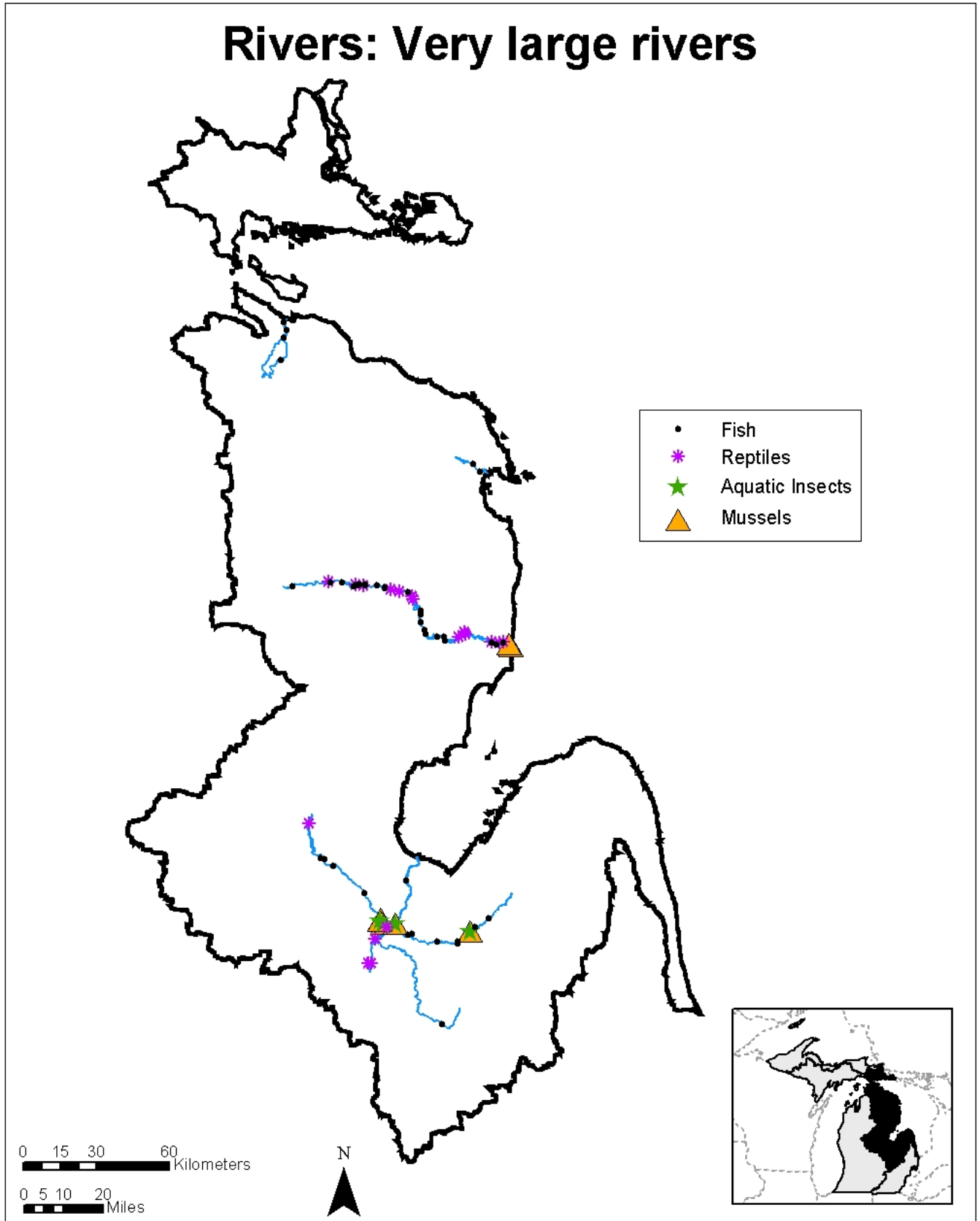


## Rivers: Very large rivers



## **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 30% in good to excellent condition, 25% in fair condition, and 50% 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

