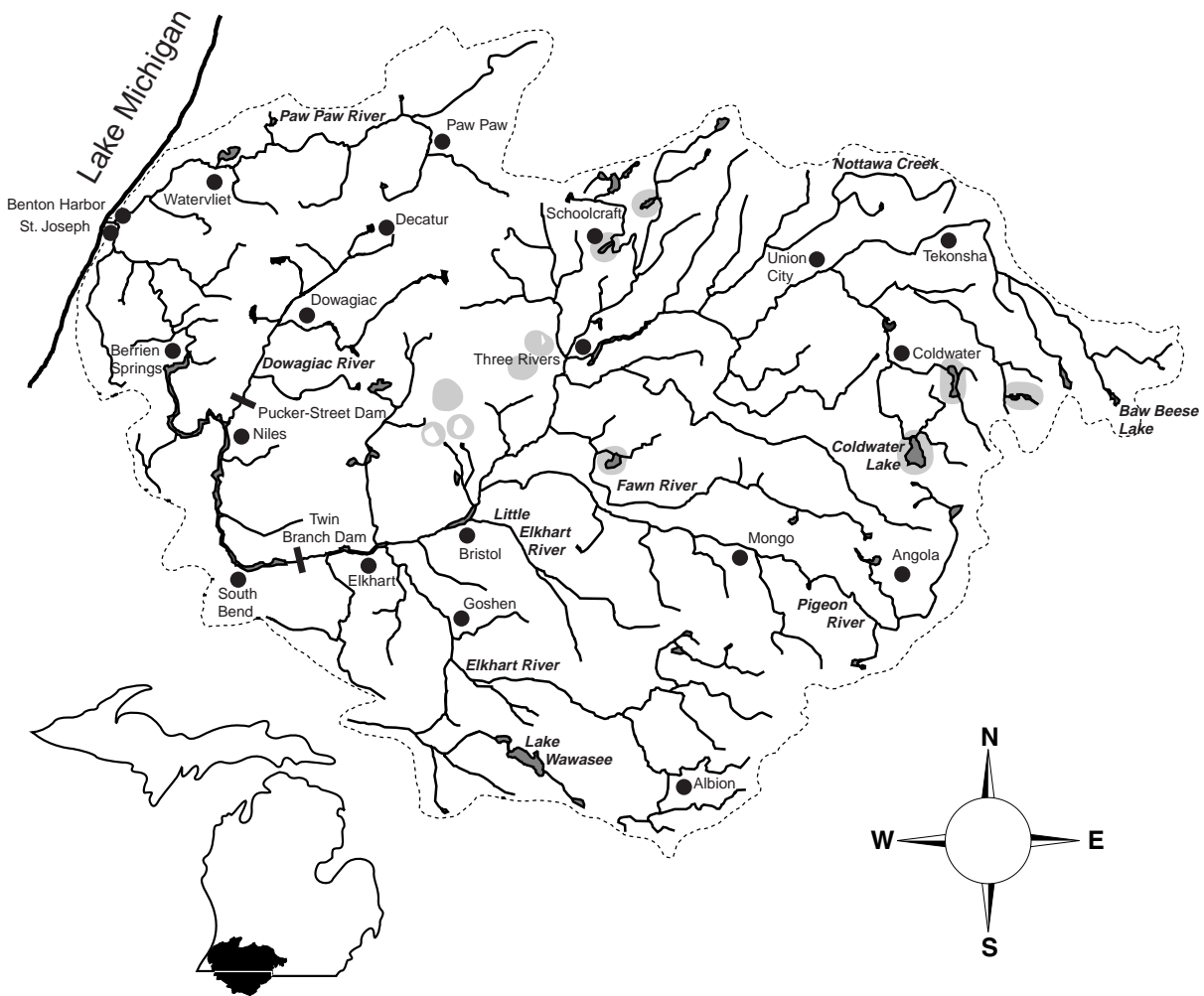


Cisco {Lake herring} (*Coregonus artedii*)

Habitat:

