



## Inland wetlands/water: Pond

### Description

Ponds are defined as permanent standing water bodies <5 acres in area. This group is highly diverse in terms of chemical and biological variables. Most are shallow, unstratified, generally warmer, and higher in nutrient concentration than larger water bodies, and somewhat likely to have low winter oxygen levels. There are two states that ponds are generally found in. The first is characterized by high nutrients, high wind resuspension, no rooted plants, and turbid water. The second is characterized by low to medium nutrients, low wind resuspension, rooted plants dominant, and clear water. Because of their size, most ponds are privately owned and have no public access points.

Ponds in all Great Lakes Basins can be considered similar, with one exception. Ponds in the Lake Superior basin (particularly in the Western Upper Peninsula) are more likely to have low pH due to acidification and lower buffering capacity.

### General Condition of Feature

About half of the ponds in the Northern Lower Peninsula are considered to be in fair or good condition. Most of the remaining ponds are considered degraded or very degraded (~45%).

### Associated Natural Communities

N/A – no native natural communities

### Associated Species of Greatest Conservation Need

#### SNAILS

six-whorl vertigo (*Vertigo morsei*)

#### CRAYFISH

devil crawfish (*Cambarus diogenes*)  
digger crayfish (*Fallicambarus fodiens*)

#### INSECTS

spatterdock damer (*Aeshna mutata*)  
zigzag damer (*Aeshna sitchensis*)  
muskeg damer (*Aeshna subarctica*)  
incurvate emerald dragonfly (*Somatochlora incurvata*)

#### AMPHIBIANS

blue-spotted salamander (*Ambystoma laterale*)  
spotted salamander (*Ambystoma maculatum*)  
eastern tiger salamander (*Ambystoma tigrinum tigrinum*)  
four-toed salamander (*Hemidactylium scutatum*)  
Fowler's toad (*Bufo fowleri*)  
western chorus frog (*Pseudacris triseriata triseriata*)  
pickerel frog (*Rana palustris*)  
northern leopard frog (*Rana pipiens*)

#### REPTILES

eastern fox snake (*Elaphe gloydi*)  
queen snake (*Regina septemvittata*)  
eastern massasauga (*Sistrurus catenatus catenatus*)  
spotted turtle (*Clemmys guttata*)  
Blanding's turtle (*Emydoidea blandingii*)

#### BIRDS

Trumpeter Swan (*Cygnus buccinator*)  
American Black Duck (*Anas rubripes*)  
Blue-winged Teal (*Anas discors*)  
Pied-billed Grebe (*Podilymbus podiceps*)  
American Bittern (*Botaurus lentiginosus*)  
Least Bittern (*Ixobrychus exilis*)  
Green Heron (*Butorides virescens*)  
Black-crowned Night-heron (*Nycticorax nycticorax*)  
Bald Eagle (*Haliaeetus leucocephalus*)  
Common Moorhen (*Gallinula chloropus*)  
American Coot (*Fulica americana*)  
Killdeer (*Charadrius vociferus*)  
Spotted Sandpiper (*Actitis macularia*)  
Wilson's Phalarope (*Phalaropus tricolor*)  
Black Tern (*Chlidonias niger*)  
Common Nighthawk (*Chordeiles minor*)  
Black-backed Woodpecker (*Picoides arcticus*)  
Olive-sided Flycatcher (*Contopus cooperi*)  
White-eyed Vireo (*Vireo griseus*)  
Purple Martin (*Progne subis*)  
Sedge Wren (*Cistothorus platensis*)  
Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*)

#### MAMMALS

water shrew (*Sorex palustris*)  
silver-haired bat (*Lasionycteris noctivagans*)  
red bat (*Lasiurus borealis*)  
northern bat or northern myotis (*Myotis septentrionalis*)  
Indiana bat or Indiana myotis (*Myotis sodalis*)  
eastern pipistrelle (*Pipistrellus subflavus*)  
woodland jumping mouse (*Napaeozapus insignis*)

### Associated Threats

#### MODIFICATION OF NATURAL PROCESSES

- Grazing and mowing patterns: Cattle use of ponds and surrounding uplands may contribute to eutrophication, erosion, and sedimentation.

