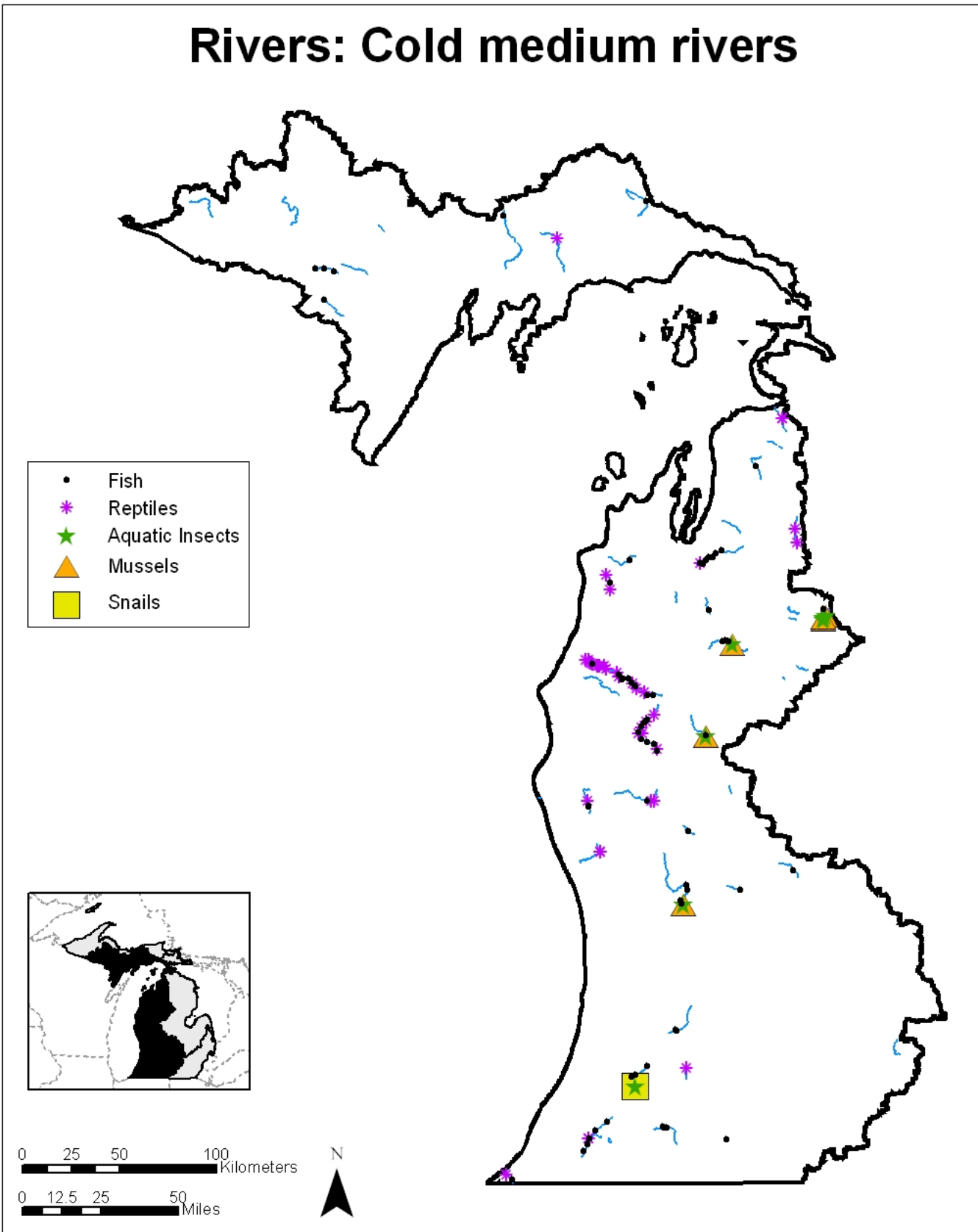


Rivers: Cold medium rivers



Rivers: Cold 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. Cold medium rivers in Michigan are typically groundwater-driven with high baseflow and peak flow, although a few systems are runoff-driven with fair to moderate baseflow and peak flow. Most are low to moderate gradient and flow through unconfined alluvial valleys, while a smaller number of cold medium rivers flow through confined, sporadically confined, or unconfined glacial valleys. July weekly mean temperature in these rivers is less than 19°C (66°F). These systems are uncommon in the Lake Erie basin.