- feeding - deep cool lakes, preferably oligotrophic

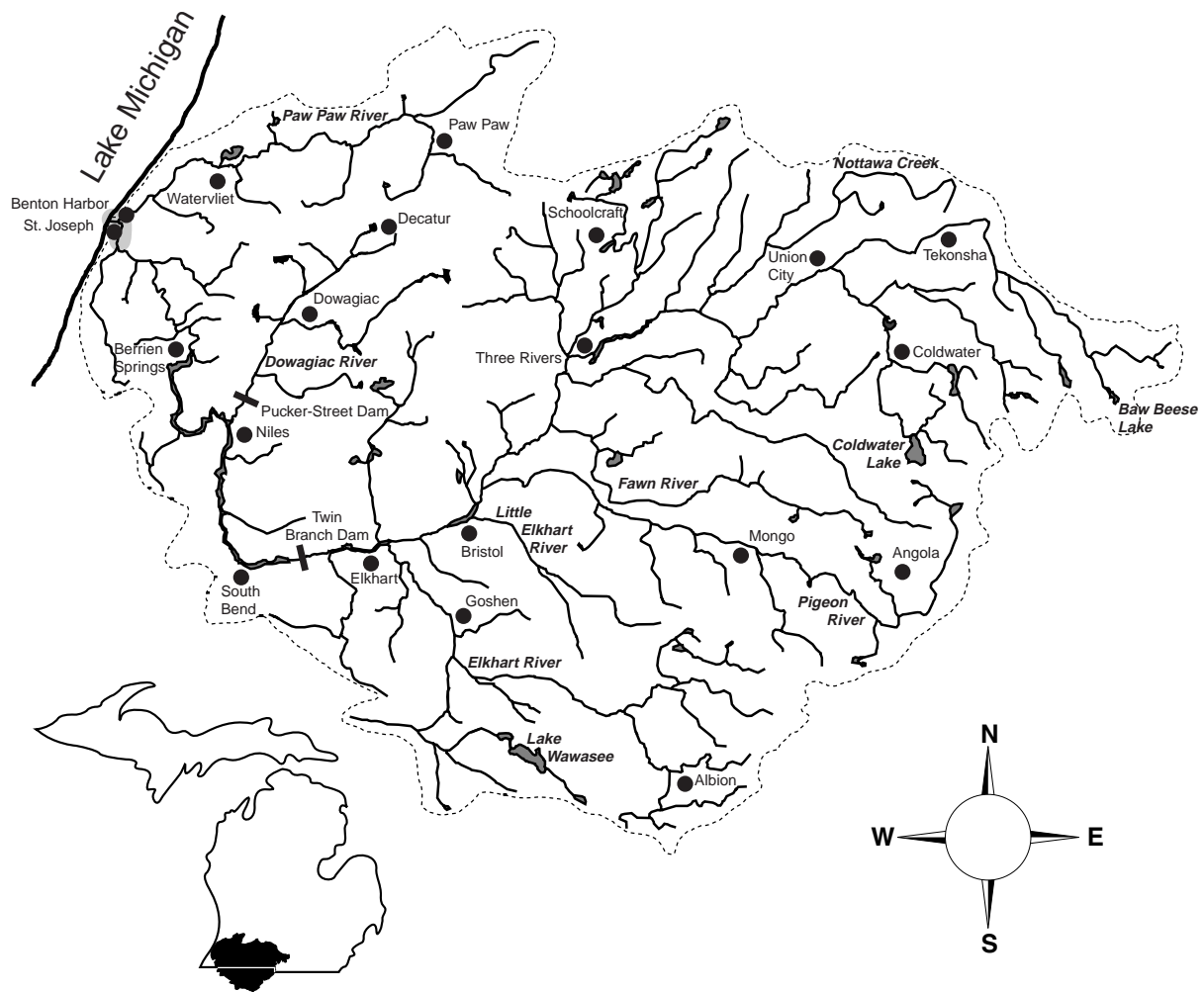
- spawning - usually in lakes
 - 3 to 6 feet of water with no vegetation
 - often over gravel or stony substrate



Lake whitefish (*Coregonus dupeaformis*)

Habitat:

