



Rivers: Cool Large Rivers

Description

Large rivers are wadeable and non-wadeable systems that have a midpoint catchment area from 180 to 620 square miles. Large rivers are intermediate stream order systems with diverse substrate and habitat. Cool large rivers in Michigan are usually runoff-driven systems with fair to moderate baseflow and peak flow. The gradient varies from low to high and most flow through confined or unconfined glacial or alluvial valleys. July weekly mean temperatures in these systems range from 19-22°C (66-72°F).

General Condition of Feature

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

Associated Species of Greatest Conservation Need

MUSSELS

rainbow (*Villosa iris*)

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*)
mooneye (*Hiodon tergisus*)

FISH cont.

silver shiner (*Notropis photogenis*)
spotted sucker (*Minytrema melanops*)
golden redhorse (*Moxostoma erythrurum*)
cisco or lake herring (*Coregonus artedii*)
channel darter (*Percina copelandi*)
river darter (*Percina shumardi*)
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: Increased surface runoff due to urbanization; Dam operations; Storm water management; Road crossings
- Fragmentation: Road crossings

POLLUTION

- Altered nutrient inflows: Eutrophication; Surface water runoff - nutrients
- Altered sediment loads: Construction and development runoff; Sedimentation
- Thermal changes
- Urban, municipal, and industrial pollution: Surface water runoff – contaminate

HABITAT CONVERSION

- Dams
- Dredging and channelization: Channelization; Dredging; Channel alteration
- Riparian modification: Armoring of banks; Loss of floodplain; Removal of large woody structure
- Wetland modification: Loss of wetlands (low threat)

BIOLOGICAL INTERACTIONS

- Invasive plants and animals

Conservation Actions Needed (Threats addressed)

LAND, WATER & SPECIES MANAGEMENT

- Allow seasonal flooding (altered hydrologic regimes)
- Implement storm water and non-point source Best management practices (altered hydrologic regimes, thermal changes, Urban, municipal, and industrial pollution)
- Maintain, rehabilitate, and protect riparian areas (thermal pollution, riparian modification)
- Preserve woody riparian vegetation and in-stream woody structure (riparian modification)
- Protect and rehabilitate wetland and floodplains (riparian modification, wetland modification)
- Protect the natural hydrologic regime of streams by protecting existing wetlands and floodplains (altered hydrologic regimes, riparian modification, wetland modification)
- Use sediment barriers and Best management practices during road and stream crossing constructions (altered sediment loads)
- Work with road commissions on maintenance and placement of new bridges (altered hydrologic regimes, altered sediment loads, fragmentation)

LAW & POLICY

- Develop planning and zoning regulations and ordinances (altered hydrologic regimes, altered nutrient inflows, altered sediment loads, riparian modification, wetland modification)
- Operate dams in run-of-the-river mode (altered hydrologic regimes, dams)
- Protect the public trust by requiring dam owners to make appropriate financial provision for future dam removal (dams)
- Remove unnecessary dams to rehabilitate natural hydrology (altered hydrologic regimes, dams)
- Work with Drain Commissioners to find alternatives to maintenance dredging (altered hydrologic regimes, altered sediment loads, dredging and channelization, riparian modification)

Research and Survey Needs

- Determine amount and condition of riparian areas
- Determine number and condition of road crossings
- Investigate life history strategies of SGCN where this information is lacking
- Investigate alternatives to dams
- Model hydrologic flow of entire watersheds

Monitoring

- Dam operations
- Effluent discharges: waste water; septic systems, industrial
- Indicator species
- Riparian modification
- Stream water temperatures