



## Inland wetlands/water: Submergent wetland

### Description

Submergent wetlands are a submerged marsh of deep to sometimes shallow water in lakes and streams. Submergent wetlands are characterized by submerged, floating, and floating-leaved plants, including pondweeds (*Potamogeton* spp.), water milfoil (*Myriophyllum exalbescens*), coontail (*Ceratophyllum demersum*), duckweed (family Lemnaceae), water-lily (*Nymphaea* spp.) and water shield (*Brasenia schreberi*). Submergent wetlands typically transition to emergent wetlands with decreasing water depths along the edges of lakes and streams.

### General Condition of Feature

Much of the submergent wetland in the Southern Lower Peninsula is considered to be in fair to good condition (~60%). Most of the remainder is considered degraded or very degraded.

### Associated Natural Communities

Submergent Marsh

### Associated Species of Greatest Conservation Need

#### INSECTS

spatterdock damer (*Aeshna mutata*)

#### AMPHIBIANS

northern leopard frog (*Rana pipiens*)

#### REPTILES

eastern massasauga (*Sistrurus catenatus catenatus*)

spotted turtle (*Clemmys guttata*)

Blanding's turtle (*Emydoidea blandingii*)

#### BIRDS

Trumpeter Swan (*Cygnus buccinator*)

Pied-billed Grebe (*Podilymbus podiceps*)

Great Blue Heron (*Ardea herodias*)

#### BIRDS cont.

Green Heron (*Butorides virescens*)

Red-shouldered Hawk (*Buteo lineatus*)

Common Moorhen (*Gallinula chloropus*)

American Coot (*Fulica americana*)

Black Tern (*Chlidonias niger*)

Purple Martin (*Progne subis*)

Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*)

#### MAMMALS

northern bat or northern myotis (*Myotis septentrionalis*)

Indiana bat or Indiana myotis (*Myotis sodalis*)

### Associated Threats

#### MODIFICATION OF NATURAL PROCESSES

- Altered hydrologic regimes: Alteration of flooding and drawdown cycles can impact submergent wetlands.
- Fragmentation

#### HABITAT CONVERSION

- Industrial, residential, and recreational development: Sedimentation may occur via drainage ditches. Residential development may impact these systems.
- Wetland modifications
- Dams
- Dredging and channelization
- Incompatible natural resource management: Aquatic plant management may alter species composition.

#### POLLUTION

- Urban, municipal, and industrial: Pollution may foster eutrophication of submergent wetlands in the Southern Lower Peninsula.
- Pesticides and herbicides: Pesticide and fertilizer runoff may infiltrate submergent wetlands.

#### CONSUMPTIVE BIOLOGICAL RESOURCE USE

- Removal of non-timber flora: Vegetation removal is a threat in some submergent wetlands.

#### NON-CONSUMPTIVE BIOLOGICAL RESOURCE USE

- Non-consumptive recreation: Boat wakes and motors may impact the quality of submergent wetlands.

#### BIOLOGICAL INTERACTIONS

- Invasive plants and animals: Invasive species like Eurasian water milfoil (*Myriophyllum spicatum*) can alter community composition.

### Conservation Actions Needed [Threats addressed]

#### LAND & WATER PROTECTION

- Expand conservation easement programs [variety of threats]
- Support and expand conservation purchase of high quality occurrences [variety of threats]

#### LAND, WATER & SPECIES MANAGEMENT

- Manage to approximate natural disturbance regimes using restoration of natural water flow patterns. [Altered hydrologic regimes; Wetland modifications; Dams; Dredging and channelization]
- Institute invasive species monitoring, prevention and control programs. [Invasive plants and animals]
- Use best management practices for development, management, and recreational activities around lakes, streams, and wetlands to maintain natural shoreline stability (thereby reducing the need for restoration or artificial structures). [Industrial, residential, and recreational development, Wetland modifications, Non-consumptive recreation]
- Support Landowner Incentive Programs to foster conservation on private land [variety of threats]
- Maintain or establish riparian buffers of at least 50 ft., but 500 ft. or wider maximizes conservation benefits [wetland modifications]
- Maintain and rehabilitate natural corridors between wetlands and to representative upland habitats [fragmentation]

#### LAW & POLICY

- Develop new legislation and ordinances, where necessary, to regulate or limit draining or development of submergent wetlands. Enforce existing regulations concerning draining and development of wetlands. [Fragmentation; Industrial, residential, and recreational development; Wetland modifications; Dams; Dredging and channelization]
- Implement existing best management practices for construction in and near wetlands. Develop new best management practices, where needed, to address impacts on wildlife habitat of impermeable surfaces and the concentration of run-off via drainage ditches. [Industrial, residential, and recreational development; Urban, municipal, and industrial pollution; Altered hydrologic regimes; Pesticides and herbicides]
- Develop and enforce regulations to curtail recreational activities that cause significant damage in sensitive submergent wetlands (e.g., the use of "no wake" zones). [Non-consumptive recreation]

#### EDUCATION & AWARENESS

- Provide information to landowners on less chemically intensive methods of fertilization and pest management. [Pesticides and herbicides]

#### RECREATION

- Promote responsible watercraft use. [Non-consumptive recreation]

#### Research and Survey Needs

- Conduct a statewide wetlands inventory.
- Evaluate the impacts of modifications of natural hydrologic regimes and local water chemistry.
- A common classification system to define wetlands is needed.
- Determine the effects of microtopography on wetland function and its impact on wetland restoration.
- Evaluate the role of managed wetlands in contributing to landscape diversity. Is there a difference in the value to wildlife between intensive wetland management and passive wetland management?
- Assess the impact of wetland creation by beavers. Do these impacts vary regionally?
- Develop best management practices for development, management, and recreational activities around lakes, streams, and wetlands to maintain natural shoreline stability (thereby reducing the need for restoration or artificial structures).
- Quantify differences in the value to wildlife of restored wetlands and natural wetlands.
- Document the historic and current range of variation between submergent wetlands. This includes variables such as species composition and size.
- Identify invasive species that may degrade the value of submergent wetlands for wildlife. Develop techniques to control invasive species. Common invasive species include Eurasian water milfoil (*Myriophyllum spicatum*), zebra mussel (*Dreissena polymorpha*) and curly leaf pondweed (*Potamogeton crispus*). How significant is the movement of invasive species due to watercraft use? Boat propellers may create cuttings of plants that float to new locations and become established. Plants may become entangled in propellers and be transported to other water bodies.
- Assess the impacts of aquatic plant treatments to wildlife and ecosystem function.

#### Monitoring

- Track emergent wetland acreage and distribution across the landscape.
- Identify and track floristic composition and diversity.
- Track water level and flow fluctuations and its impacts on vegetation and wildlife.
- Track water quality trends.