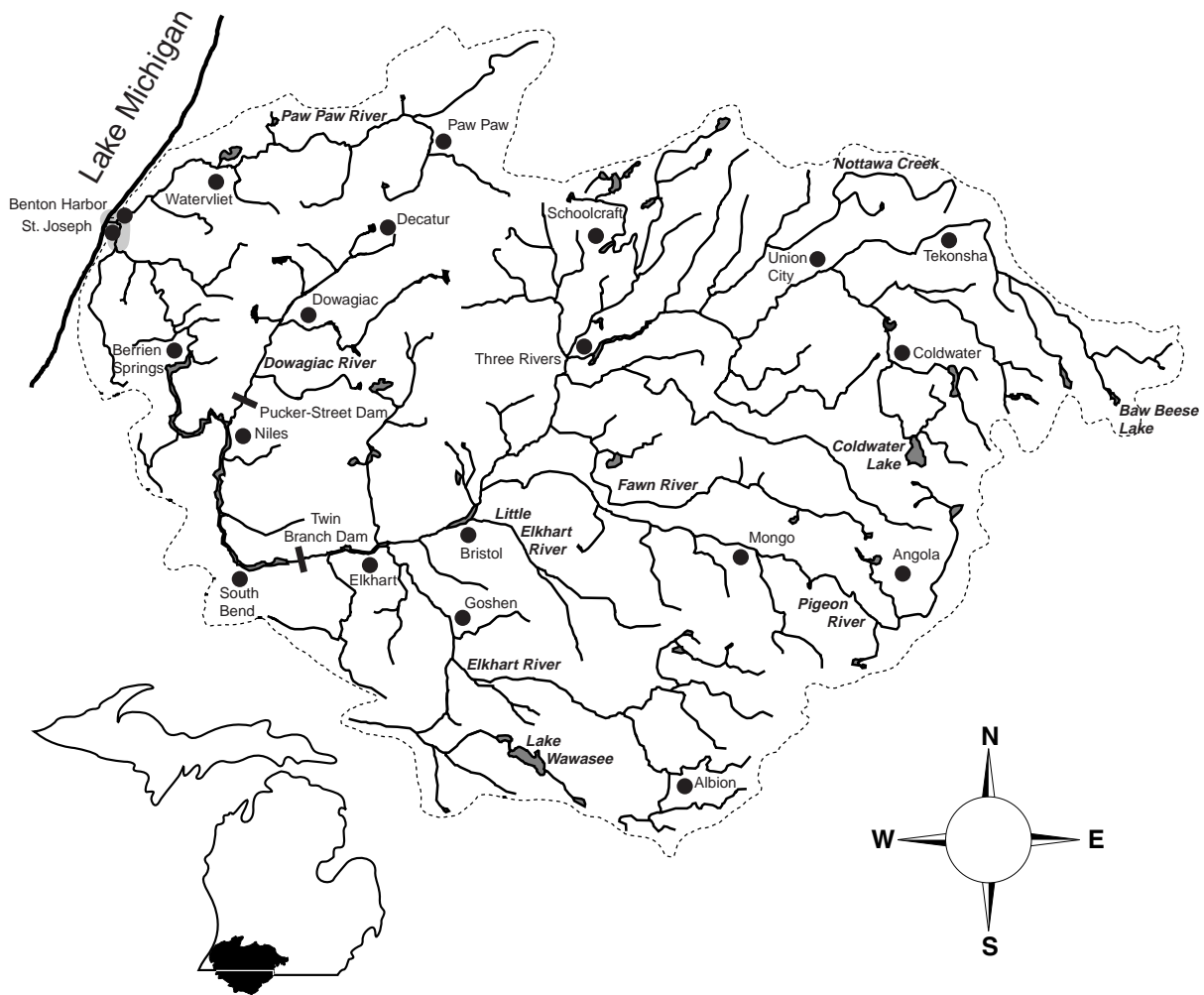
- feeding - cold deep lakes; Lake Michigan
- spawning - shallow water (<25 feet)
 - hard or stony substrate



Pink salmon (*Oncorhynchus gorbuscha*)

Habitat:

- feeding - large cold deep lakes - Lake Michigan
- spawning - gravel substrate in rivers
 - female prepares and guards nest until death

