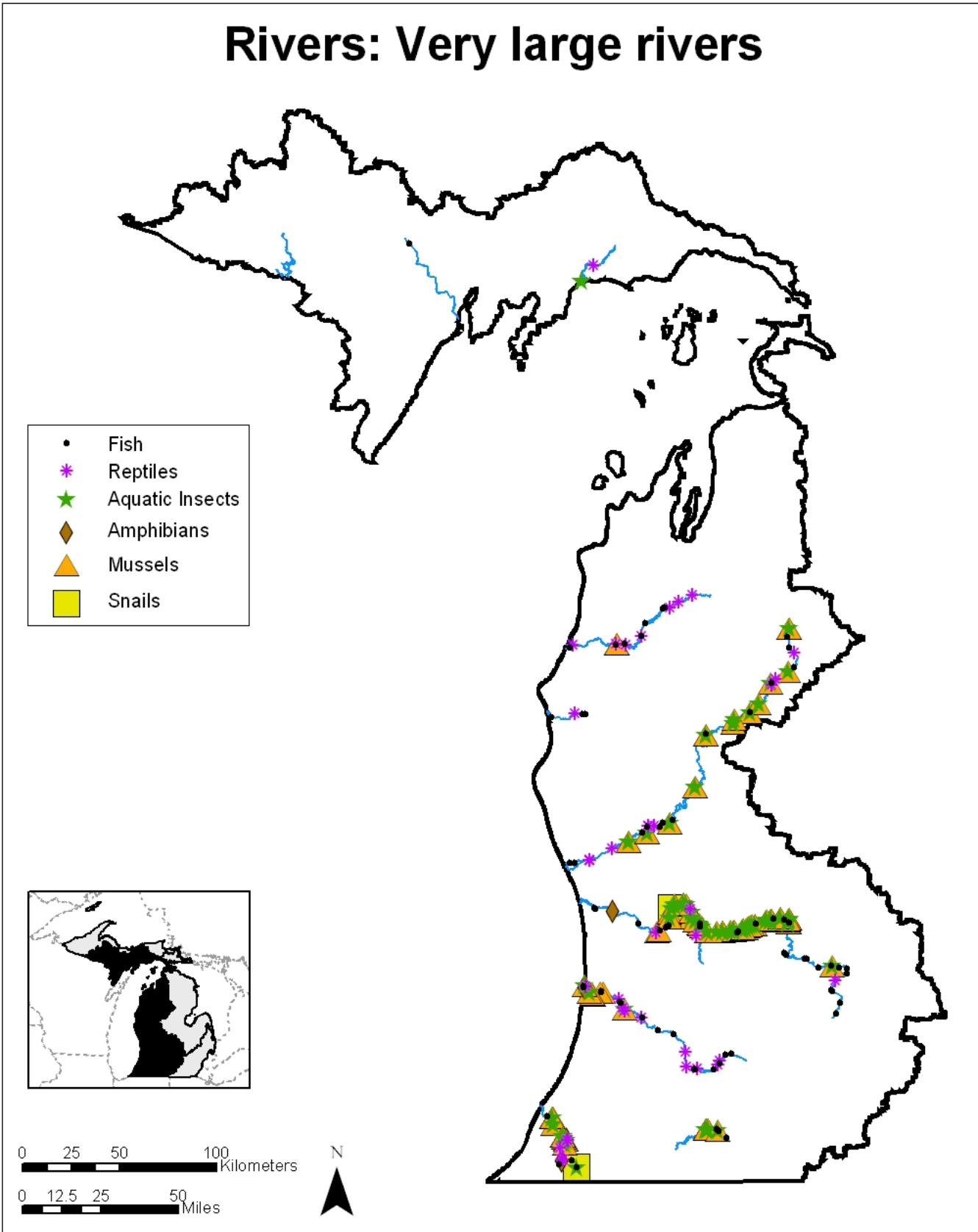


Rivers: Very large rivers



Rivers: Very Large Rivers

Description

Very large rivers are those systems that have a midpoint catchment area greater than 620 square miles. Very large rivers are high stream order systems that are typically unwadeable. They include runoff and groundwater-driven systems that encompass a variety of thermal regimes from cool to warm. Most are low or moderate gradient, a few are high gradient. Very large rivers flow through a variety of valley types including confined, sporadically confined, and unconfined glacial valleys and unconfined alluvial valleys.

General Condition of Feature

This habitat is considered 35% in good to excellent condition, 30% in fair condition, and 35% in degraded to very degraded condition.

