area included Lake St. Clair Metropark, areas of Harrison Township and St. John's Marsh in Algonac.

WHAT WAS DONE?

- An herbicide was applied by helicopter and on the ground in an effort to control the invasive Phragmites.
- Glyphosate, an aquatic herbicide was used. The only herbicides that are effective in controlling Phragmites are broad spectrum, meaning they do not target just one species. However, native plants recover within a few years after initial herbicide treatment.
- Controlled burns were used to remove dead Phragmites. Burning the stalks allowed sunlight to penetrate the ground and native seeds to germinate.
- The control plan included a 50-yard buffer zone adjacent to the public land and residents and park visitors were not allowed into the treatment area.
- Ongoing monitoring and restoration will continue.

www.metroparks.com www.miseagrant.umich.edu www.michigan.gov/dnr www.ducks.org

The Marsh Restoration Project at Lake St. Clair Metropark has been a cooperative effort of the Michigan Department of Natural Resources, the Huron-Clinton Metropolitan Authority, Michigan Sea Grant, Harrison Township, Michigan Chapter of Ducks Unlimited and the Southeast Michigan Council of Governments. Other collaborators include St. Clair Fish Watchers, Inc. and the St. Clair County Parks and Recreation Commission.
Produced by Michigan Sea Grant with support from Ducks Unlimited. MICHU-12-725

A HEALTHY MARSH

Marshes are unique areas where water saturates the soil and covers the land for most or all of the year. Marshes are one type of wetland, and are characterized as having open water, shrubs and grass-like plants. The marsh is full of nutrients and is home to plants and animals that need the habitat to survive.

With the constantly shifting water levels and conditions a wide variety of birds, plants and animals can take advantage of the habitat. Because of this diversity and the presence of rich soils, wetlands provide shelter and homes to not just larger mammals and birds, but also insects, invertebrates, bacteria, algae and decaying plants. Combined, these smaller organisms create a solid foundation for a rich food chain.

ONE EXAMPLE: DUCKS

Marshes are home to many waterfowl. In fact, every species of duck in the Great Lakes rely on wetlands at some point in their lives. In the Great Lakes region, ducks are often classified into two groups: dabblers or divers. Just as it sounds, the ducks are organized by whichever behavior they exhibit, mainly in search of food. Dabblers and divers both rely on the marsh in different ways.

Overall, dabbling ducks spend most of their time in shallow water, nearshore or onshore searching for plants, seeds, worms and insects to eat. A dabbler can sometimes easily be spotted as it tips its whole body forward, dunking its head and the front half of its body to search for tasty bits in the shallow water.

The areas near the shore are used as resting, nesting and nursery areas for both dabblers and divers. The marsh helps provide nutrients and protection for mom and her ducklings as they grow large enough to begin exploring.

At different times, both female and male ducks molt, meaning they lose and replace their feathers. For example, in winter and spring, many male ducks have flashy feathers — or breeding plumage — to attract potential mates. Shortly after the breeding season, however, they begin to lose the showy feathers and replace them with basic feathers. The male ducks cannot fly while in molt.

During this flightless period, the ducks are completely dependent upon the resources of the wetland. Dabbling ducks use areas near the shore, particularly for cover, while divers tend to seek out deeper water areas for protection. However, many ducks use the marsh habitat for food as well as resting areas during their flightless times.

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Outdoor Interpretive Signage

