

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

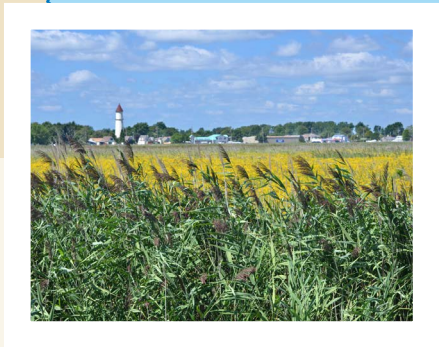
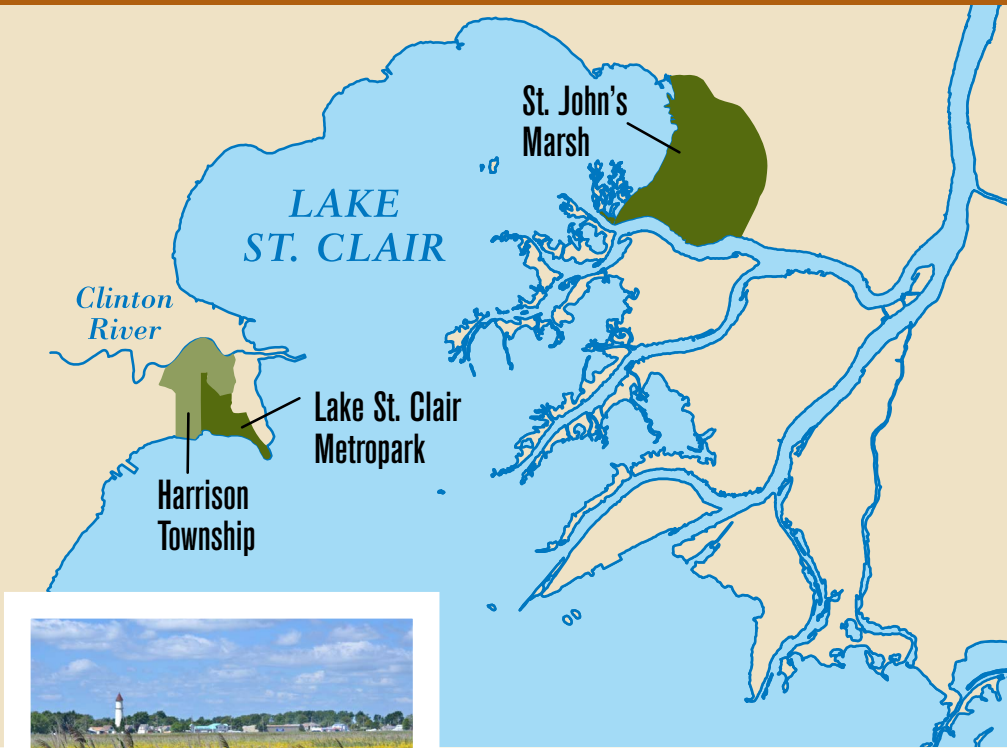
GET OUTDOORS WITH THE MICHIGAN DEPARTMENT OF NATURAL RESOURCES

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

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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.



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

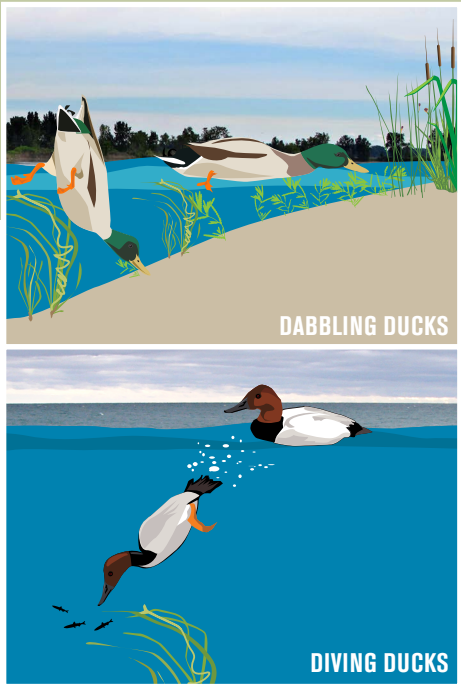
Marshes are home to many waterfowl. In fact, every species of duck in the Great Lakes rely on wetlands at some point in their lives. In the Great Lakes region, ducks are often classified into two groups: dabblers or divers. Just as it sounds, the ducks are organized by whichever behavior they exhibit,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



www.metroparks.com



www.miseagrant.umich.edu



www.michigan.gov/dnr



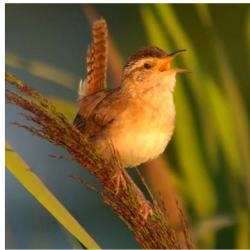
www.ducks.org

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.

Illustrated by Michigan Sea Grant
(Adapted from the Canadian Wildlife Service)



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.



Gerry Wykes