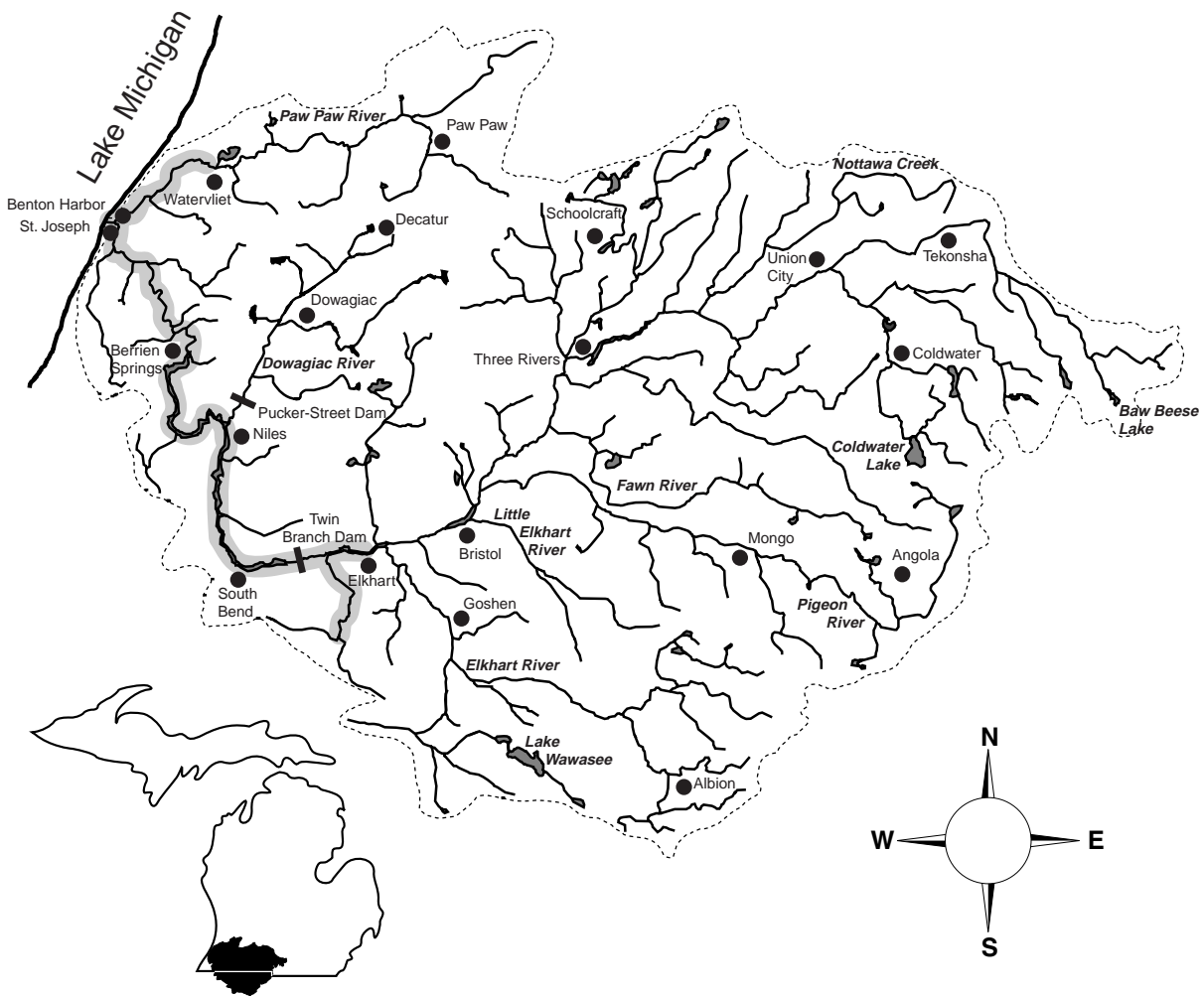


Quillback (*Carpoides cyprinus*)

Habitat:

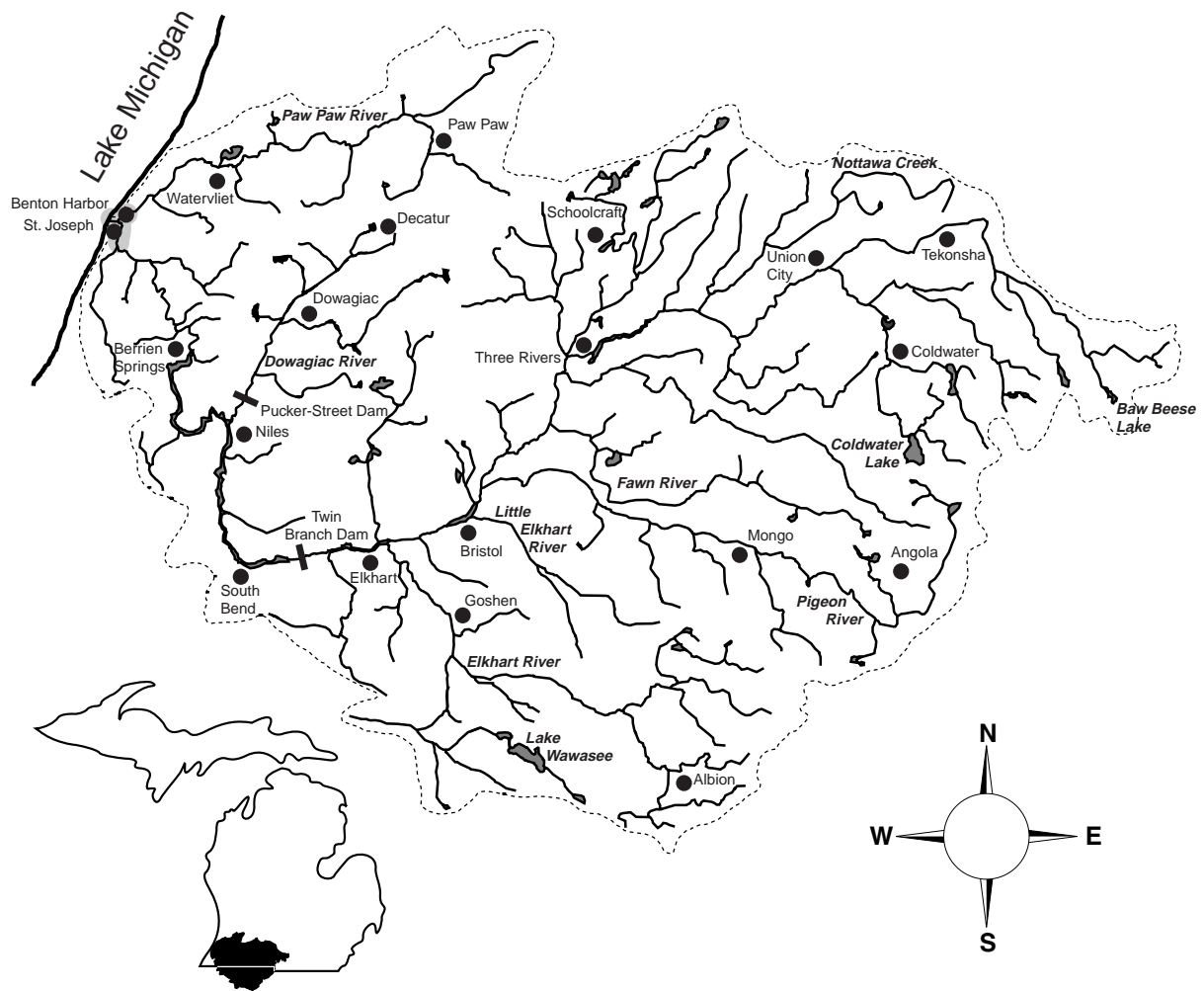
- feeding - clear to turbid water
 - Lake Michigan
 - sand, sandy gravel, sandy silt, or clay-silt substrate
 - medium- to low-gradient rivers and streams; also lakes and sloughs
-
- spawning - streams or overflow areas of bends of rivers or bays of lakes
 - scatter eggs over sand or mud substrate



Longnose sucker (*Catostomus catostomus*)

Habitat:

- feeding - clear, cold rivers and lakes
- spawning - in streams or lake shallows
 - current
 - gravel substrate

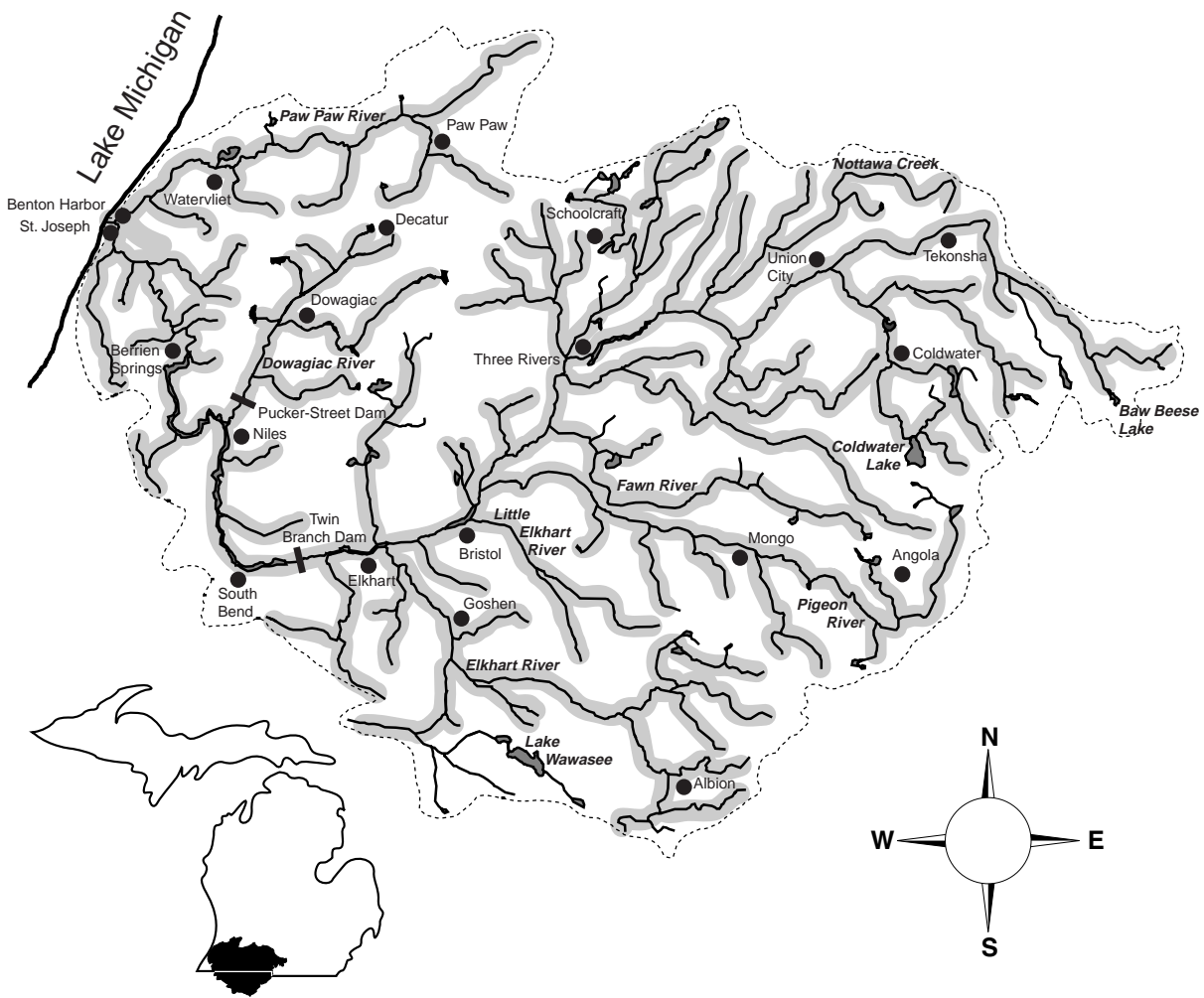


White sucker (*Catostomus commersoni*)

Habitat:

- feeding - streams, rivers, lakes, and impoundments
- can inhabit highly turbid and polluted waters