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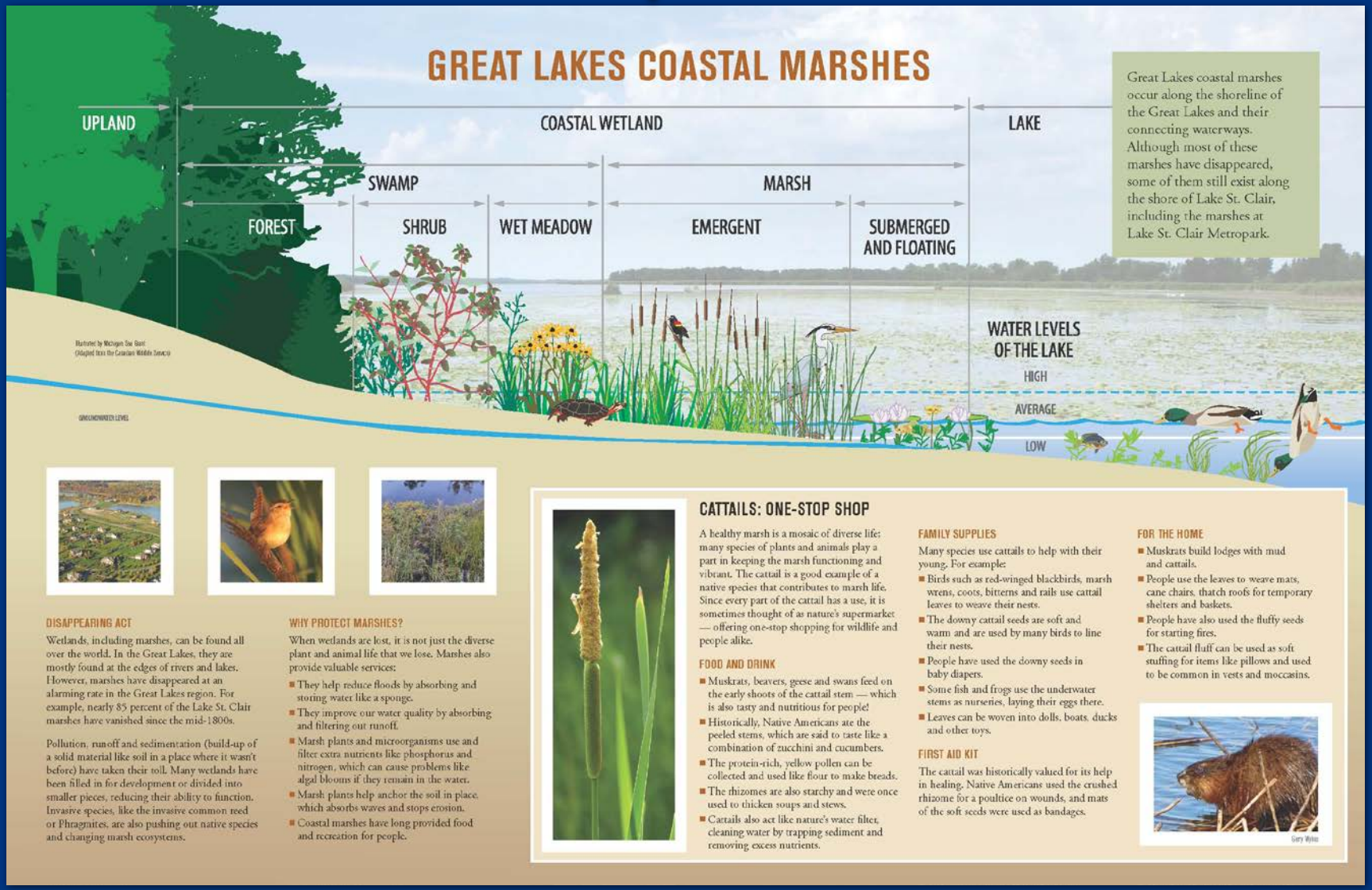
Graphics


