

## Aquatic Characteristic: Vegetation



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### Description

Vegetation is in-water cover and physical structuring produced by aquatic macrophytes that grow on or below the surface of the water.

### General Condition of Feature

This habitat is considered 30% in good to excellent condition, 25% in fair condition, and 45% in degraded to very degraded condition.

### Associated Species of Greatest Conservation Need

#### SNAILS

spindle lymnaea (*Acella haldemani*)

#### CRAYFISH

digger crayfish (*Fallicambarus fodiens*)

#### INSECTS

a sand minnow mayfly (*Siphloplecton basale*)

sedge darner (*Aeshna juncea*)

spatterdock darner (*Aeshna mutata*)

zigzag darner (*Aeshna sitchensis*)

rapids clubtail (*Gomphus quadricolor*)

incurvate emerald dragonfly (*Somatochlora incurvata*)

ebony boghaunter (*Williamsonia fletcheri*)

#### FISH

brassy minnow (*Hybognathus hankinsoni*)

#### FISH cont.

finescale dace (*Phoxinus neogaeus*)

brown bullhead (*Ameiurus nebulosus*)

slimy sculpin (*Cottus cognatus*)

least darter (*Etheostoma microperca*)

#### AMPHIBIANS

blue-spotted salamander (*Ambystoma laterale*)

eastern tiger salamander (*Ambystoma tigrinum tigrinum*)

four-toed salamander (*Hemidactylium scutatum*)

mudpuppy (*Necturus maculosus maculosus*)

pickerel frog (*Rana palustris*)

northern leopard frog (*Rana pipiens*)

#### REPTILES

Blanding's turtle (*Emydoidea blandingii*)

### Associated Threats

#### MODIFICATION OF NATURAL PROCESSES

- Altered hydrologic regimes: Water level and flow manipulations
- Climate change: (low threat)
- Fragmentation

#### POLLUTION

- Altered nutrient inflows
- Altered sediment loads
- Pesticides and herbicides: Herbicides

#### HABITAT CONVERSION

- Dams
- Dredging and channelization: Dredging
- Incompatible natural resources management
- Riparian modification: Riparian development; Unregulated development
- Wetland modification

#### BIOLOGICAL INTERACTIONS

- Disease, pathogens, and parasites
- Invasive plants and animals: Grass carp, crayfish, carp, Eurasian milfoil

#### CONSUMPTIVE BIOLOGICAL RESOURCE USE

- Forestry practices
- Mining practices
- Removal of wildlife

#### NON-CONSUMPTIVE BIOLOGICAL RESOURCE USE

- Macrophyte removal: Mechanical cutting; Chemical control; Harvest

#### EDUCATION

- Lack of scientific knowledge
- Social attitudes

### Conservation Actions Needed (Threats addressed)

#### LAND, WATER & SPECIES MANAGEMENT

- Control and prevent aquatic invasive species introductions and establishments (invasive plants and animals)

- Maintain or establish riparian buffers of at least 50 ft., but 500 ft. or wider maximizes conservation benefits (altered hydrologic regimes, altered sediment loads, riparian modification)
- Removal of invasive vegetation should preserve 60-80% of native vegetation (invasive plants and animals, macrophyte removal)
- Rehabilitate channel diversity where possible (dredging and channelization)
- Rehabilitate native flora (invasive plants and animals, macrophyte removal)
- Work with road commissions on road and bridge placement and maintenance (altered sediment loads)

#### **LAW & POLICY**

- Continued vigilance and cooperation on preventing more aquatic invasive species establishments (invasive plants and animals)
- Enact and enforce shoreline protection regulations (riparian modification)
- Encourage sound water withdrawal practices that take into account species needs (altered hydrologic regimes)
- Encourage townships to separate combined sewer systems (altered nutrient inflows)
- Encourage use of natural materials or soft engineering techniques for any shoreline or riparian modification (riparian modification)
- Enforce the use of sediment barriers and best management practices during road siting, construction, and maintenance (altered sediment loads)
- Implement and continually improve storm water and non-point source best management practices (altered hydrologic regimes, Urban, municipal, and industrial pollution)
- Include wetland protections in zoning and planning ordinances (wetland modification)
- Limit water withdrawals from limited-flow or groundwater-fed systems (altered hydrologic regimes)
- Manage or modify lake-level controls and water releases of dams to mimic natural lake and river conditions (altered hydrologic regimes)
- Protect and rehabilitate groundwater recharge by requiring that development-related runoff be captured by infiltration basins (altered hydrologic regimes)
- Protect seasonal flow patterns of the river by incorporating best management practices (altered hydrologic regimes)
- Provide incentives for the use and production of native flora (macrophyte removal)
- Remove dams to rehabilitate hydrology and habitat connectivity (altered hydrologic regimes, dams, fragmentation)
- Restrict beach grooming (macrophyte removal)
- Restrict dredging and channelization (dredging and channelization)
- Restrict herbicide use (macrophyte removal, pesticides and herbicides)
- Strengthen water quality laws (variety of threats)
- Strengthen wetland regulations, mitigation requirements, and enforcement (wetland modification)
- Upgrade septic systems (altered nutrient inflows)
- Work with local governments to develop and refine planning and zoning regulations and ordinances that consider natural processes (variety of threats)

#### **EDUCATION & AWARENESS**

- Educate landowners of the importance of vegetated riparian buffers along water bodies (social attitudes)
- Educate shoreline owners on the value and ecological services of macrophytes and other shoreline vegetation (macrophyte removal, social attitudes)
- Educate the public on the use of and reasons for maintaining septic systems (altered nutrient inflows, social attitudes)
- Increase education on preventing the spread of aquatic invasive species (invasive plants and animals)

#### **Research and Survey Needs**

- Determine effective prevention, control, and survey techniques for aquatic invasive species
- Determine disease, pathogens, and parasites threats
- Determine life history requirements for SGCN associated with vegetation
- Determine condition of vegetation habitat in watersheds
- Determine amount of pesticides and herbicides used in each watershed and ways to decrease amounts
- Educate the public on the role and value of vegetation
- Model hydrologic flows in each watershed
- Survey erosion sites within watershed and develop strategies to reduce identified problems
- Survey for important nursery areas in lakes that have frequent macrophyte treatments
- Work with watershed councils and conservation groups to help stop the spread of aquatic invasive plants

#### **Monitoring**

- Aquatic invasive species
- Dredging and channelization
- Hydrologic flows
- Native flora
- Pesticide and herbicide use

**MICHIGAN'S WILDLIFE ACTION PLAN**  
**AQUATIC SYSTEMS: LAKE MICHIGAN BASIN**

- Riparian modification
- Vegetation manipulation
- Water temperatures
- Wetland modification