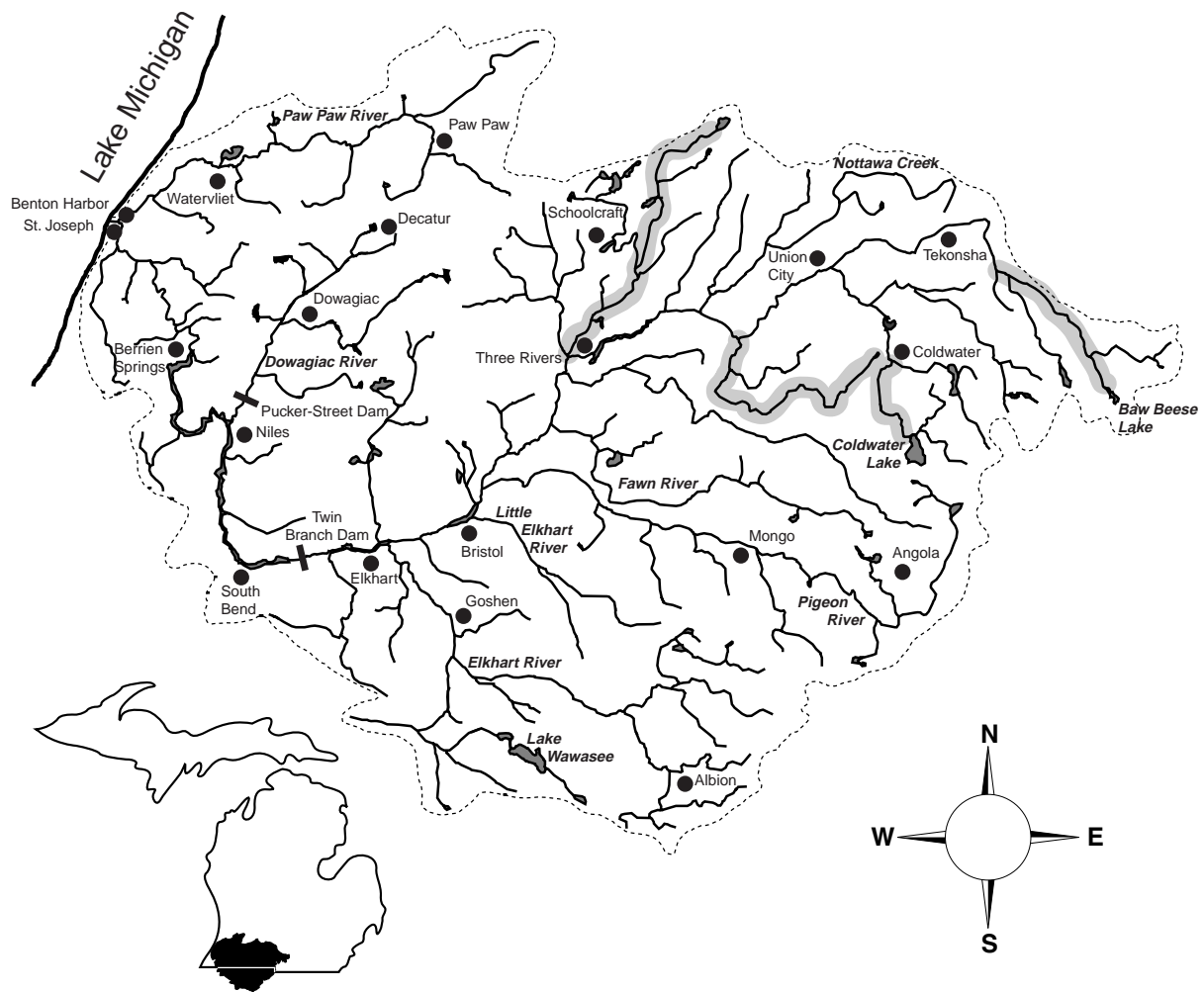
- spawning - quiet gravelly shallow areas of streams



Creek chubsucker (*Erimyzon oblongus*)

Habitat:

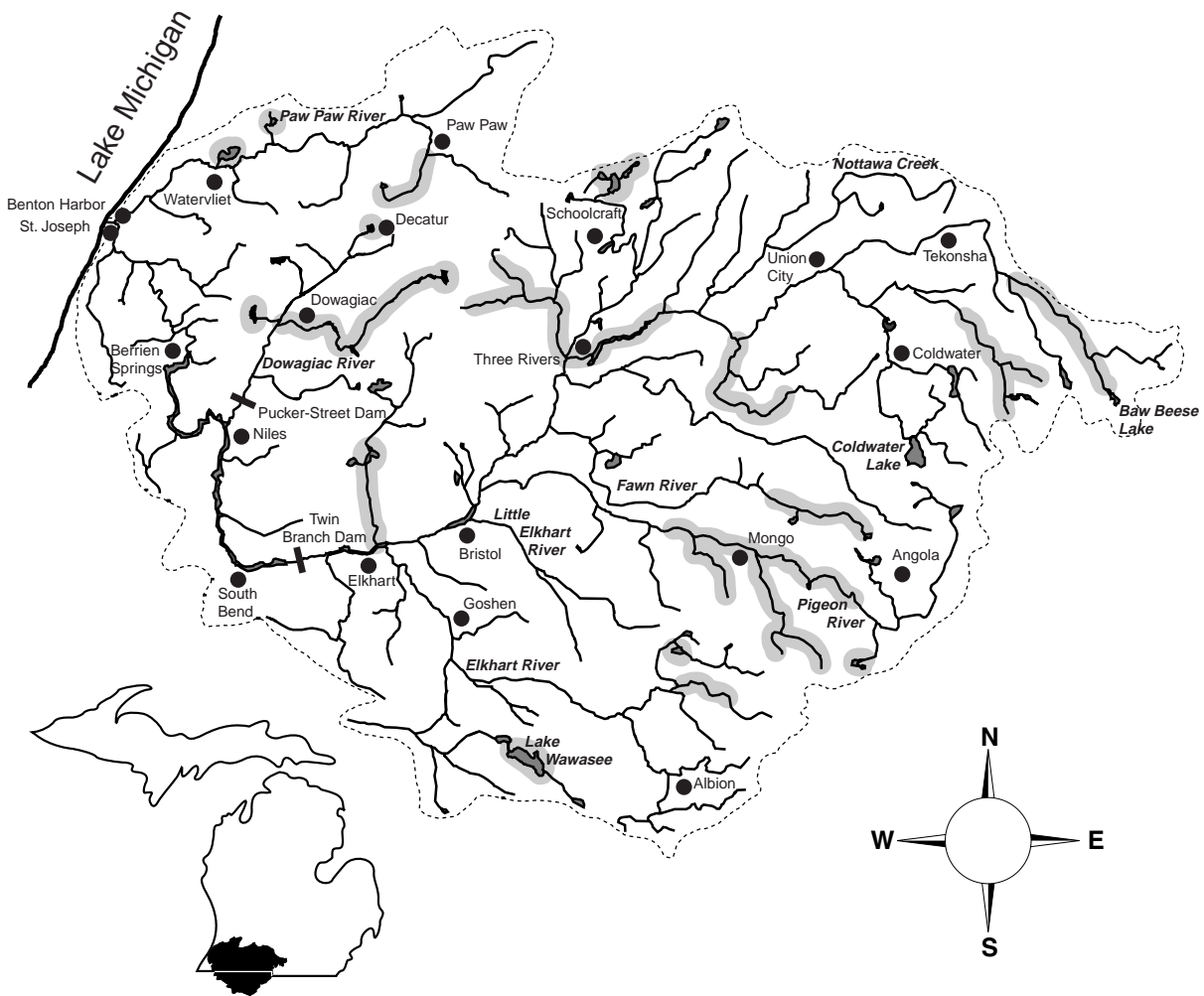
- feeding
 - clear quiet waters with thick submergent vegetation
 - sand, gravel, or silt mixed with organic debris substrate
 - in deeper more sluggish pools, protected inlets, and overflow ponds
 - moderate and high gradient
- spawning - gravelly shoals of streams, riffles, or lake outlets
- winter refuge - larger creeks



Lake chubsucker (*Erimyzon sucetta*)

Habitat:

- feeding - larger clear streams, rivers, lakes, and impoundments
 - cannot tolerate turbid water
 - low gradient
 - prefers dense vegetation over substrate of sand or silt mixed with organic debris
-
- spawning - small clear streams with moderate to high gradient
 - sand or gravel substrate; no clayey silt



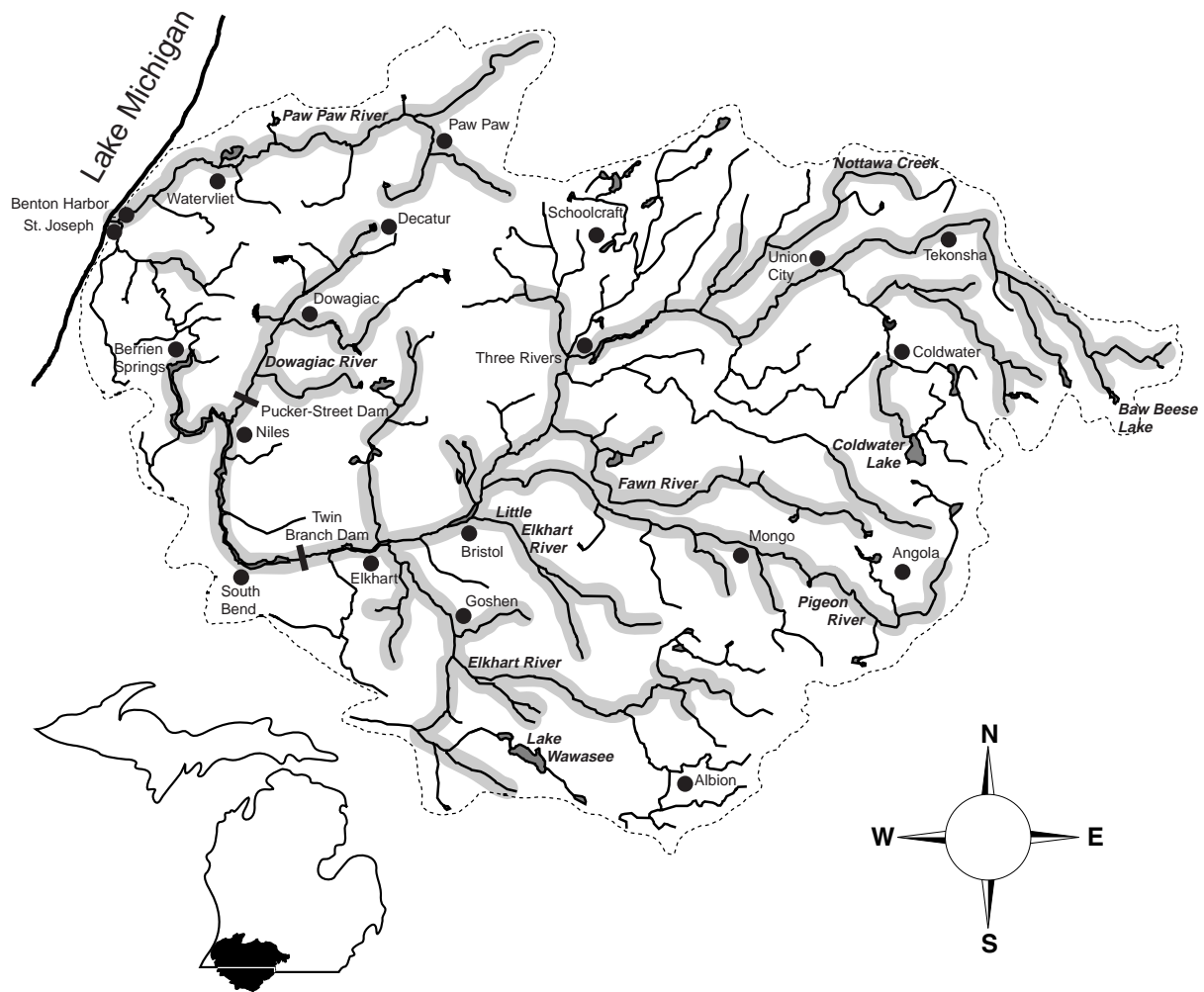
Northern hog sucker (*Hypentelium nigricans*)

Habitat:

- feeding - gravel or rubble substrate
- riffles and adjacent pools of warm shallow streams
- clear water
- doesn't like turbidity or siltation
- avoids profuse amounts of aquatic vegetation

