



## 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

Ponds in the Western Upper Peninsula are considered to be in fair or good condition (~100%). Ponds are popular with landowners in the region to such an extent that pond creation often is a threat.

### Associated Natural Communities

N/A – no native natural communities

### Associated Species of Greatest Conservation Need

#### CRAYFISH

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

#### INSECTS

- zigzag darner (*Aeshna sitchensis*)
- muskeg darner (*Aeshna subarctica*)
- incurvate emerald dragonfly (*Somatochlora incurvata*)

#### AMPHIBIANS

- blue-spotted salamander (*Ambystoma laterale*)
- spotted salamander (*Ambystoma maculatum*)
- four-toed salamander (*Hemidactylium scutatum*)
- boreal chorus frog (*Pseudacris triseriata maculata*)
- western chorus frog (*Pseudacris triseriata triseriata*)
- pickerel frog (*Rana palustris*)
- northern leopard frog (*Rana pipiens*)

#### REPTILES

- western fox snake (*Elaphe vulpina*)
- 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*)

#### BIRDS cont.

- Least Bittern (*Ixobrychus exilis*)
- Green Heron (*Butorides virescens*)
- Bald Eagle (*Haliaeetus leucocephalus*)
- American Coot (*Fulica americana*)
- Killdeer (*Charadrius vociferus*)
- Spotted Sandpiper (*Actitis macularia*)
- Black Tern (*Chlidonias niger*)
- Common Nighthawk (*Chordeiles minor*)
- Black-backed Woodpecker (*Picoides arcticus*)
- Olive-sided Flycatcher (*Contopus cooperi*)
- 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*)
- eastern pipistrelle (*Pipistrellus subflavus*)
- cougar (*Puma concolor*)
- woodland jumping mouse (*Napaeozapus insignis*)

### Associated Threats

#### MODIFICATION OF NATURAL PROCESSES

- Altered hydrologic regimes

#### HABITAT CONVERSION

- Industrial, residential, and recreational development: Residential and recreational shoreline development can reduce pond quality.
- Wetland modifications
- Dredging and channelization

#### POLLUTION

- Urban, municipal, and industrial: Eutrophication results from increased nutrient loads.
- Pesticides and herbicides: Eutrophication results from increased nutrient loads.

*CONSUMPTIVE BIOLOGICAL RESOURCE USE*

- Forestry practices: Forestry practices that remove shade from the edge of ponds degrade the quality of the affected ponds.

*BIOLOGICAL INTERACTIONS*

- Invasive plants and animals
- Other biological interactions

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; Dredging and channelization]
- Develop and implement plans for invasive species control and prevention. [Invasive plants and animals]
- Develop and enforce forestry best management practices that address the needs and value of wildlife. [Forestry practices;]
- 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]
- Discourage stocking fish in fishless lakes and ponds to maintain habitat for aquatic invertebrates and species. [Other biological interactions]
- 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 wetlands and shorelines. [Industrial, residential, and recreational development; Wetland modifications]
- Develop new and enforce existing regulations to reduce municipal and agricultural pollutants which may contribute to eutrophication. [Urban, municipal, and industrial pollution; Pesticides and herbicides]

Research and Survey Needs

- A better understanding is needed of the structural components of ponds and their relationships to wildlife needs.
- 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 value to wildlife.
- Evaluate the impacts of modifications of natural hydrologic regimes and local water chemistry.
- 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.
- 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).
- 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.