GREAT LAKES COASTAL MARSHES
Great Lakes coastal marshes occur along the shoreline of the Great Lakes and their connecting waterways. Although most of these marshes have disappeared, some of them still exist along the shore of Lake St. Clair, including the marshes at Lake St. Clair Metropark.
UPLAND
COASTAL WETLAND
LAKE
SWAMP
MARSH
FOREST
SHRUB
WET MEADOW
EMERGENT
SUBMERGED AND FLOATING
WATER LEVELS OF THE LAKE
HIGH
AVERAGE
LOW
DISAPPEARING ACT
Wetlands, including marshes, can be found all over the world. In the Great Lakes, they are mostly found at the edges of rivers and lakes. However, marshes have disappeared at an alarming rate in the Great Lakes region. For example, nearly 85 percent of the Lake St. Clair marshes have vanished since the mid-1800s.
Pollution, runoff and sedimentation (build-up of a solid material like soil in a place where it wasn't before) have taken their toll. Many wetlands have been filled in for development or divided into smaller pieces, reducing their ability to function. Invasive species, like the invasive common reed or Phragmites, are also pushing out native species and changing marsh ecosystems.
WHY PROTECT MARSHES?
When wetlands are lost, it is not just the diverse plant and animal life that we lose. Marshes also provide valuable services:
They help reduce floods by absorbing and storing water like a sponge.
They improve our water quality by absorbing and filtering out runoff.
Marsh plants and microorganisms use and filter extra nutrients like phosphorus and nitrogen, which can cause problems like algal blooms if they remain in the water.
Marsh plants help anchor the soil in place, which absorbs waves and stops erosion.
Coastal marshes have long provided food and recreation for people.
CATTAILS: ONE-STOP SHOP
A healthy marsh is a mosaic of diverse life; many species of plants and animals play a part in keeping the marsh functioning and vibrant. The cattail is a good example of a native species that contributes to marsh life. Since every part of the cattail has a use, it is sometimes thought of as nature's supermarket — offering one-stop shopping for wildlife and people alike.
FOOD AND DRINK
Muskrats, beavers, geese and swans feed on the early shoots of the cattail stem — which is also tasty and nutritious for people!
Historically, Native Americans ate the peeled stems, which are said to taste like a combination of zucchini and cucumbers.
The protein-rich, yellow pollen can be collected and used like flour to make breads.
The rhizomes are also starchy and were once used to thicken soups and stews.
Cattails also act like nature's water filter, cleaning water by trapping sediment and removing excess nutrients.
FAMILY SUPPLIES
Many species use cattails to help with their young. For example:
Birds such as red-winged blackbirds, marsh wrens, coots, bitterns and rails use cattail leaves to weave their nests.
The downy cattail seeds are soft and warm and are used by many birds to line their nests.
People have used the downy seeds in baby diapers.
Some fish and frogs use the underwater stems as nurseries, laying their eggs there.
Leaves can be woven into dolls, boats, ducks and other toys.
FIRST AID KIT
The cattail was historically valued for its help in healing. Native Americans used the crushed rhizome for a poultice on wounds, and mats of the soft seeds were used as bandages.
FOR THE HOME
Muskrats build lodges with mud and cattails.
People use the leaves to weave mats, cane chairs, thatch roofs for temporary shelters and baskets.
People have also used the fluffy seeds for starting fires.
The cattail fluff can be used as soft stuffing for items like pillows and used to be common in vests and moccasins.

Media Announcements

Sea Grant Michigan

PUBLICATION ANNOUNCEMENT

Michigan Sea Grant
www.miseagrant.umich.edu

New: Dabblers and Divers Poster Now Available

Contact: Stephanie Ariganello
stephaa@umich.edu or
(734) 615-0400

Publisher: Michigan Sea Grant (Oct. 2012)
Publication Number: MICHU-12- 725
Price: $8. Education discounts available. Contact msgpubs@umich.edu for more information.

Details: Vertical poster, 26 in. wide x 37. in tall. Printed four-color on high quality, post-consumer, 100% recycled paper with vegetable-based ink.

Have you ever seen a duck and wondered what kind of duck it was? Michigan Sea Grant's new publication *Dabblers & Divers: Great Lakes Waterfowl* poster can help.

The full-color poster features profiles of eight ducks — four dabblers and four divers — found throughout the Great Lakes. Each profile includes the duck's common and scientific names and shows pictures of both female and males ducks and the duck in flight.

It's great for avid and novice birders, educators, nature enthusiasts or anyone interested in Great Lakes birds and animals. The poster also provides information to help you figure out if a duck is a dabbler or diver. That includes information on: where dabblers and divers can be found; their position in the water; the size and shape of their bodies and wings; and where their feet are positioned on their bodies, along with other common distinguishing characteristics.