- spawning - riffles
- shallow gravel substrate
- high gradient

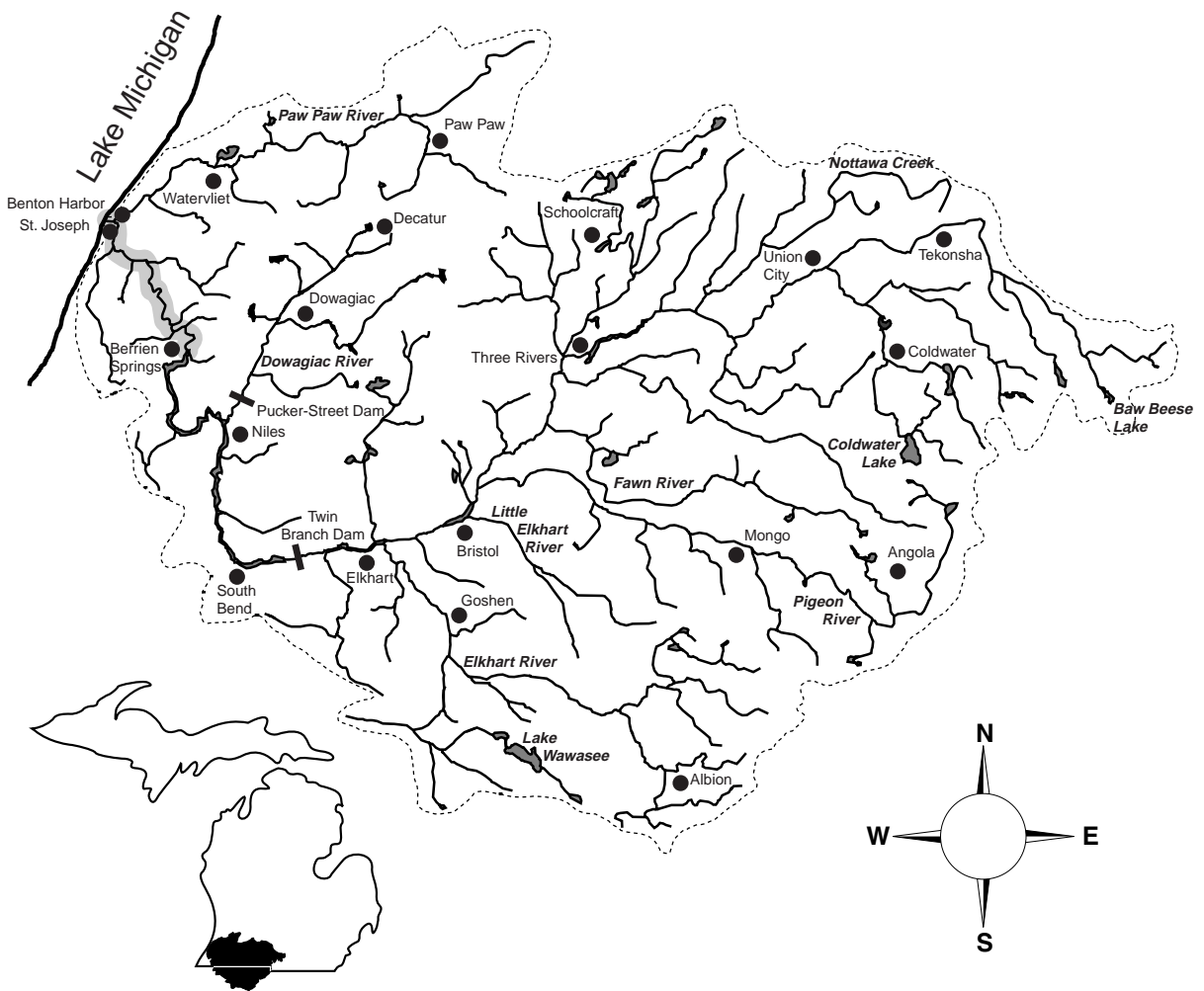
- winter refuge - deeper quieter pools



Black buffalo (*Ictiobus niger*)

Habitat:

- feeding - large rivers
 - deep fast riffles
 - occasionally shallow overflow ponds and sloughs
 - varying turbidity over various substrates
-
- spawning - shallows
 - sometimes flooded areas

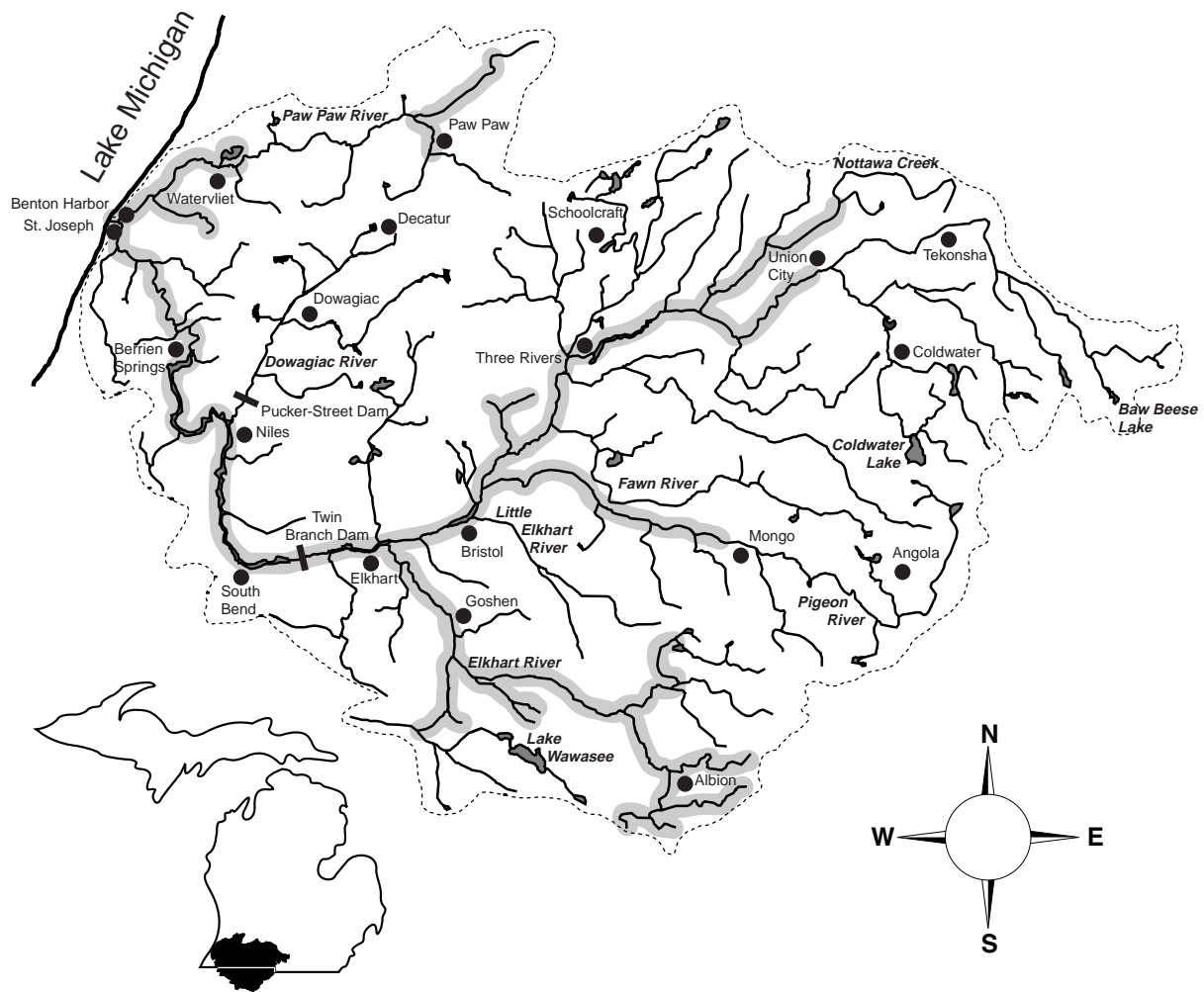


Spotted sucker (*Minytrema melanops*)

Habitat:

- feeding - clear warm rivers (pools, backwaters) with little current
- abundant vegetation
- soft substrate with organic debris
- intolerant of turbidity

- spawning - riffles

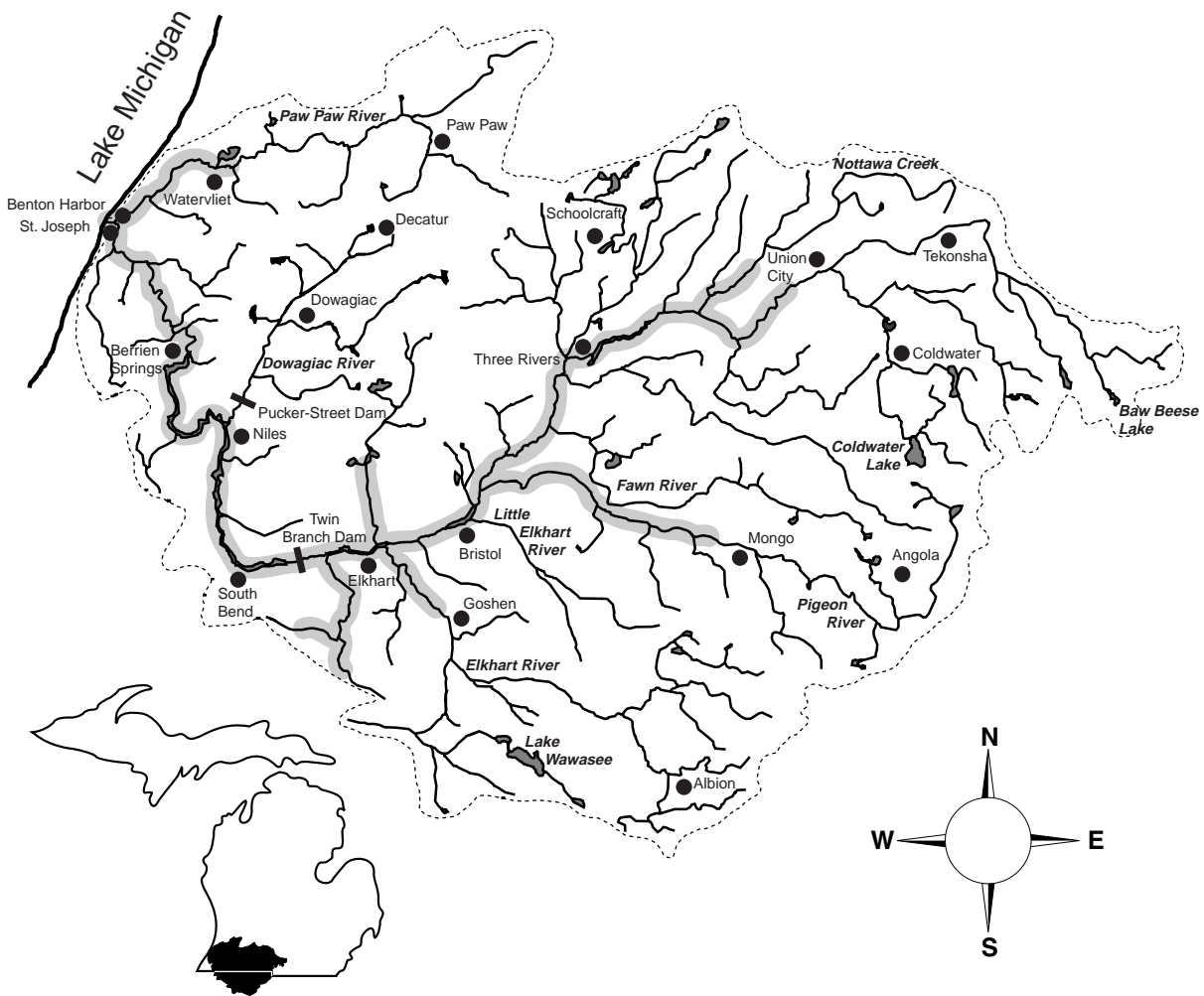


Silver redhorse (*Moxostoma anisurum*)

Habitat:

- feeding - streams, rivers, lakes, and impoundments
- low current
- pollution and turbidity intolerant

- spawning - swift current in rivers, do not spawn in tributaries
- males territorial
- gravel to rubble substrate

