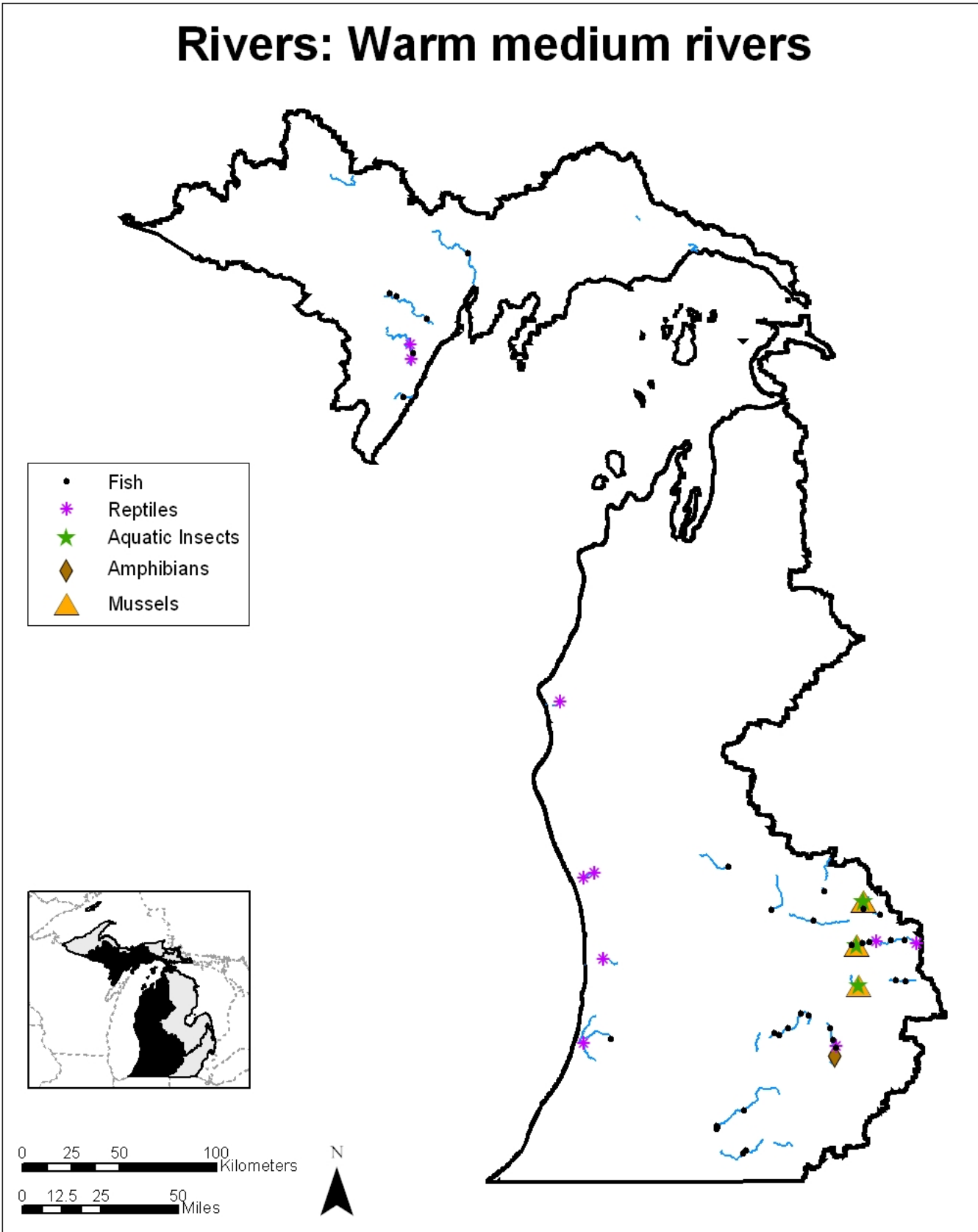


Rivers: Warm medium rivers



Rivers: Warm Medium Rivers

Description

Medium rivers are wadeable systems that have a midpoint catchment area from 40 to 179 square miles. They are intermediate stream order. Substrate and habitat are variable and more diverse than headwater systems. Warm medium rivers in Michigan are generally runoff-driven systems with low baseflow and high peak flow. Most are low gradient and flow through unconfined alluvial valleys. July weekly mean temperatures in these systems are greater than 22°C (72°F).

General Condition of Feature

This habitat is considered 40% in good to excellent condition, 20% in fair condition, and 40% 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*)
spotted gar (*Lepisosteus oculatus*)
mooneye (*Hiodon tergisus*)
striped shiner (*Luxilus chrysocephalus*)
river chub (*Nocomis micropogon*)
pugnose shiner (*Notropis anogenus*)
bigmouth shiner (*Notropis dorsalis*)
western creek chubsucker (*Erimyzon claviformis*)
lake chubsucker (*Erimyzon sucetta*)

FISH cont.

spotted sucker (*Minytrema melanops*)
golden redbreast (*Moxostoma erythrurum*)
brown bullhead (*Ameiurus nebulosus*)
stonecat (*Noturus flavus*)
tadpole madtom (*Noturus gyrinus*)
grass pickerel (*Esox americanus*)
pirate perch (*Aphredoderus sayanus*)
fantail darter (*Etheostoma flabellare*)
banded darter (*Etheostoma zonale*)