- Altered hydrologic regimes: Construction of bank stabilization devices, like riprap, and docks may alter water flow in a pond. Modified water flow may contribute to erosion and siltation. Unregulated groundwater withdrawal may alter hydrologic regimes.

#### *HABITAT CONVERSION*

- Industrial, residential, and recreational development: Development contributes to trampling of shoreline vegetation, erosion, and siltation. The creation of impermeable surfaces increases runoff.
- Wetland modifications
- Conversion to agriculture
- Dredging and channelization
- Incompatible natural resource management

#### *POLLUTION*

- Urban, municipal, and industrial: Septic fields and toxic compounds may enter ponds from the surrounding uplands and modify water chemistry.
- Pesticides and herbicides: Lawn and golf course fertilizers may contribute to eutrophication of ponds.

#### *CONSUMPTIVE BIOLOGICAL RESOURCE USE*

- Removal of non-timber flora: Beach grooming may alter community composition.

#### *NON-CONSUMPTIVE BIOLOGICAL RESOURCE USE*

- Non-consumptive recreation

#### *BIOLOGICAL INTERACTIONS*

- Invasive plants and animals
- Disease, pathogens, and parasites: Diseases like West Nile virus may modify 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 by restoring water flow patterns. [Altered hydrologic regimes]
- Institute invasive species monitoring, prevention and control programs. [Invasive plants and animals]
- Institute disease monitoring and control programs. [Disease, pathogens, and parasites]
- Work with land managers to develop priorities for pond restoration and management. [Incompatible natural resource management]
- Where possible, motorized vehicle trails should be located a minimum of 100 feet (and preferably more than 500 feet) from rivers, streams, lakes and other wetlands except at designated crossings. [Non-consumptive recreation]
- 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 efforts to reduce use of lead fishing tackle. [Pollution]
- Maintain or establish riparian buffers of at least 50 ft., but 500 ft. or wider maximizes conservation benefits [variety of threats]

#### *LAW & POLICY*

- Work with municipalities to promote planning and zoning insuring adequate protection for ponds and shorelines. [Industrial, residential and recreational development]
- Develop and enforce regulations to curtail recreational activities that cause significant damage. [Non-consumptive recreation]
- Develop new and enforce existing regulations restricting effluent and contaminant additions to ponds. [Pesticides and herbicides; Urban, municipal, and industrial pollution]

#### *EDUCATION & AWARENESS*

- Create awareness in the general public of the value to wildlife of maintaining natural shorelines and shoreline vegetation around ponds. [Removal of non-timber flora]
- Promote agricultural practices that minimize degradation of ponds by livestock. [Grazing and mowing patterns]
- Promote lawn maintenance practices which minimize the use of chemical herbicides and fertilizers. [Pesticides and herbicides]

#### *RECREATION*

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

### Research and Survey Needs

- A better understanding is needed of the structural components of ponds and their relationships to wildlife value.
- Assess management techniques used in and around ponds to develop management guidelines for landowners.
- Examine the impacts of chemical use, weed control, and fertilization in and around ponds on their wildlife value.

**MICHIGAN'S WILDLIFE ACTION PLAN**  
**TERRESTRIAL SYSTEMS: NORTHERN LOWER PENINSULA**

- Evaluate the impacts of modifications of natural hydrologic regimes and local water chemistry.
- 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).
- A common classification system to define wetlands is needed.
- Document the historic and current range of variation between ponds. This includes variables such as species composition and size.
- Document pond use by migratory wildlife. Are there characteristics of ponds which increase their value to migratory wildlife?

Monitoring

- Track pond 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 chemistry and quality trends.