Bonus: Learn About Wetlands
When you order a poster, you also receive a free brochure on wetlands that features an overview on why they are important, how they are managed and what you can do to ensure they stay healthy.

To order your copy, visit www.miseagrant.com

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Michigan Sea Grant helps to foster economic growth and protect Michigan's coastal, Great Lakes resources through research, education and outreach. A collaborative effort of the University of Michigan and Michigan State University, MSG is part of the NOAA National Sea Grant network of more than 32 university-based programs around the country.

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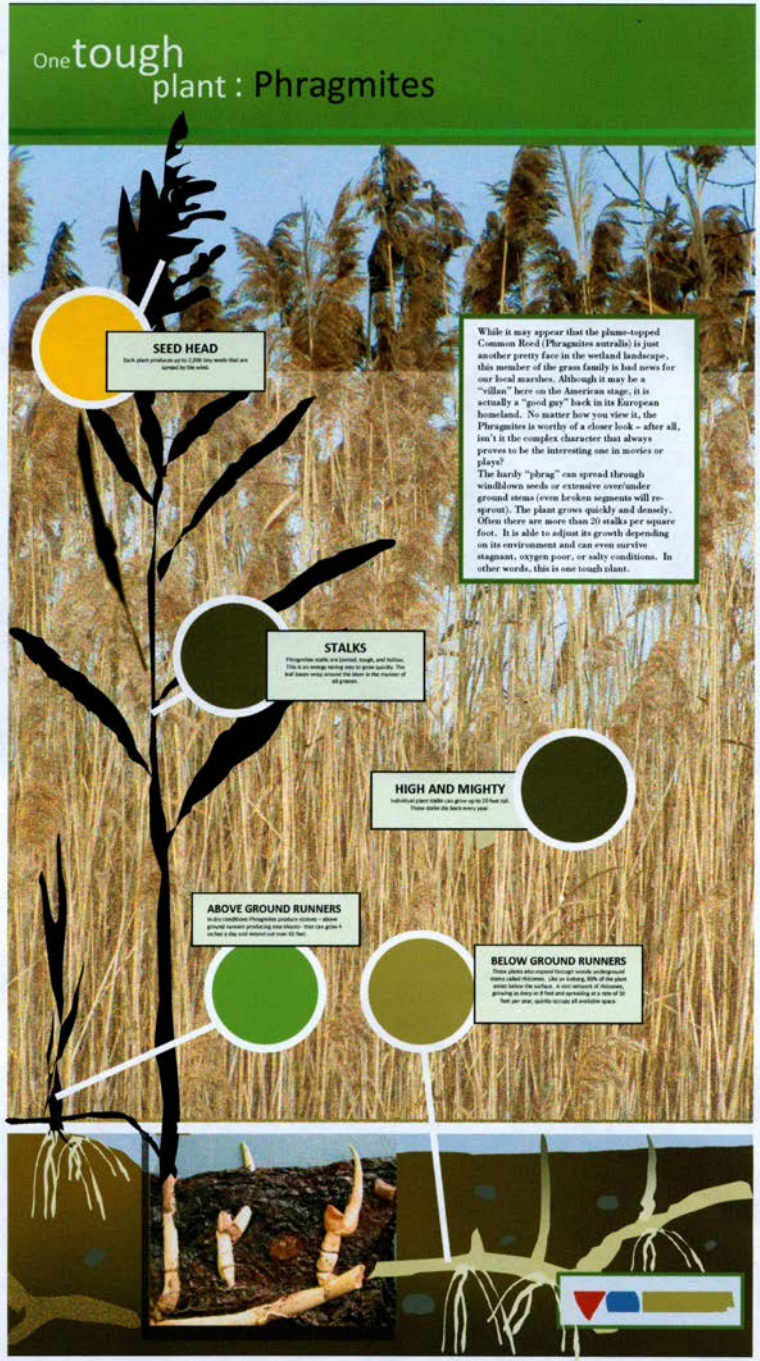
Portable Displays

