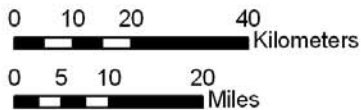
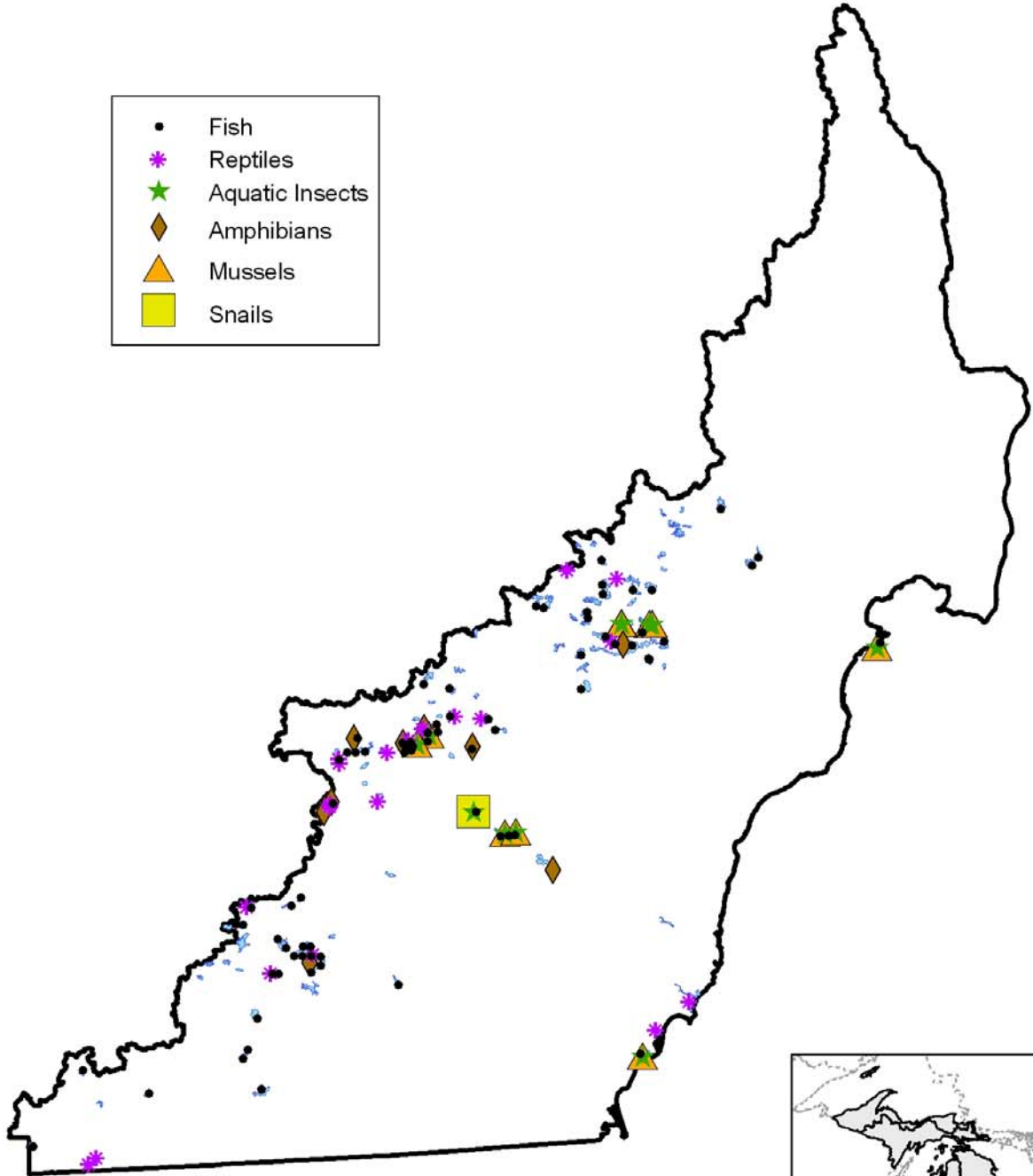


# Inland Lakes: Medium Lakes

- Fish
- \* Reptiles
- ★ Aquatic Insects
- ◆ Amphibians
- ▲ Mussels
- Snails



## Inland Lakes: Medium Lakes

### Description

Medium lakes are permanent standing water bodies 100 to 999 acres in area. This group has moderately diverse features for chemical and biological variables. In general, these lakes will tend to have increasing shoreline complexity (lakes with many bays) and increasing basin complexity (lakes with more than one deep hole) compared to small lakes and ponds. Stratification status can range from fully stratified throughout the summer season, to no stratification. In lakes with stratification, there is development of true open-water (pelagic) zones that are distinct from shallow nearshore zones. These lakes can span a broader temperature range (from relatively cold water to relatively warm water) compared to larger lakes, with temperature depending on amount of groundwater inflows, lake depth, and climate. Winter oxygen levels are also variable and depend on lake depth, but are generally higher than in small lakes and ponds.

### General Condition of Feature

This habitat is considered 40% in good to excellent condition, 25% in fair condition, and 35% in degraded to very degraded condition.