General Condition of Feature

This habitat is considered 55% in good to excellent condition, 20% in fair condition, and 25% 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

extra-striped snaketail (*Ophiogomphus anomalus*)
pygmy snaketail (*Ophiogomphus howei*)

FISH

lake sturgeon (*Acipenser fulvescens*)
brassy minnow (*Hybognathus hankinsoni*)
finescale dace (*Phoxinus neogaeus*)
slimy sculpin (*Cottus cognatus*)

REPTILES

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

Associated Threats

MODIFICATION OF NATURAL PROCESSES

- Altered hydrologic regimes: Water withdrawals
- Climate change: (low threat)
- Fragmentation: Development, roads, clearing, building, human-made dams all interrupt habitats; Roads and culverts can fragment habitats for species (low threat)

POLLUTION

- Altered sediment loads: Increased sediment loads
- Pesticides and herbicides
- Thermal changes: Alteration to water temperature regime; canopy cover still important for maintaining natural temperature regimes
- Urban, municipal, and industrial pollution

HABITAT CONVERSION

- Dams: Alter flows and interrupt habitat; Hydropower; Beaver
- Dredging and channelization
- Incompatible natural resources management: Fish management activities, i.e., stocking non-natives (low threat)
- Riparian modification: Riparian development; Development, roads, clearing, building

BIOLOGICAL INTERACTIONS

- Invasive plants and animals: Fish management activities (stocking non-natives) (low threat)

NON-CONSUMPTIVE BIOLOGICAL RESOURCE USE

- Non-consumptive recreation: (low threat)

Conservation Actions Needed (Threats addressed)

LAND & WATER PROTECTION

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

LAND, WATER & SPECIES MANAGEMENT

- 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)
- Maintain and rehabilitate natural hydrology (altered hydrologic regimes)
- 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)

MICHIGAN'S WILDLIFE ACTION PLAN

AQUATIC SYSTEMS: LAKE MICHIGAN BASIN

- 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)
- Reduce herbicide and pesticide use (pesticides and herbicides)
- 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)

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 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 (variety of threats)
- 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)
- Reduce effluent flow (Urban, municipal, and industrial pollution)
- Remove dams to rehabilitate natural hydrology (altered hydrologic regimes, dams)
- Remove lake-level control structures (altered hydrologic regimes, dams)
- Require existing dams to mimic natural flow conditions (altered hydrologic regimes, dams)
- Restrict dredging and channelization activities on headwater streams (dredging and channelization)
- Strengthen existing environmental laws and enforcement of permits controlling effluent discharge (Urban, municipal, and industrial pollution)
- 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

- Educate legislators, other policy makers, and the public on natural processes (social attitudes)
- Work with and educate ORV groups to provide environmentally friendly stream crossings (altered sediment loads)
- Work with Extension services to educate farmers and landowners on the natural processes of rivers (variety of threats)

CAPACITY BUILDING

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

Research and Survey Needs

- Determine stream temperatures in areas where data is lacking
- Determine the number and condition of road and stream crossings
- Determine the number and condition of dams and those that are no longer necessary
- Determine the number of groundwater withdrawals in each watershed
- Determine use of cold medium rivers by mussel, snail, and reptile SGCN
- Determine ways to decrease temperature swings from retention and detention basins in urbanized watersheds
- Develop alternatives to current drainage practices
- Inventory erosion sites and conduct remediation activities
- Model hydrologic flow of entire watersheds
- Test and compare benefits of Best Management Practice's as conservation tools

Monitoring

- Channelization
- Indicator species
- Land use changes

- Logging activities
- Riparian modifications
- Sediment loading
- Stream modifications
- Water temperatures
- Water withdrawals
- Wetland modifications