Display Panels



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Display Panels

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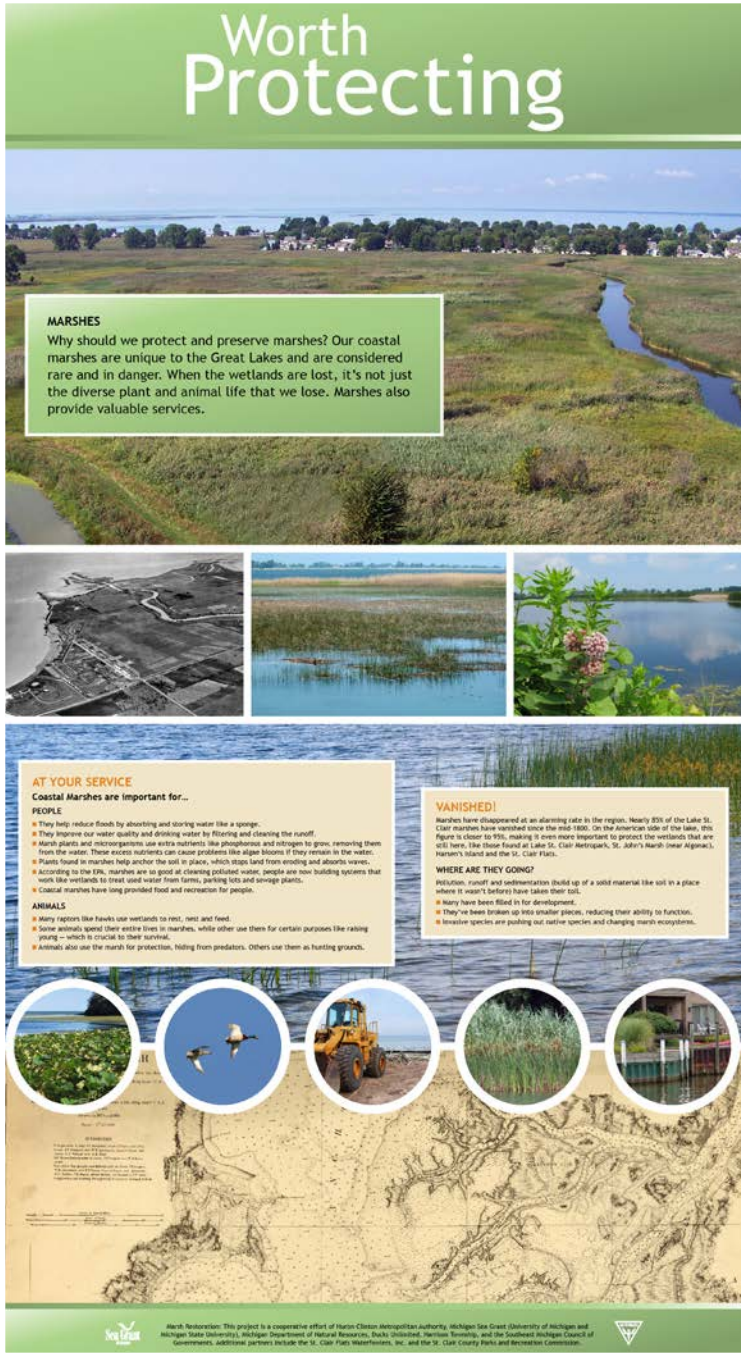

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Display Panels

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Tools

- Fact Sheets
- Maps
- Posters
- Presentations
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- Workshops
- Events/Celebrations
- Curriculum
- Websites
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Mary Bohling
bohling@msu.edu (313) 410-9431
www.miseagrant.umich.edu

Great Lakes PHRAGMITES COLLABORATIVE

THANK YOU!

Mary Bohling, email: bohling@msu.edu

Great Lakes Phragmites Collaborative:
www.greatlakesphragmites.net
email: phragmites@glc.org
Twitter: GLPhragCollaborative (@GLPhrag)
Facebook: Great Lakes Phragmites Collaborative