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: Water withdrawals; Dams cause fragmentation of stream flow
- Climate change: (low threat)
- Fragmentation: Road crossings and culverts can sometime cause fragmentation of habitats if species do not pass through them

POLLUTION

- Altered nutrient inflows
- Altered sediment loads: Siltation; ORV crossings increase sedimentation
- Pesticides and herbicides: Pesticides (low threat)
- Urban, municipal, and industrial pollution: Urban pollution (low threat)

HABITAT CONVERSION

- Dams: Dams cause fragmentation of stream flow and habitats for species
- Dredging and channelization
- Riparian modification: De-vegetation of shoreline
- Wetland modification

BIOLOGICAL INTERACTIONS

- Invasive plants and animals

CONSUMPTIVE BIOLOGICAL RESOURCE USE

- Removal of wildlife: (low threat)

NON-CONSUMPTIVE BIOLOGICAL RESOURCE USE

- Macrophyte removal: De-vegetation of shoreline (low threat)
- Other structure removal: Woody debris removal (low threat)

EDUCATION

- Lack of scientific knowledge

Conservation Actions (Threats addressed)

LAND & WATER PROTECTION

- Support landowner incentive programs to foster conservation on private land (variety of threats)

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

LAND, WATER & SPECIES MANAGEMENT

- Continued vigilance and cooperation on preventing more aquatic invasive species establishments (invasive plants and animals)
- Control and prevent aquatic invasive species introductions and establishments (invasive plants and animals)
- Decrease the amount of impervious surfaces within watershed (altered hydrologic regimes)
- Engineered drainage channels should mimic natural stream channel stability, i.e., channel dimension, pattern, and profile (dredging and channelization)
- If culverts are necessary, use single large capacity culverts that match bankfull channel width (altered hydrologic regimes, fragmentation)
- 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, thermal changes)
- Maintain or rehabilitate river to original flow path and hydrologic functions, i.e., seasonal flooding, throughflow (altered hydrologic regimes)
- Manage beaver populations for a variety of natural resource uses (altered hydrologic regimes, dams)
- Soften or remove hard stream structures (riparian modification)
- Survey erosion sites within watersheds and develop strategies to reduce identified problems (altered sediment loads)
- Work with road commissions on placement and maintenance of stream crossings (altered sediment loads)
- Work with road commissions to fix perched culverts that are barriers to aquatic species movements (altered hydrologic regimes, fragmentation)

LAW & POLICY

- Assess dam siting to ensure minimal affects and require fish passage both upstream and downstream
- Avoid stream relocations (dredging and channelization)
- Continue Natural Rivers planning (variety of threats)
- Encourage green space planning (riparian modification)
- Encourage townships to separate combined sewer systems (altered hydrologic regimes, altered nutrient inflows)
- Encourage use of bridges over culverts for new crossings (altered hydrologic regimes, fragmentation)
- Encourage use of natural materials or soft engineering techniques for any shoreline 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)
- Include wetland protections in zoning and planning ordinances (wetland modification)
- Limit water withdrawals in flow-limited or groundwater fed systems (altered hydrologic regimes)
- Protect and rehabilitate groundwater recharge by requiring that all development-related runoff be captured by infiltration basins (altered hydrologic regimes)
- Protect the public trust by requiring dam owners to make appropriate financial provisions for future dam removal or perpetual maintenance (dams)
- Remove dams to rehabilitate connectivity of system (dams, fragmentation)
- Remove dams to rehabilitate natural hydrology (altered hydrologic regimes, dams)
- Remove lake-level control structures (altered hydrologic regimes, dams)
- Require existing dams to operate mimicking natural flow conditions (altered hydrologic regimes, dams)
- Restrict dredging and channelization activities on headwater streams (dredging and channelization)
- Strengthen existing water quality laws (variety of threats)
- Strengthen wetland regulations, mitigation requirements, and enforcement (wetland modification)
- Use best management practices (variety of threats)
- Work with Drain Commissioners to use natural channel processes to allow a stream to manage sediment and flow and decrease the amount of channelization needed (altered hydrologic regimes, altered sediment loads, dredging and channelization)
- 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

- Continue educating the public on preventing the spread of aquatic invasive species (invasive plants and animals)
- Continue to educate the public about the benefits of wetlands and the ecological services they provide (wetland modification)
- Educate legislators, other policy makers, and the public on natural processes (social attitudes)
- Educate the public on the use of and reasons for maintaining septic systems (altered nutrient inflows)
- Work with and educate ORV groups to provide environmentally friendly stream crossings (altered sediment loads)

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 the use of warm medium rivers by mussel, aquatic insect, amphibian, and reptile SGCN
- Develop alternatives to current drainage practices
- Develop storm water management plans for watersheds, especially in the southern portion of the basin
- Document the number of water withdrawal locations and amounts
- Establish effective methods of communication with the public about stewardship
- Inventory dams and determine those that no longer serve a useful purpose
- Inventory stream crossings and address those which are eroding or interfering with stream flow
- Inventory stream enclosures and determine those that no longer serve a useful purpose
- Inventory wetlands and floodplains and determine their condition
- Survey loadings of nutrients and sediments to streams and develop strategies to reduce problems

Monitoring

- Aquatic invasive species
- Channelization
- Dam operations
- Effluent discharges: waste water treatment plants, septic systems
- Indicator species
- Land use changes
- Riparian modification
- Storm water flows
- Stream modification
- Wetland modification