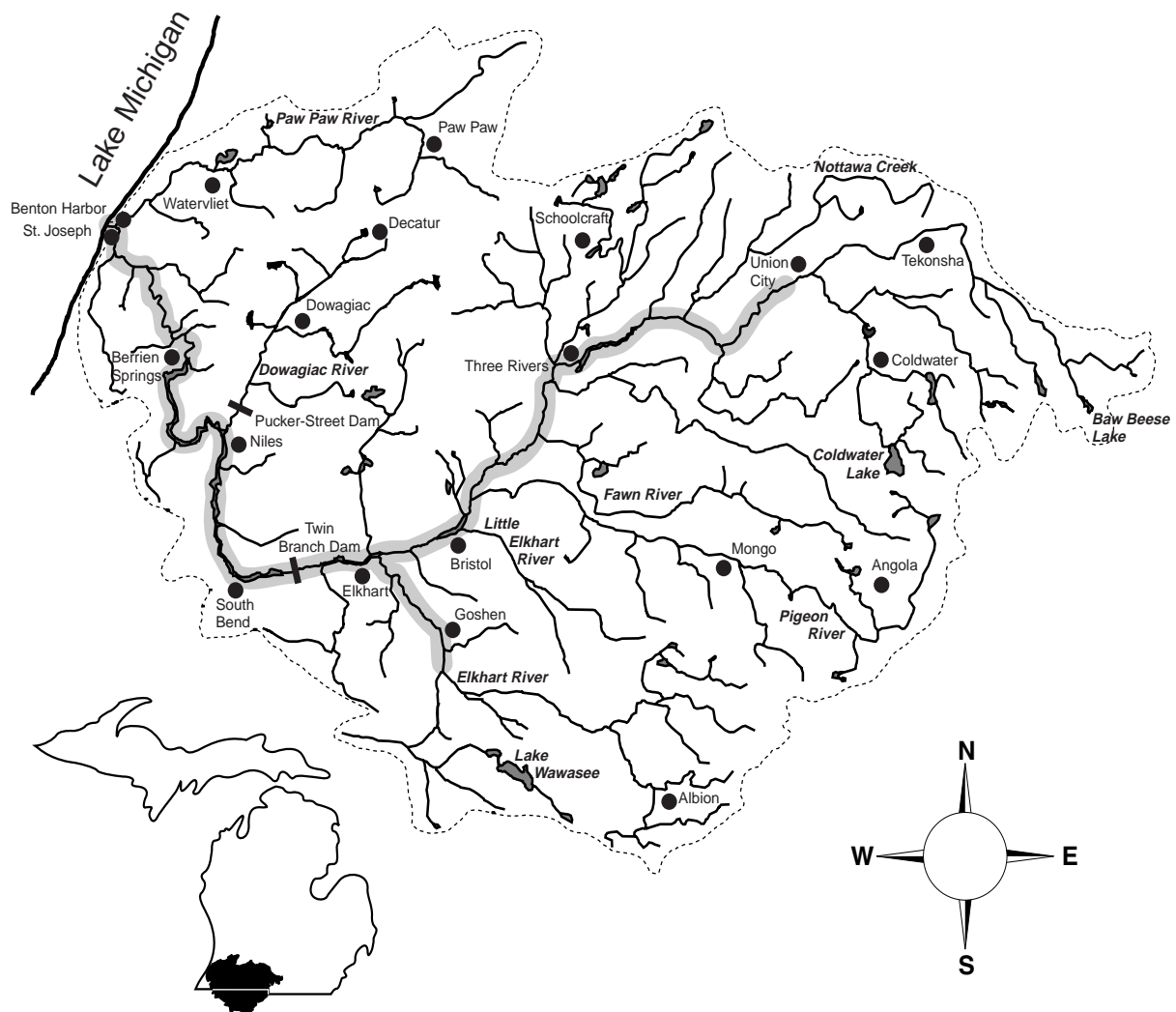


River redhorse (*Moxostoma carinatum*)

Habitat:

- feeding
 - hard silt-free substrate such as gravel and rubble
 - moderate to fast current
 - large rivers, lower portions of main tributaries, reservoirs, and pools

- spawning
 - moves into upper portions of main tributaries
 - gravel or rubble substrate
 - 2-4 ft. water



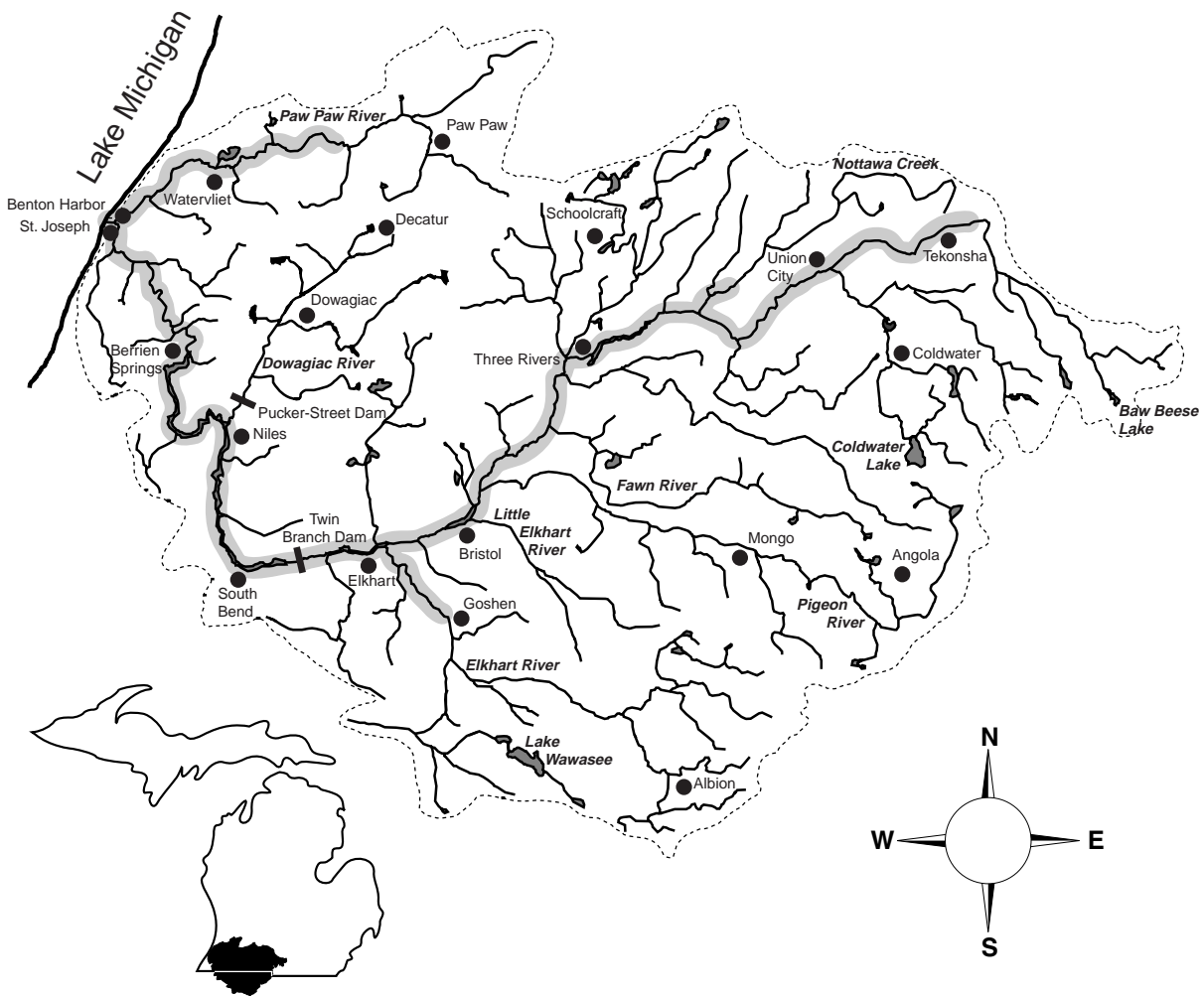
Black redhorse (*Moxostoma duquesnei*)

Habitat:

- feeding - gravel substrate
- clear water, intolerant of siltation, turbidity, and low gradients
- medium size streams
- cooler swifter streams and short rocky pools with current

- spawning - gravelly riffles

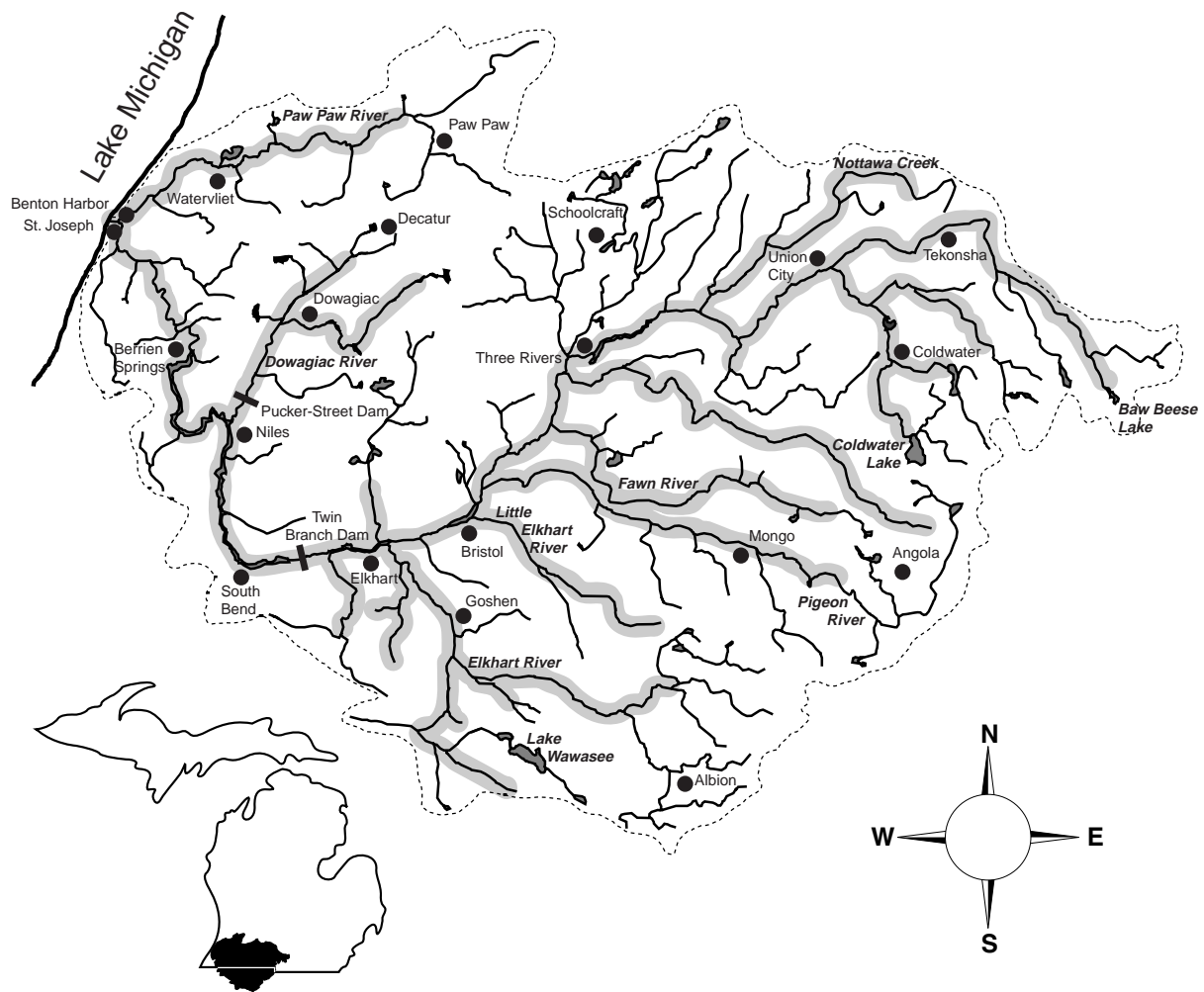
- winter refuge - deeper holes



Golden redhorse (*Moxostoma erythrurum*)

Habitat:

- feeding - warm medium gradient streams and rivers
 - clear riffly streams
 - medium size streams and rivers
 - tolerates some turbidity and silt
- spawning - shallow gravelly riffles
- winter refuge - larger streams

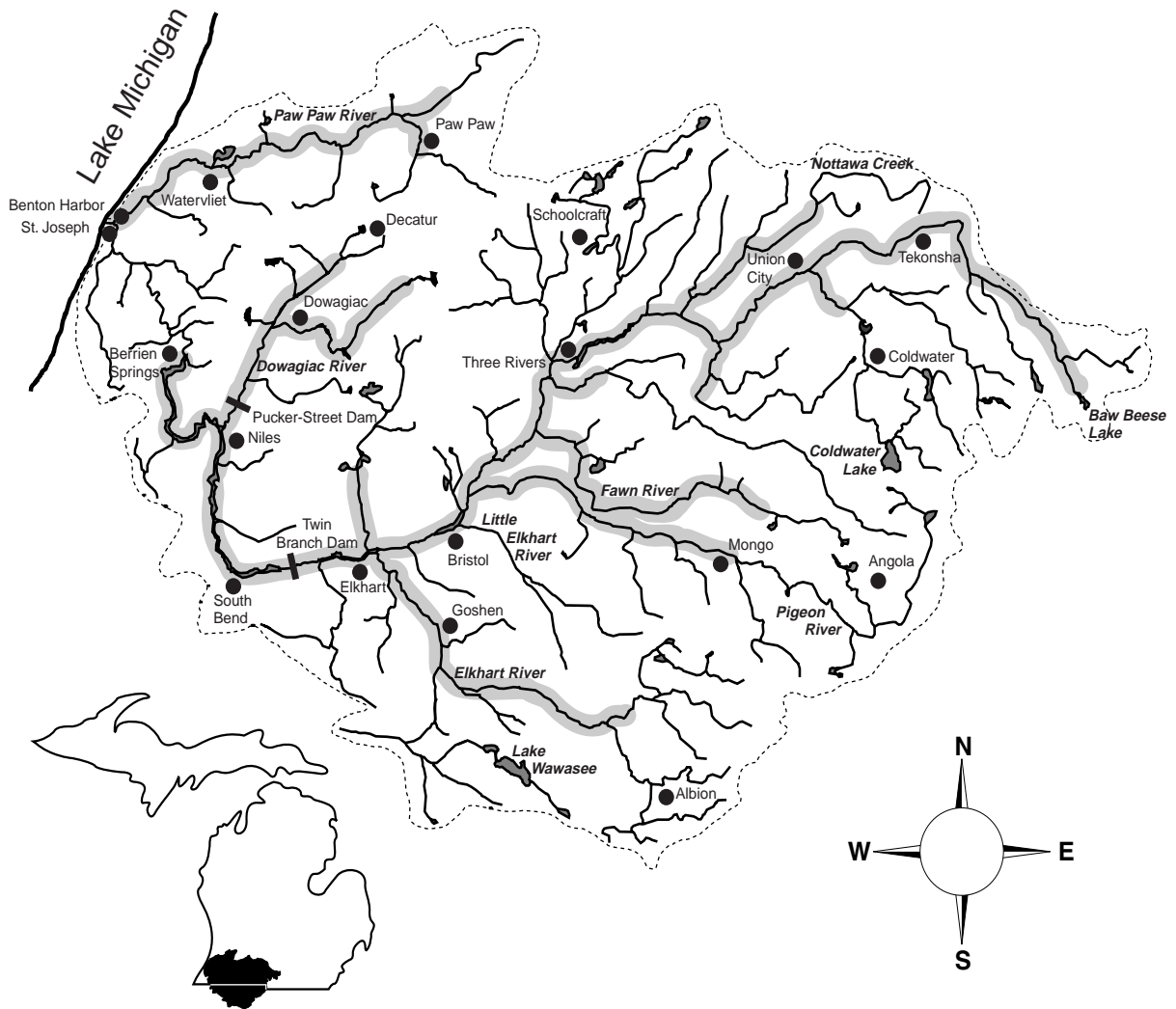


Shorthead redhorse (*Moxostoma macrolepidotum*)