#### *INSECTS*

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

#### *FISH*

lake sturgeon (*Acipenser fulvescens*)  
river chub (*Nocomis micropogon*)

#### *FISH cont.*

black buffalo (*Ictiobus niger*)  
golden redhorse (*Moxostoma erythrurum*)  
cisco or lake herring (*Coregonus artedii*)  
spoonhead sculpin (*Cottus ricei*)  
sauger (*Sander canadensis*)

#### *REPTILES*

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

### Associated Threats

#### *MODIFICATION OF NATURAL PROCESSES*

- Altered hydrologic regimes: Flow alteration due to increased impervious surfaces on the landscape
- Fragmentation: Habitat fragmentation (low threat)

#### *POLLUTION*

- Altered nutrient inflows: Nutrient loading (low threat)
- Altered sediment loads: Sedimentation; Erosion & runoff

#### *HABITAT CONVERSION*

- Dams: Fish passage
- Dredging and channelization: Dredging & filling; Channelization
- Riparian modification: Shoreline development (low threat)

#### *BIOLOGICAL INTERACTIONS*

- Invasive plants and animals: (low threat)

#### *EDUCATION*

- Social attitudes: Education to riparian owners and their affect and the affect hard structures on stream habitat (low threat)

### Conservation Actions Needed (Threats addressed)

#### *LAND, WATER & SPECIES MANAGEMENT*

- Assess dam siting to ensure minimal affects and require both upstream and downstream fish passage (dams)
- Engineered drainage channels should mimic natural river channel stability (channel dimension, pattern, and profile) (dredging and channelization)
- Explore other options to dams (i.e., seasonal electric barriers) (dams)
- Rehabilitate channel diversity (dredging and channelization)
- Rehabilitate or maintain rivers to their original flows paths and hydrologic functions (i.e., seasonal flooding, connect meanders, throughflow, wetlands) (altered hydrologic regimes, altered sediment loads)
- Remove dams to rehabilitate natural hydrology and other natural processes (altered hydrologic regimes, altered sediment loads, dams)
- Work with road commissions on maintenance and placement of new bridges and rehabilitate problem bridges (altered hydrologic regimes, altered sediment loads, fragmentation)

#### *LAW & POLICY*

- Continue developing and refining planning and zoning regulations and ordinances (altered hydrologic regimes, altered nutrient inputs, altered sediment loads, riparian modification)
- Continue regulating facilities that remove and discharge water into streams (altered hydrologic regimes, thermal changes)

- Enforce the use of sediment barriers and best management practice's during road siting, construction, and maintenance (altered sediment loads)
- Ensure that existing environmental laws are enforced (sedimentation, endangered species, discharge permits, etc.) (altered sediment loads, altered nutrient inputs, altered sediment loads)
- Protect and rehabilitate wetlands (altered hydrologic regimes, altered nutrient inputs)
- Require dam owners to make appropriate financial provisions for future dam removal or perpetual maintenance to protect the public trust (dams)
- Require existing dams to operate mimicking natural conditions (altered hydrologic regimes, dams, thermal changes)
- Require natural fishways (rock arch ramps and bypass channels) for both upstream and downstream fish movements at dams (dams)
- Require the screening of turbine intakes at operating hydroelectric dams to protect fishery resources (dams)
- Restrict dredging and channelization activities especially during spawning & breeding and migration season and around mussel beds (dredging and channelization)

#### *EDUCATION & AWARENESS*

- Educate the public on the importance of natural riparian areas (altered hydrologic regimes, altered nutrient inputs, altered sediment loads, riparian modification, social attitudes)

#### Research and Survey Needs

- Determine stream temperatures in areas where data is lacking
- Determine the number and condition of areas that are disconnected from the river
- Determine the number and condition of road and stream crossings
- Determine use of very large rivers by mussel, aquatic insect, 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 erosion sites and conduct remediation activities
- Model hydrologic flow of each watersheds

#### Monitoring

- Dam operations
- Dredging and channelization
- Land use changes
- Riparian modification
- Stream modification
- Wetland modification