### Associated Species of Greatest Conservation Need

#### MUSSELS

slippershell mussel (*Alasmidonta viridis*)  
rainbow (*Villosa iris*)  
eastern pondmussel (*Ligumia nasuta*)  
threehorn wartyback (*Obliquaria reflexa*)  
kidneyshell (*Ptychobranhus fasciolaris*)  
fawnsfoot (*Truncilla donaciformis*)  
rayed bean (*Villosa fabalis*)

#### SNAILS

spindle lymnaea (*Acella haldemani*)

#### AQUATIC INSECTS

Specific associations with this landscape feature were not found in the literature

#### FISH

pugnose shiner (*Notropis anogenus*)  
pugnose minnow (*Opsopoeodus emiliae*)

#### FISH cont.

lake chubsucker (*Erimyzon sucetta*)  
river redhorse (*Moxostoma carinatum*)  
brown bullhead (*Ameiurus nebulosus*)  
tadpole madtom (*Noturus gyrinus*)  
brindled madtom (*Noturus miurus*)  
cisco or lake herring (*Coregonus artedii*)  
eastern sand darter (*Ammocrypta pellucida*)  
least darter (*Etheostoma microperca*)

#### AMPHIBIANS

mudpuppy (*Necturus maculosus maculosus*)  
Fowler's toad (*Bufo fowleri*)  
Blanchard's cricket frog (*Acris crepitans blanchardi*)  
pickerel frog (*Rana palustris*)

#### REPTILES

Blanding's turtle (*Emydoidea blandingii*)

### Associated Threats

#### MODIFICATION OF NATURAL PROCESSES

- Altered hydrologic regimes: Lake level manipulations; Surface water runoff changes due to riparian modification
- Climate change: (low threat)

#### POLLUTION

- Altered nutrient inflows: Surface water runoff – nutrients
- Altered sediment loads: (low threat)
- Pesticides and herbicides: Fertilizers; herbicides
- Thermal changes: (low threat)
- Urban, municipal, and industrial pollution: Surface water runoffs - contaminants

#### HABITAT CONVERSION

- Dredging and channelization: Dredging (low threat)
- Riparian modification: Lack of woody debris; Alteration of shoreline; Shoreline development; Shoreline hardening

#### BIOLOGICAL INTERACTIONS

- Disease, pathogens, and parasites
- Invasive plants and animals: Zebra mussels; Others

#### NON-CONSUMPTIVE BIOLOGICAL RESOURCE USE

- Macrophyte removal: Vegetation control through mowing and chemical treatments
- Non-consumptive recreation: Recreational boating- wave energy - prop damage

#### EDUCATION

- Social attitudes: Lack of public education to understand value of lakes and conditions needed for a healthy system.

Conservation Actions Needed (Threats addressed)

*LAND, WATER & SPECIES MANAGEMENT*

- Allow seasonal flooding (altered hydrologic regimes)
- Control and prevent aquatic invasive species (invasive plants and animals)
- Maintain or establish riparian buffers to at least 50 ft. (riparian modification)
- Modify remaining lake-level control structures to mimic the natural hydrologic regime (altered hydrologic regimes, dams)
- Removal of exotic vegetation needs to preserve 60-80% of native vegetation (invasive plants and animals, macrophyte removal)
- Remove lake-level control structures and dams where possible (altered hydrologic regimes, altered sediment loads, dams)
- Rehabilitate native flora (invasive plants and animals, macrophyte removal, riparian modification)
- Use soft engineering instead of hard structures for shoreline modification (riparian modification)
- Vegetation management should only be performed in conjunction with a lake management plan (macrophyte removal)

*LAW & POLICY*

- Restrict beach grooming (macrophyte removal)
- Enact and enforce shoreline protection (riparian modification)
- Encourage clustered developments rather than evenly spaced home lots (riparian modification)
- Protect the public trust by requiring dam owners to make appropriate financial provision for future dam removal (dams)
- Work with Drain Commissioners to allow or closely mimic natural hydrologic processes on legally controlled lake-level control structures (altered hydrologic regimes)
- Work with local officials on setback and buffer ordinances (riparian modification)
- Work with local officials to develop planning and zoning guidelines that consider natural processes (riparian modification)

*EDUCATION & AWARENESS*

- Educate legislators, local planning boards, and other policy makers on the importance of natural processes (social attitudes)
- Educate private landowners on the value of riparian areas (riparian modification, social attitudes)
- Educate the public on the prevention and control of aquatic invasive species (invasive plants and animals, social attitudes)
- Expand education programs for the general public regarding natural processes, invasive plants and animals, hydrologic cycles, and stewardship issues (social attitudes)

Research and Survey Needs

- Determine effective prevention, control, and survey techniques for aquatic invasive species
- Determine SGCN aquatic insect use of medium lakes
- Determine life history requirements for SGCN associated with medium lakes
- Determine the number and method of operation of lake-level control structures
- Determine effects of over zealous macrophyte removal on native vegetation and species communities
- Determine socially acceptable ways of maintaining natural lake inflows and outlets
- Work with watershed councils and other local groups on identification skills and habitat restoration techniques

Monitoring

- Aquatic invasive species
- Indicator species
- Effluent discharges: waste water treatment plants, septic systems, industrial
- Macrophyte removals
- Riparian modification
- Water levels downstream of water-level controlled lakes to ensure that streams continue to have sufficient water
- Water levels in water-level controlled lakes to ensure they mimic natural hydrologic regimes within lake