Habitat:

- feeding - downstream sections of large rivers, lakes, and impoundments
- rocky substrates
- swift water near riffles
- clear to slightly turbid water

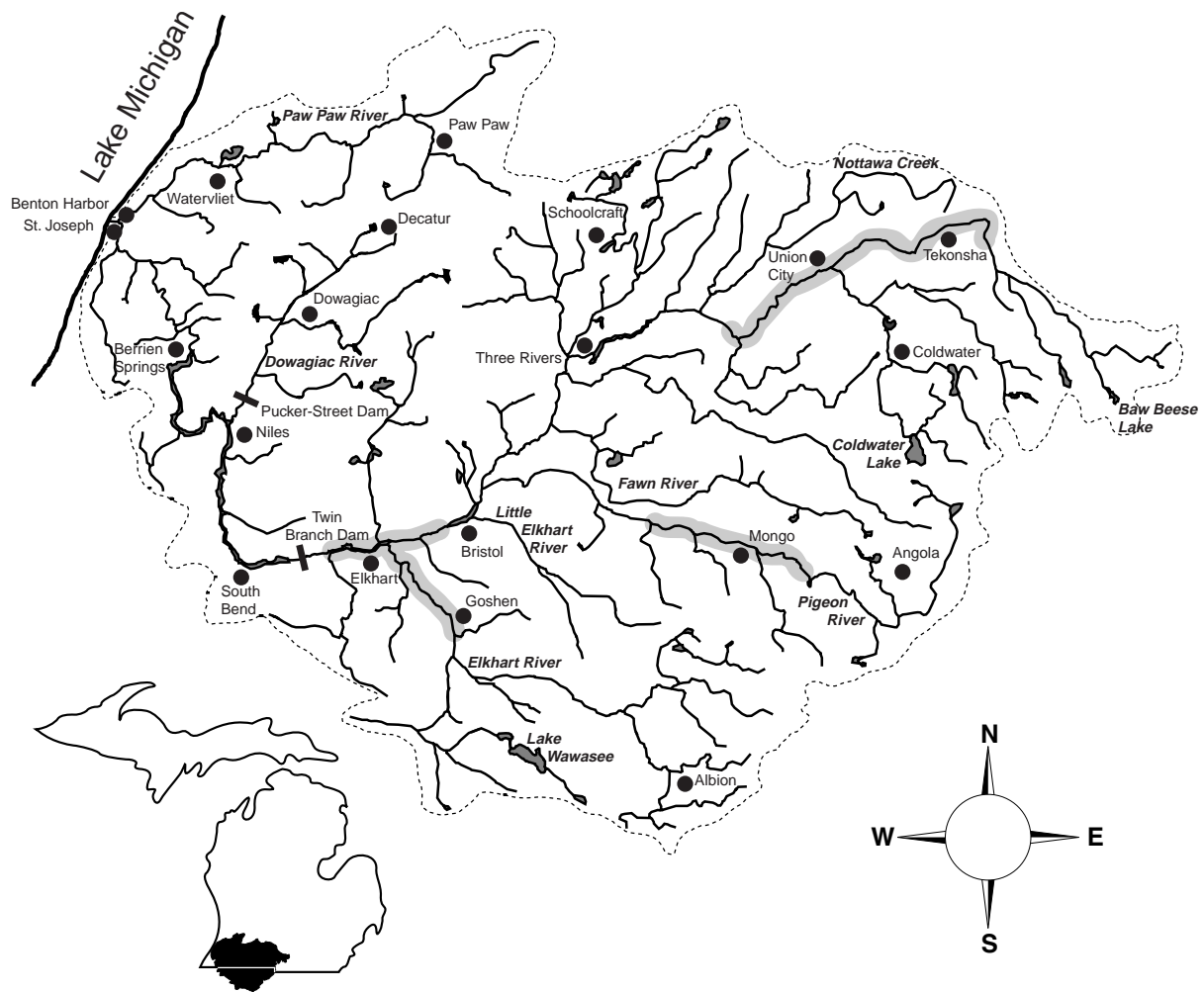
- spawning - gravelly riffles in smaller feeder streams



Greater redhorse (*Moxostoma valenciennesi*)

Habitat:

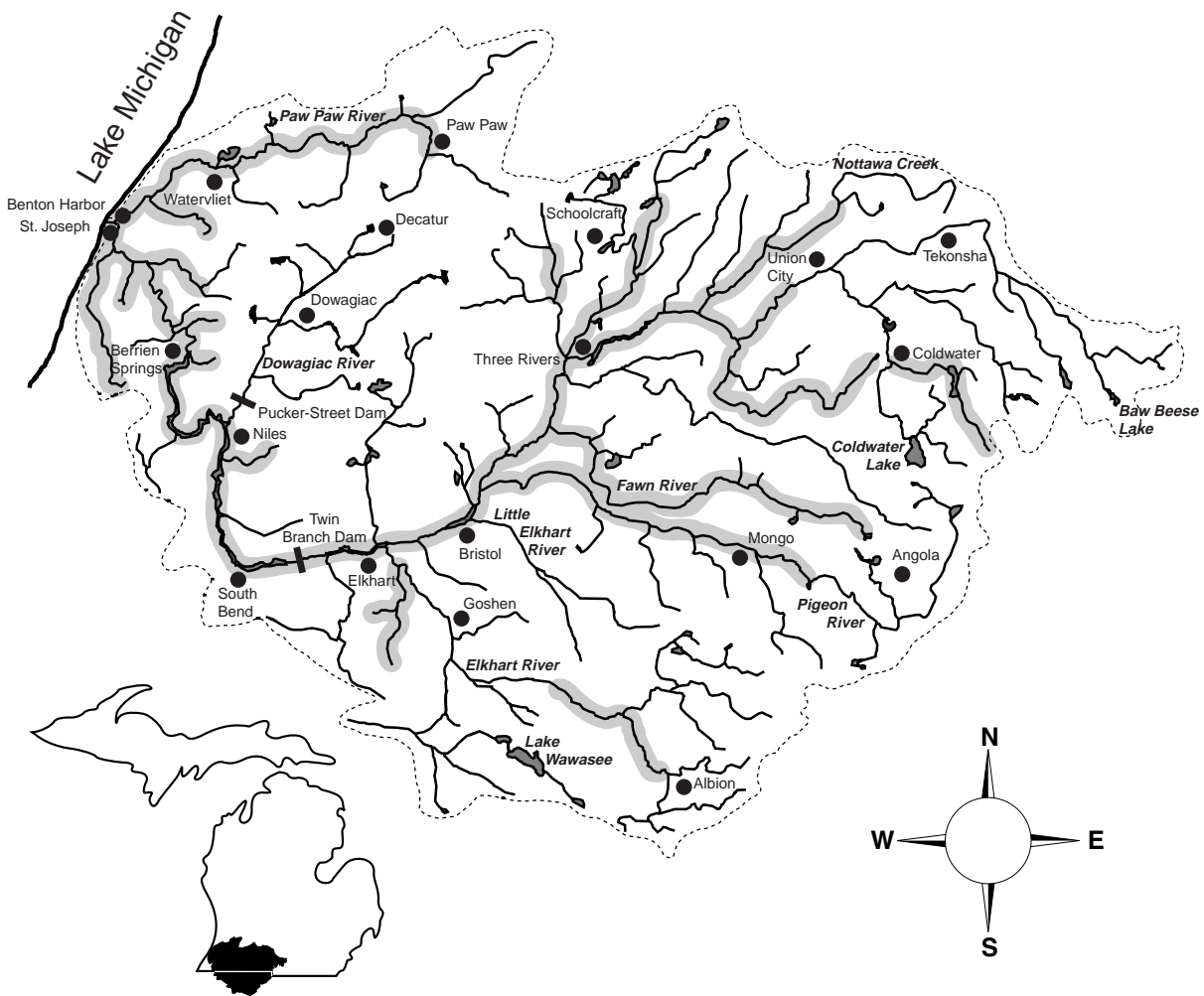
- feeding - large clear streams
 - clean sand, gravel, or boulder substrate
 - intolerant of excessive turbidity and chemical pollutants
-
- spawning - moderately rapid current



Black bullhead (*Ameiurus melas*)

Habitat:

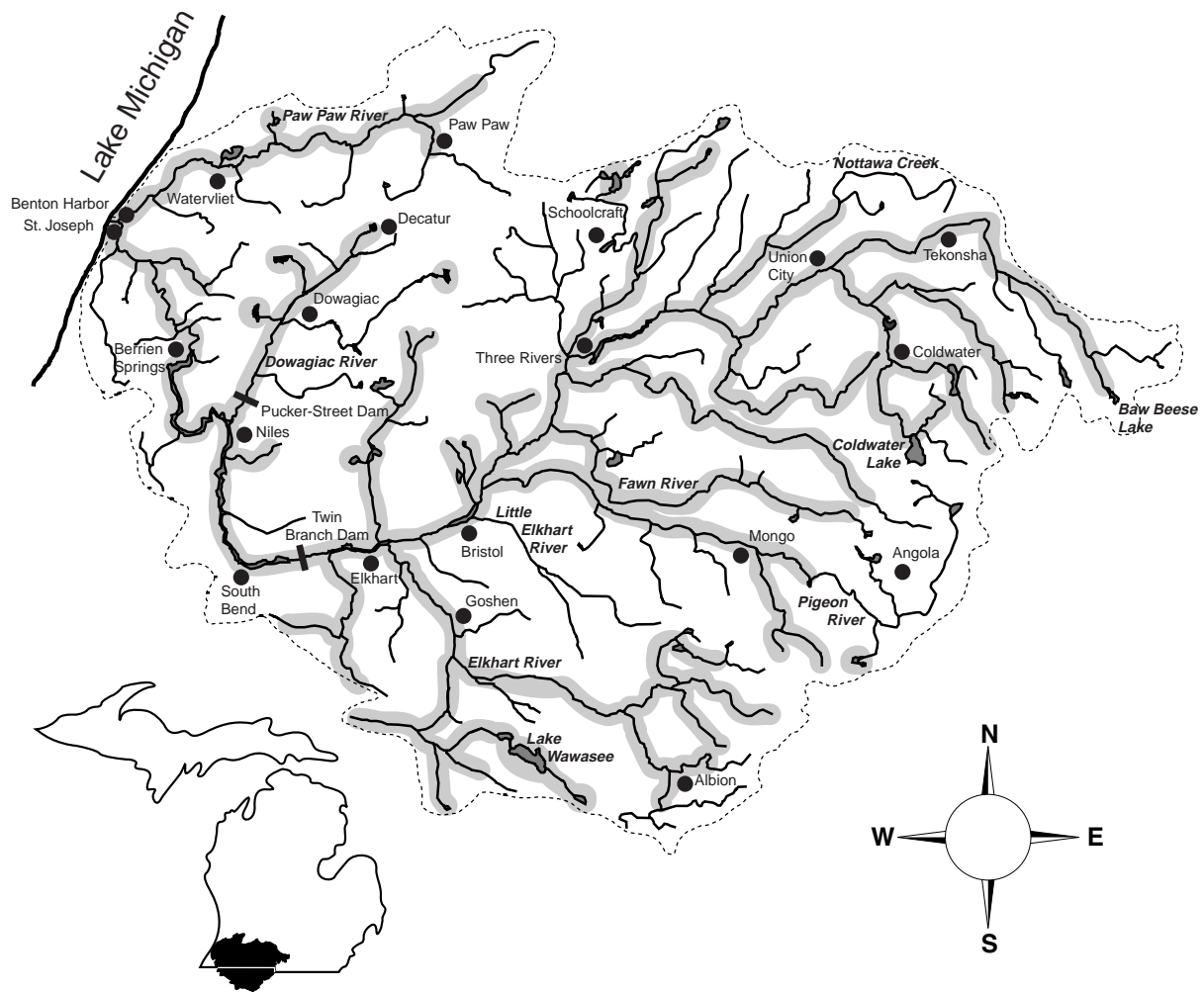
- feeding - turbid water
 - silt bottom
 - low gradient small to medium streams, pools, and headwaters of large rivers; also in lakes and impoundments
 - can tolerate very warm water and very low dissolved oxygen
- spawning - nest in moderate to heavy vegetation or woody debris and under overhanging banks



