



Great Lakes: Shoreline

Description

Shoreline areas of the Great Lakes range from zero to 3 meters in depth. This area includes coastal marshes. For the Lake Huron basin this is considered to be the Michigan waters of Lake Huron and the connecting waterway of the St. Mary's River.

General Condition of Feature

This habitat is considered 75% in good to excellent condition, 15% in fair condition, and 10% in degraded to very degraded condition.

Associated Natural Communities

Great Lakes Marsh
Northern Fen

Associated Species of Greatest Conservation Need

MUSSELS

eastern pondmussel (*Ligumia nasuta*)

SNAILS

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

INSECTS

incurvate emerald dragonfly (*Somatochlora incurvata*)

ebony boghaunter (*Williamsonia fletcheri*)

FISH

lake sturgeon (*Acipenser fulvescens*)

FISH cont.

stonecat (*Noturus flavus*)

tadpole madtom (*Noturus gyrinus*)

cisco or lake herring (*Coregonus artedii*)

slimy sculpin (*Cottus cognatus*)

river darter (*Percina shumardi*)

sauger (*Sander canadensis*)

AMPHIBIANS

mudpuppy (*Necturus maculosus maculosus*)

REPTILES

eastern fox snake (*Elaphe gloydi*)

Associated Threats

POLLUTION

- Altered sediment loads: Sedimentation (low threat)
- Urban, municipal, and industrial pollution: Contaminants; Heavy metals (low threat)

HABITAT CONVERSION

- Dredging and channelization: Dredging, if widespread, for swimming & boating; Filling
- Dams
- Riparian modification: Marina development; Shoreline armoring; Hard structures (seawalls, riprap) that increase wave erosive energies and decreases suitability of spawning habitat and occupancy by young fish as nursery habitat
- Wetland modification

BIOLOGICAL INTERACTIONS

- Invasive plants and animals: Zebra mussels; Cormorant rookery impacts to island vegetation; Goby predation on native species nesting; Sea lamprey; *Phragmites*

NON-CONSUMPTIVE BIOLOGICAL RESOURCE USE

- Macrophyte removal: Macrophyte removal; Beach grooming that removes emergent vegetation and removes capacity for nutrient conversion
- Other structure removal: Removal of large woody debris by landowners
- Non-consumptive recreation: Jet skis (low threat)

EDUCATION

- Social attitudes: (low threat)

Conservation Actions Needed (Threats addressed)

LAND, WATER & SPECIES MANAGEMENT

- Control and prevent introductions of aquatic invasive species (invasive plants and animals)
- Remove hard shoreline structures (riparian modification)
- Rehabilitate destroyed and degraded wetlands (wetland modification)
- Restrict dredging and channelization activities during fish spawning and migration seasons and around mussel beds (dredging and channelization)
- Survey loadings of sediments within watershed and develop strategies to reduce identified problems (altered sediment loads)
- Work with transportation authorities to reduce salt use near water bodies (urban, municipal, and industrial pollution)

LAW & POLICY

- Develop planning and zoning regulations and ordinances (macrophytes removal, riparian modification, wetland modification)
- Enact and enforce better wetland regulations and mitigation requirements (wetland modification)
- Enact and enforce shoreline protection regulations (riparian modification)
- No open water disposal of uncontaminated materials (dredging and channelization)
- Restrict beach grooming (macrophytes removal, riparian modification)
- Work with regulatory agencies to restrict dredging and channelization (dredging and channelization)

EDUCATION & AWARENESS

- Continue to educate the public about the benefits of wetlands (wetland modification)
- Educate landowners of the importance of shoreline vegetation (macrophytes removal, riparian modification)
- Increase awareness of affects of disturbance on spread of aquatic invasive species (invasive plants and animals)

Research and Survey Needs

- Aquatic invasive species—control of established species; prevention of new establishments
- Classify all the Great Lakes shoreline
- Continue to work with GLFC Lake Huron Technical Advisory Group implementing Lake Huron aquatic community objectives
- Determine aquatic community interactions (i.e., food webs, changing species community, genetic affects of non-indigenous species on locally adapted species, etc.)
- Determine estimates of *Dreissena* abundance and threats to this genus
- Determine snail and reptile SGCN that use shoreline habitats
- Survey shoreline and inventory aquatic species and physical features of this landscape feature, especially amphibians
- Survey shoreline areas to determine relationships between cumulative shoreline armoring and alteration of nearshore structures at landscape scale

Monitoring

- Aquatic invasive species
- Dredging and channelization
- Great Lake tributary water flows
- Riparian modification
- Wetland modification