Associated Species of Greatest Conservation Need

MUSSELS

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

SNAILS

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

INSECTS

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

FISH

lake sturgeon (*Acipenser fulvescens*)
spotted gar (*Lepisosteus oculatus*)
mooneye (*Hiodon tergisus*)

FISH cont.

river chub (*Nocomis micropogon*)
black buffalo (*Ictiobus niger*)
river redhorse (*Moxostoma carinatum*)
cisco or lake herring (*Coregonus artedii*)
pirate perch (*Aphredoderus sayanus*)
sauger (*Sander canadensis*)

AMPHIBIANS

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

REPTILES

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

Associated Threats

MODIFICATION OF NATURAL PROCESSES

- Altered hydrologic regimes: Altered hydrology; Storm-water runoff (low threat)
- Climate change: (low threat)
- Fragmentation: Dams limit spawning migrations

POLLUTION

- Altered sediment loads: Sedimentation (low threat)
- Urban, municipal, and industrial pollution: Industrial pollution

HABITAT CONVERSION

- Dams: Limit upstream migration thereby reduces spawning
- Dredging and channelization: Commercial shipping; Dredging
- Riparian modification: Riparian development; Shoreline rip-rap; Development (unregulated) of all kinds; Marina development
- Wetland modification

BIOLOGICAL INTERACTIONS

- Disease, pathogens, and parasites: (low threat)
- Invasive plants and animals: Alewife; Round goby

EDUCATION

- Social attitudes: (low threat)

Conservation Actions Needed (Threats addressed)

LAND, WATER & SPECIES MANAGEMENT

- Control and prevent aquatic invasive species introductions and establishments (Invasive plants and animals)
- Develop integrated pest management plans (Invasive plants and animals)
- Engineered drainage channels should mimic natural stream channel stability, i.e., channel dimension, pattern, and profile (dredging and channelization)
- Maintain or establish riparian buffers of at least 50 ft., but 500 ft. or wider maximizes conservation benefits (riparian modification)
- Maintain or rehabilitate river to original flow path and hydrologic functions, i.e., seasonal flooding, connect meanders, throughflow, wetlands (altered hydrologic regimes)
- Soften or remove hard river structures (riparian modification)
- Work with road commissions of the siting and maintenance of stream crossings (fragmentation)

MICHIGAN'S WILDLIFE ACTION PLAN

AQUATIC SYSTEMS: LAKE MICHIGAN BASIN

LAW & POLICY

- Assess dam siting to ensure minimal affects and require fish passage both upstream and downstream (dams)
- Continue Natural Rivers planning (variety of threats)
- Continue to use the most current information and innovative methods in cleaning up chemical spills (Urban, municipal, and industrial pollution)
- Continued vigilance and cooperation on preventing more aquatic invasive species establishments (Invasive plants and animals)
- Encourage sound water withdrawal practices that take into account biotic needs (altered hydrologic regimes)
- Encourage use of natural materials or soft engineering techniques for any river modification (riparian modification)
- Implement and continually improve storm water and non-point source best management practices (Urban, municipal, and industrial pollution)
- Manage or modify remaining dams to release water to mimic natural river conditions (altered hydrologic regimes, dams)
- Protect and rehabilitate groundwater recharge by requiring that all development-related runoff be captured by infiltration basins (altered hydrologic regimes)
- Protect fishery resources by screening turbine intakes at operating hydroelectric dams (dams)
- Protect the public trust by requiring dam owners to make appropriate financial provisions for future dam removal or perpetual maintenance (dams)
- Reduce effluent flow (Urban, municipal, and industrial pollution)
- Remove dams to rehabilitate natural hydrology and habitat connectivity (altered hydrologic regimes, dams, fragmentation)
- Require natural fishways, rock arch ramps and bypass channels, for both upstream and downstream fish movements at dams (dams)
- Restrict dredging and channelization, especially during spawning and migration seasons and around mussel beds (dredging and channelization)
- Strengthen and enforce air pollution laws (Urban, municipal, and industrial pollution)
- Strengthen existing water quality laws and enforcement of permits controlling effluent discharge (Urban, municipal, and industrial pollution)
- Use best management practices (variety of threats)
- Work with local governments to develop and refine planning and zoning regulations and ordinances that consider natural processes (variety of threats)
- Work with local officials on setback and buffer ordinances (riparian modification)

EDUCATION & AWARENESS

- Expand education programs for the general public regarding natural processes, invasive species, hydrologic cycles, and stewardship issues (social attitudes)
- Increase education on preventing the spread of aquatic invasive species (Invasive plants and animals)

CAPACITY BUILDING

- Support watershed councils and regional conservation groups (variety of threats)

Research and Survey Needs

- Determine effective prevention, control, and survey techniques for aquatic invasive species
- Determine stream temperatures in areas where data is lacking
- Determine the number and condition of areas that are disconnected from the river
- Determine use of very large rivers by mussel, snail, aquatic insect, amphibian, and reptile SGCN
- Ensure that existing dams operate as run-of-the-river
- Inventory dams and determine those which no longer serve a useful purpose
- Inventory the number and condition of wetlands less than 5 acres
- Model hydrologic flow of each watershed
- Survey nutrient loadings and develop strategies to decrease
- Survey sediment loadings and develop strategies to decrease

Monitoring

- Aquatic invasive species
- Dam operations
- Dredging and channelization
- Effluent flows
- Land use changes
- Nutrient loadings
- Riparian modification
- Stream modification
- Wetland and floodplain modification