Yellow bullhead (*Ameiurus natalis*)

Habitat:

- feeding - clear flowing water
 - heavy vegetation
 - low gradient streams, lakes, and impoundments
 - tolerant of low oxygen
- spawning - nest under a stream bank or near stones or stumps



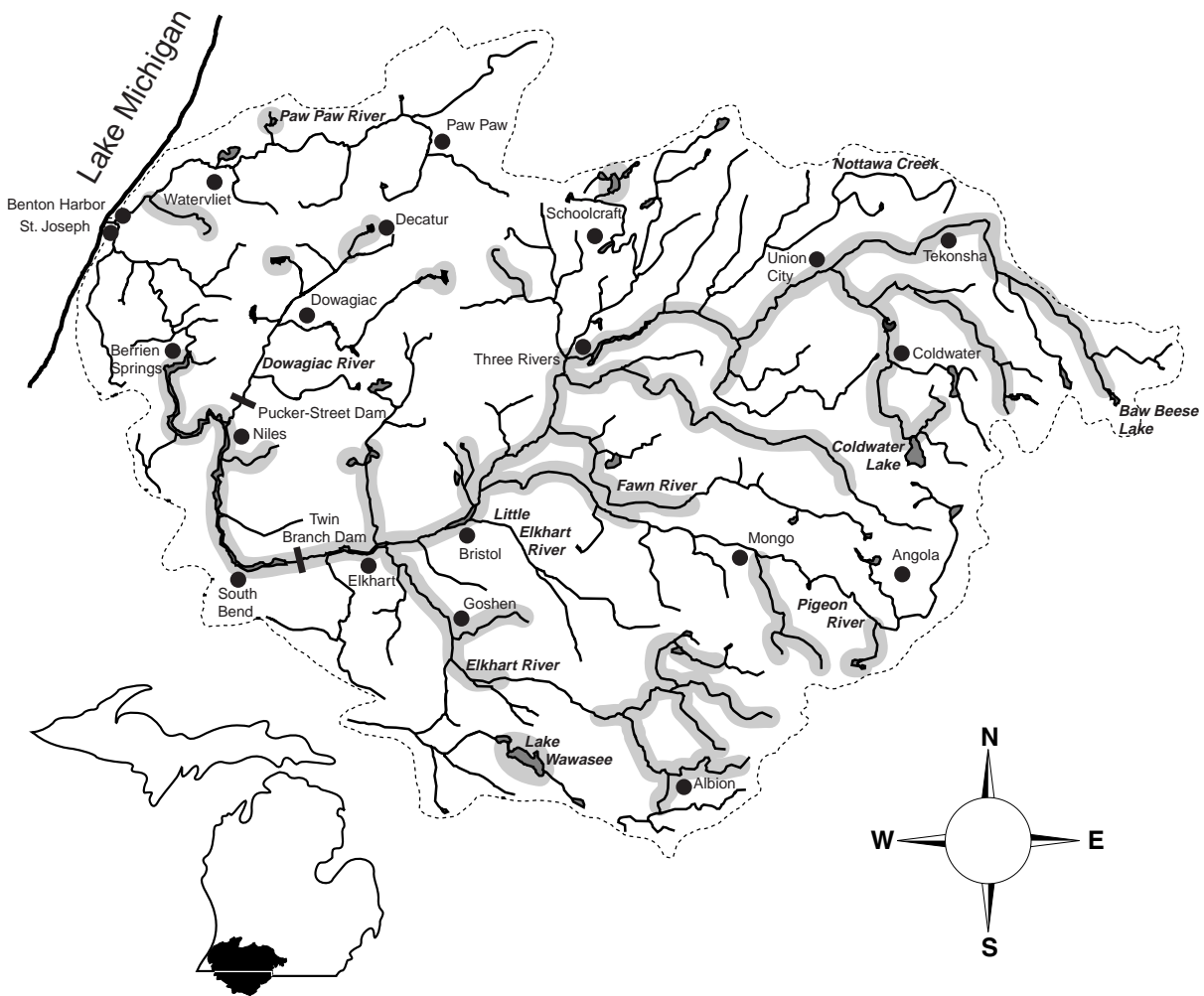
Brown bullhead (*Ameiurus nebulosus*)

Habitat:

- feeding - larger streams and rivers, lakes and impoundments
- clear cool water with little clayey silt
- moderate amounts of aquatic vegetation
- sand, gravel, or muck substrate
- not tolerant of turbid water
- tolerant of warm water and low oxygen

spawning - nest in mud or sand substrate among rooted aquatic vegetation usually near a stump, tree, or rock

winter refuge - in muddy bottoms

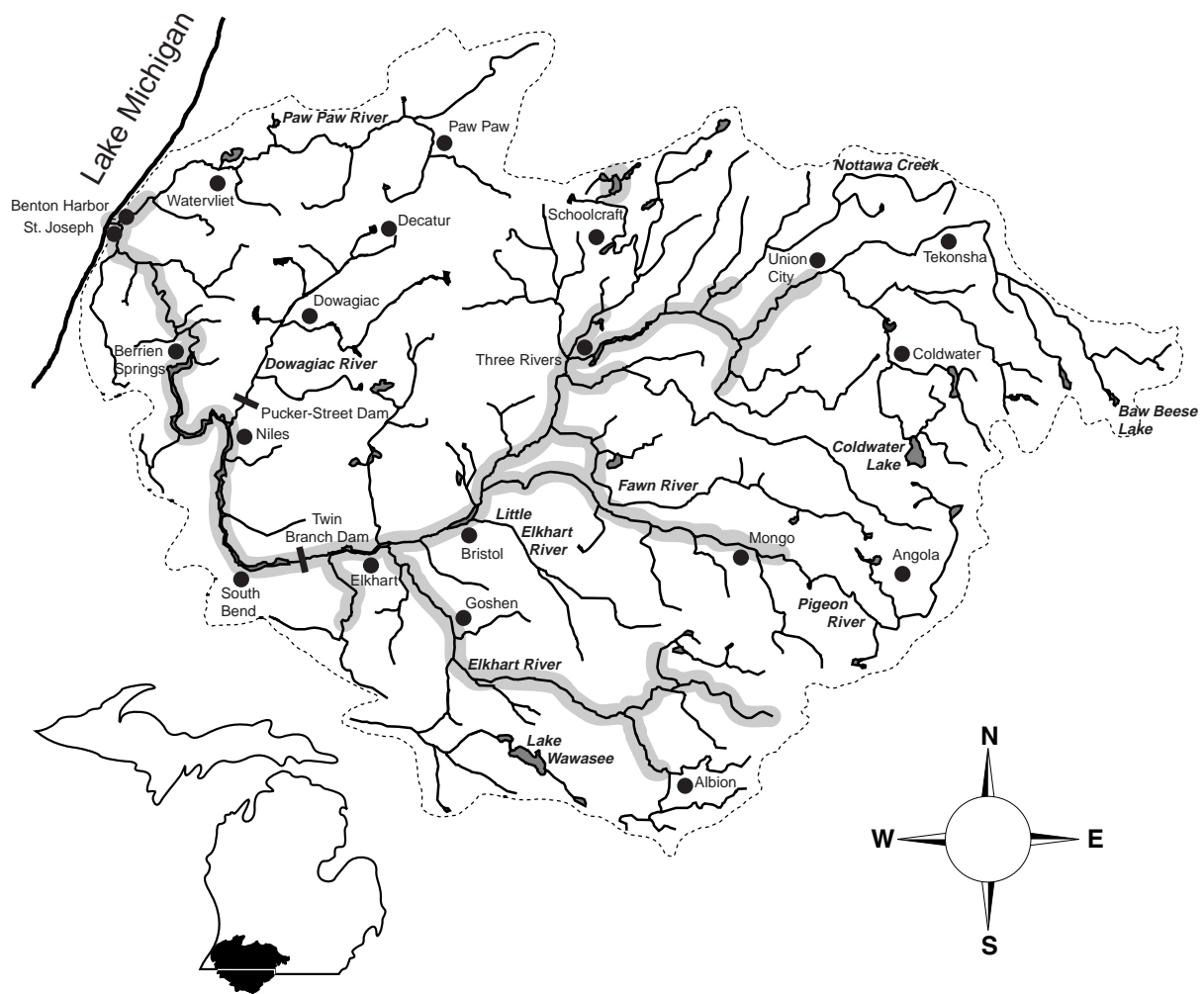


Channel catfish (*Ictalurus punctatus*)

Habitat:

- feeding - moderately-clear, deeper waters of rivers, lakes, and impoundments
 - sand, gravel, or rubble substrate
 - low to moderate gradient

- spawning - secluded semi-dark areas such as holes, under banks, log jams, or rocks

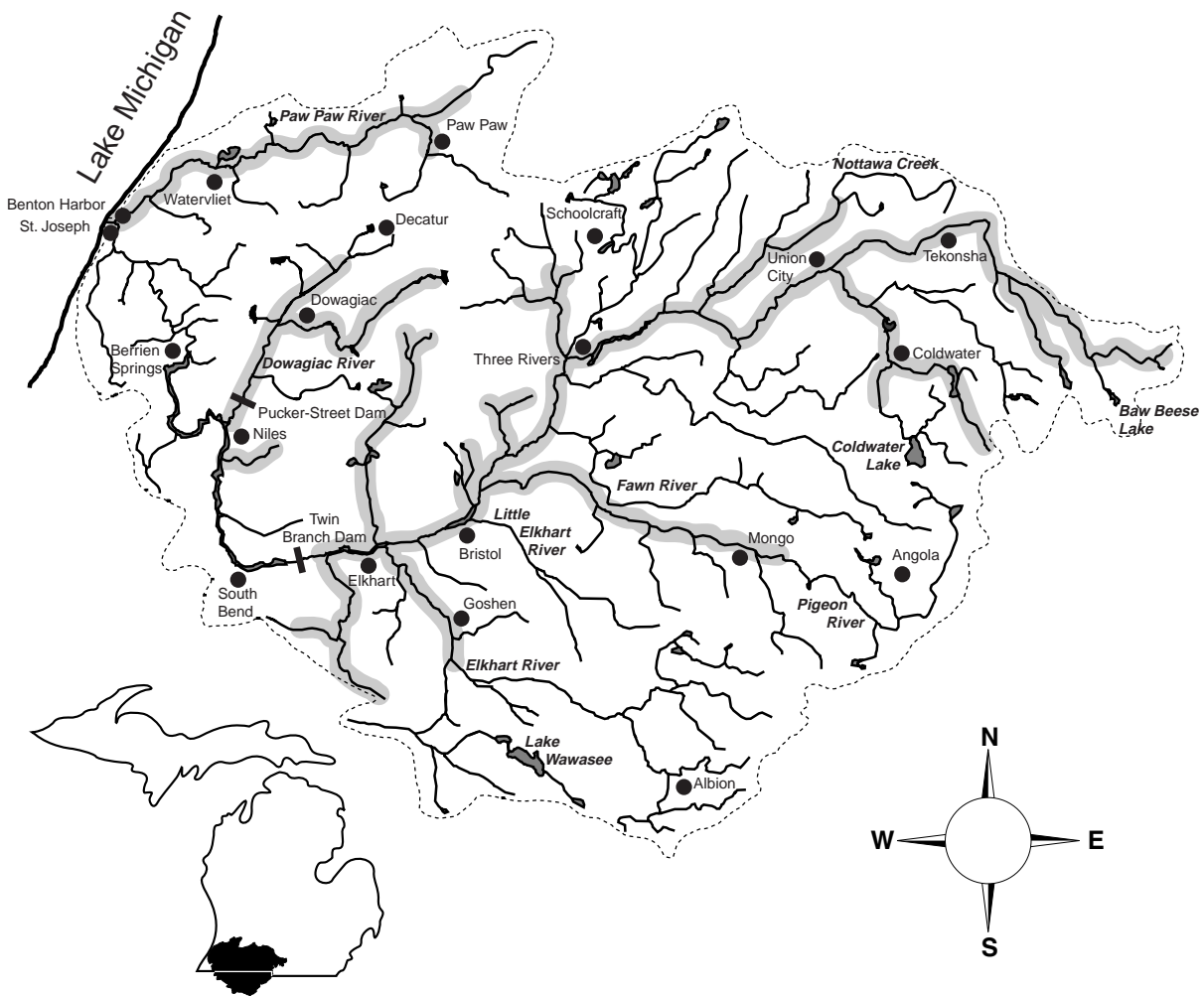


Stonecat (*Noturus flavus*)

Habitat:

- feeding - consistent low to moderate gradient flowing water
- rocky riffles of larger streams and smaller rivers
- not tolerant of silt
- tolerant of low oxygen and pollution

- spawning - eggs deposited beneath stones
- shallow rocky areas of streams or lakes

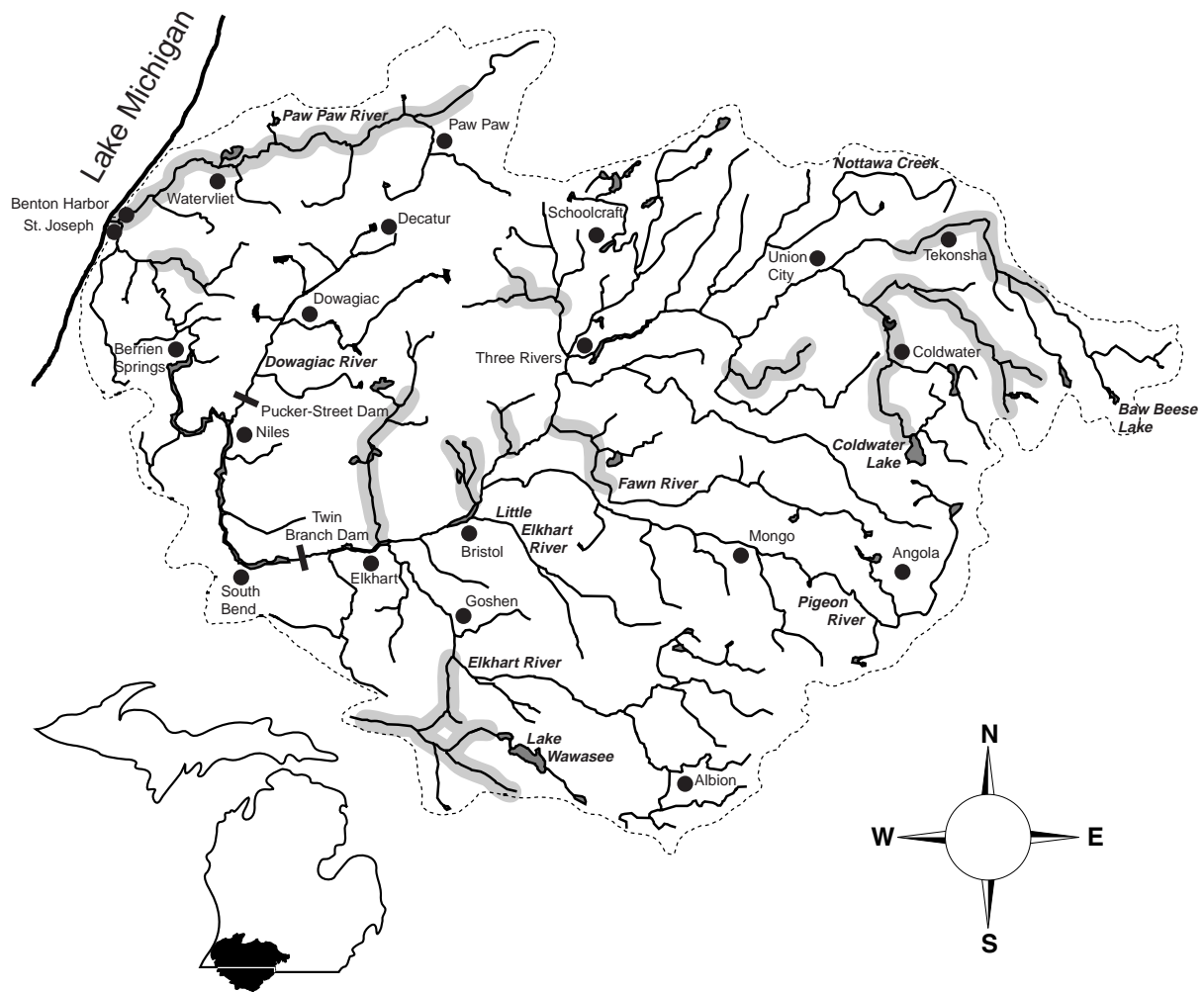


Tadpole madtom (*Noturus gyrinus*)

Habitat:

- feeding
 - vegetative cover in low-moderate current waters
 - muddy substrate with extensive vegetation
 - clear waters of streams, rivers, and lakes

- spawning
 - mostly in rivers, sometimes shallows of lakes
 - nests in dark cavities (ex: beneath boards, logs, crayfish burrows)

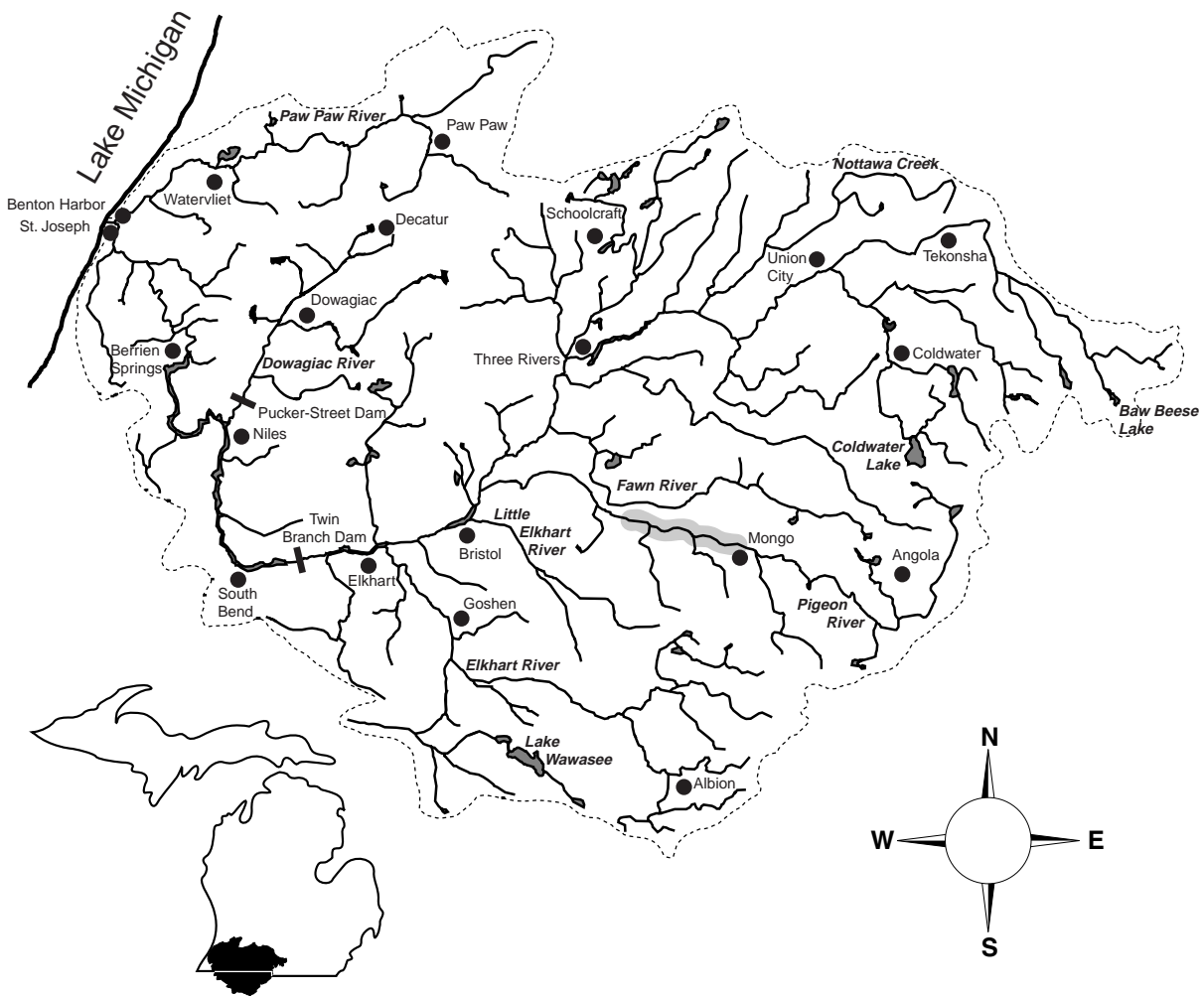


Brindled madtom (*Noturus miurus*) - special concern

Habitat:

- feeding - low gradient streams or pools of higher gradient reaches
- sand or organic debris substrate - no clayey silts
- in riffles of sluggish or moderate flow if sand is present

- spawning - silt or mud substrate
- emergent vegetation



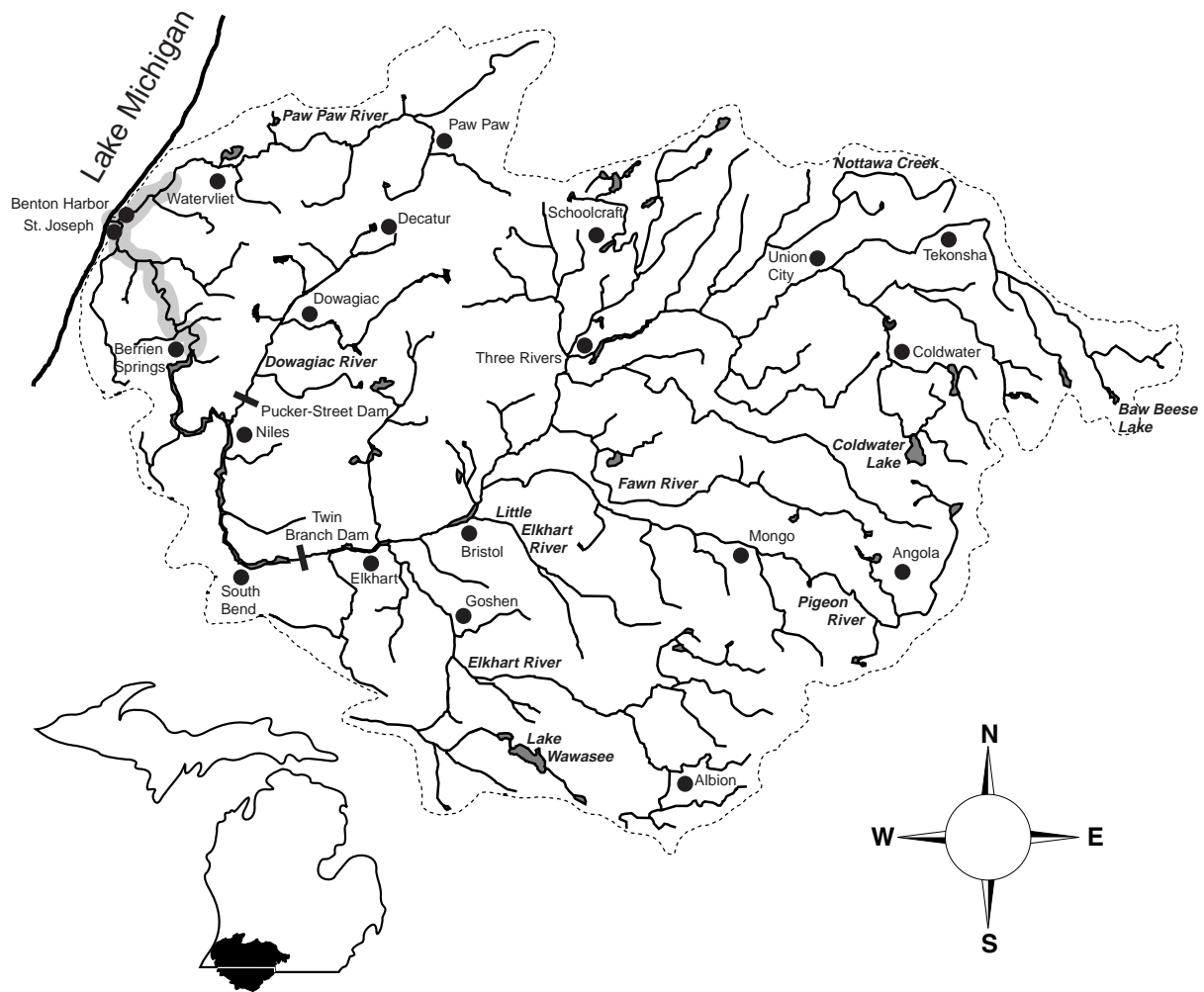
Flathead catfish (*Pylodictis olivaris*)

Habitat:

- feeding - (young) shallow riffles in fast current
- deep pools with a lot of woody cover
- deep riffles
- low gradient and current
- prefer silt-free substrate
- sometimes feed on shallow riffles

- spawning - secluded shelters or dark places
- gravel or silt-free substrate

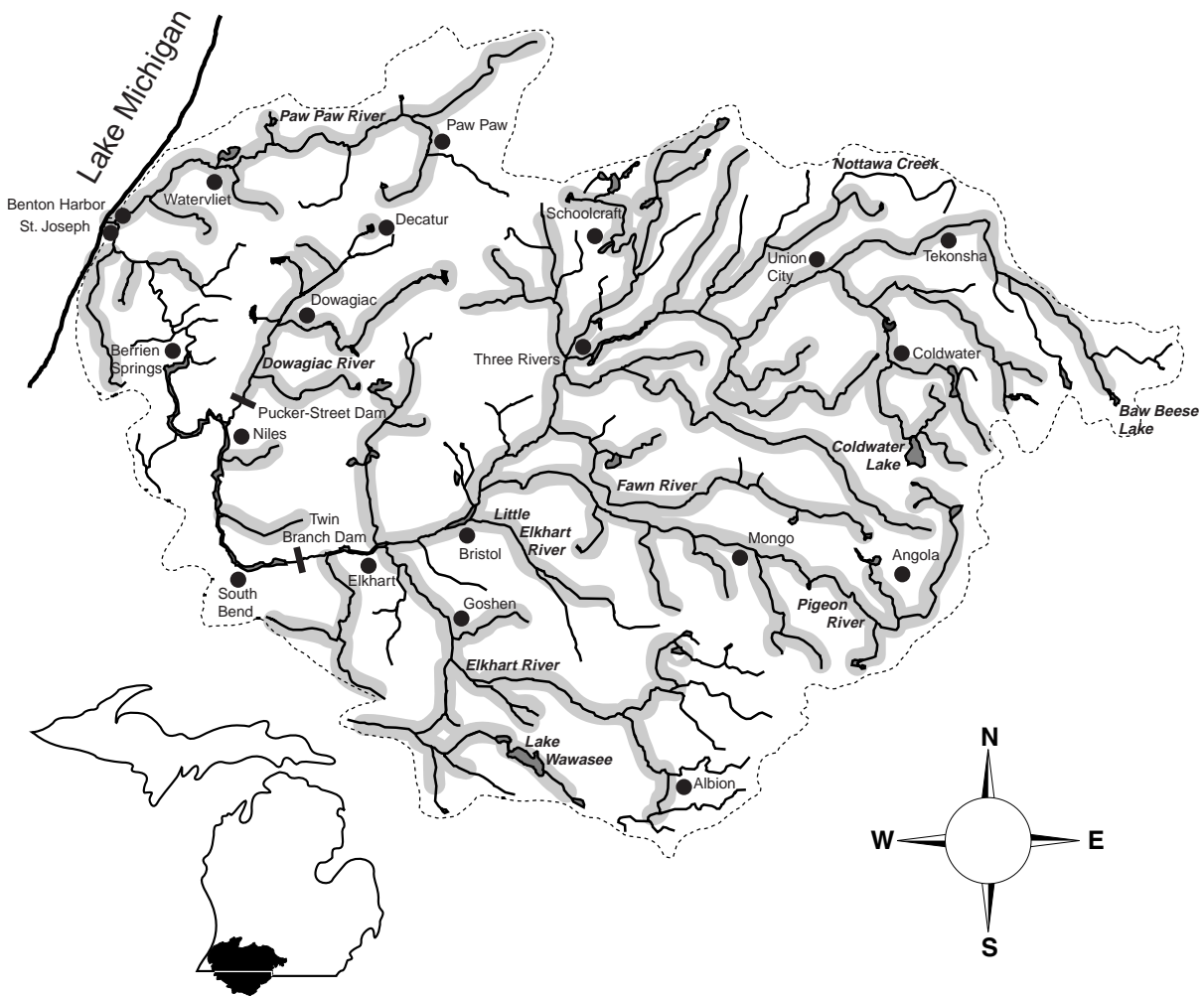
- winter refuge - muddy holes in deep water



Grass pickerel (*Esox americanus vermiculatus*)

Habitat:

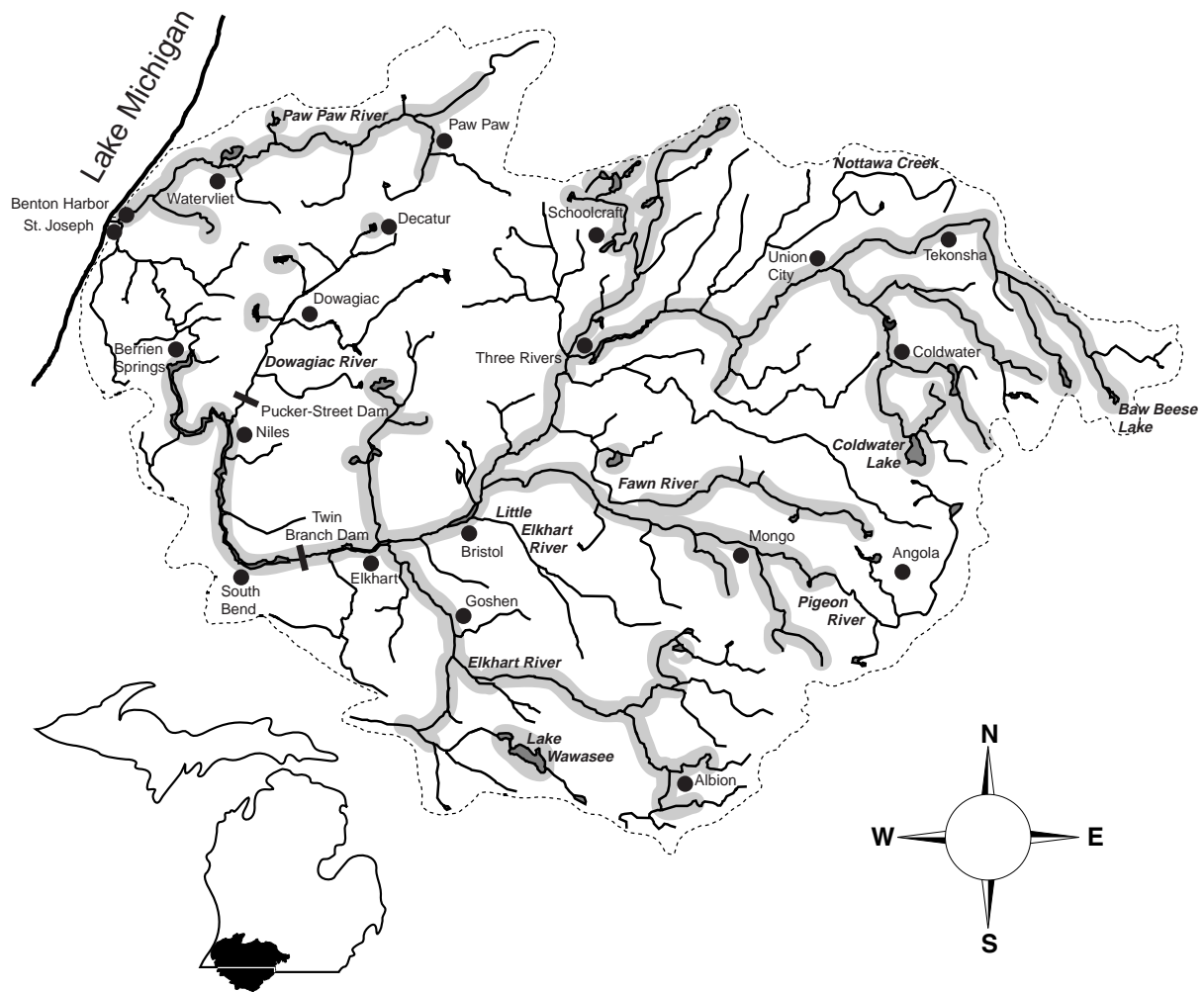
- feeding - juveniles: along shore
 - adults: in deeper portions of streams, rivers, lakes, and impoundments
 - clear water, little current, dense vegetation
 - tolerates low oxygen concentrations
- spawning - broadcast spawner over submerged vegetation



Northern pike (*Esox lucius*)

Habitat:

- feeding - cool to moderately warm streams, rivers, lakes, and impoundments
 - vegetation in slow to moderate current
- spawning - submerged vegetation with slow current in shallow water

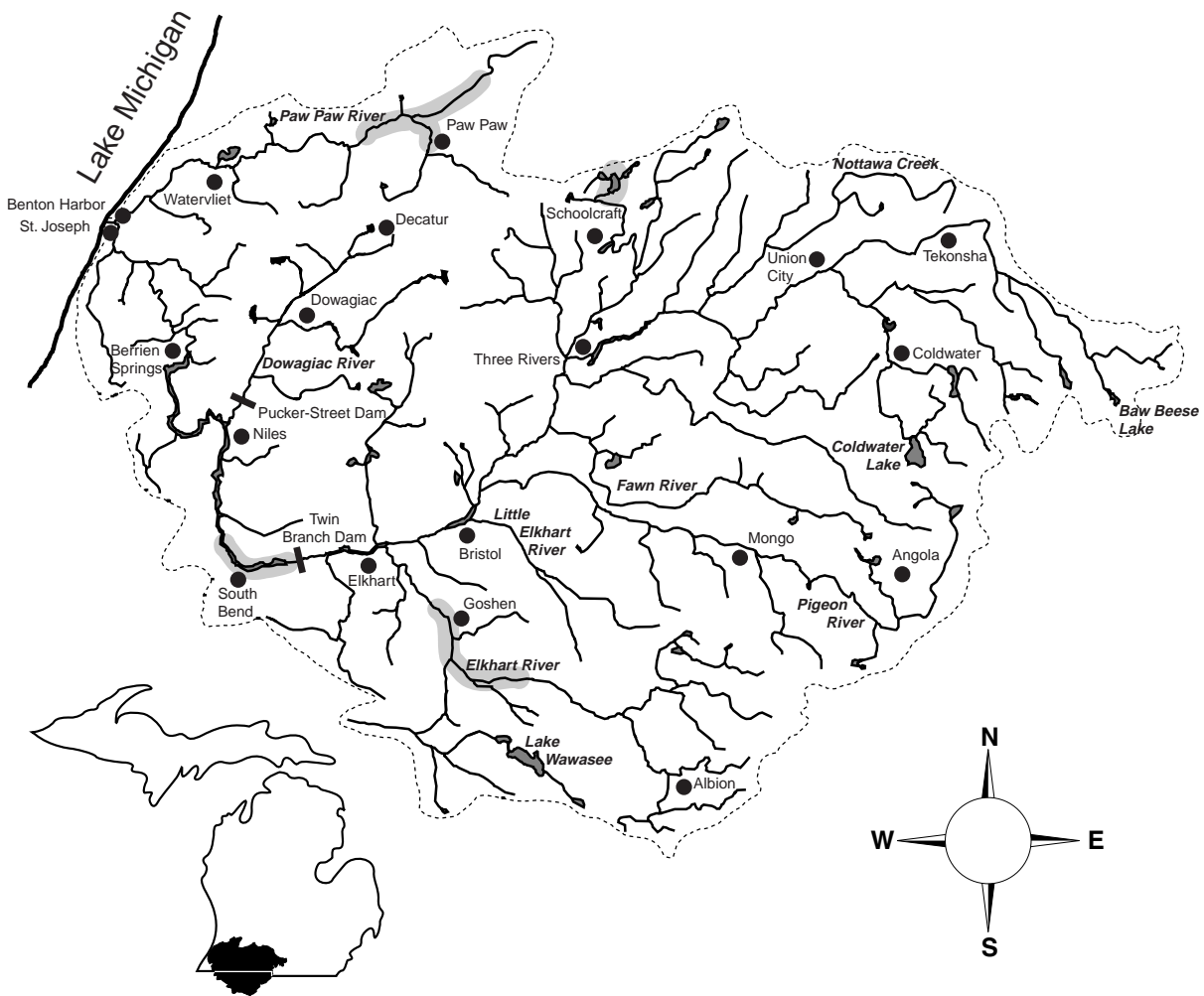


Tiger muskellunge (*Esox masquinongy* x *E. lucius*)

Habitat:

- feeding - intermediate between muskellunge and northern pike

- spawning - hybrid species; muskellunge x northern pike
 - occasionally produced in wild, but most often from hatcheries
 - males are sterile, females may be fertile



Central mudminnow (*Umbra limi*)

Habitat:

- feeding - undisturbed clear, low-gradient streams or rivers and lakes and impoundments
 - organic debris, muck, or peat substrates
 - aquatic vegetation

- spawning - floodplain areas, on vegetation