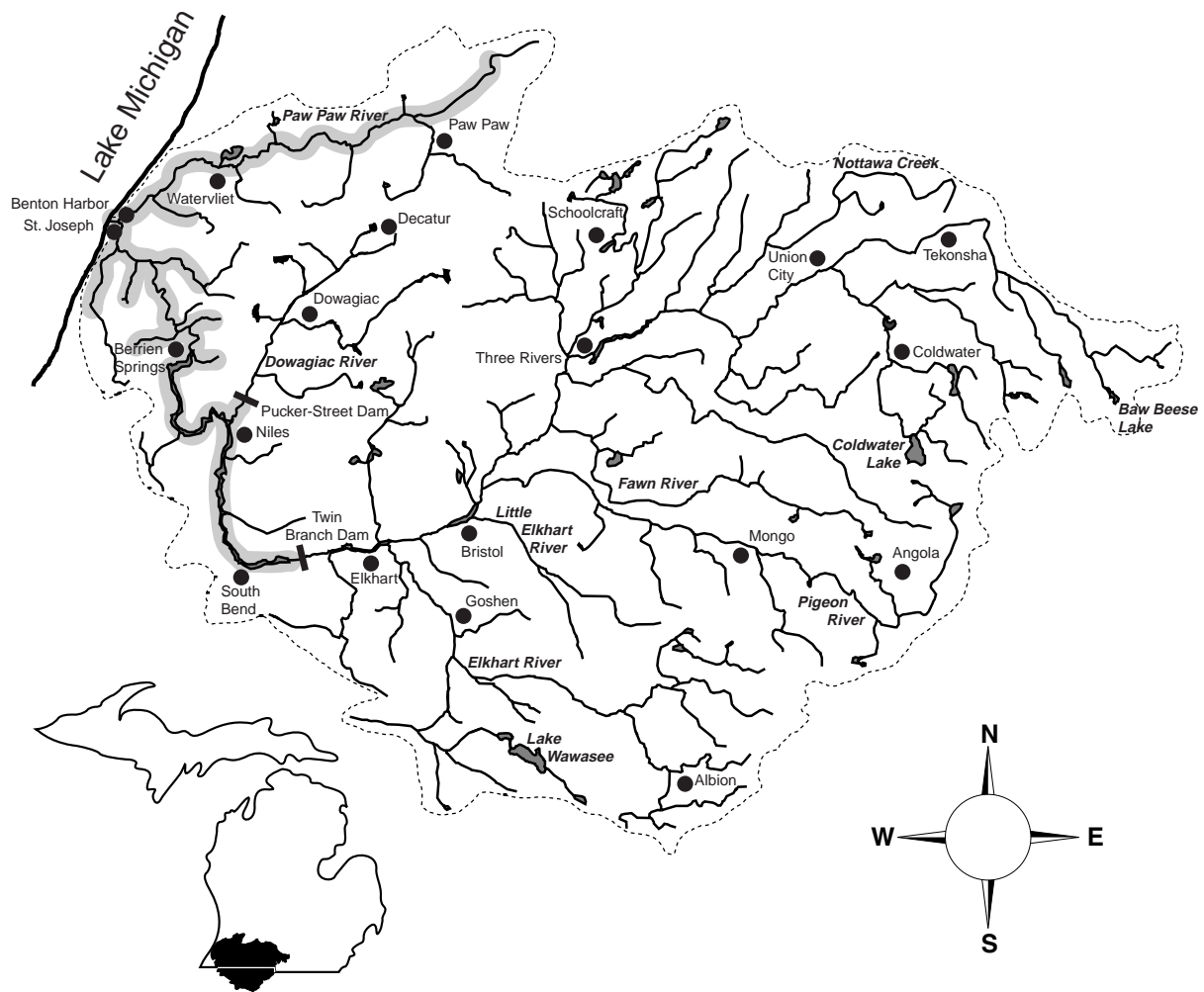


Coho salmon (*Oncorhynchus kisutch*)

Habitat:

- feeding - adults: Lake Michigan
- young: shallow gravel substrate in cold streams, later into pools

- spawning - cold streams and rivers
- swifter water of shallow gravelly substrate

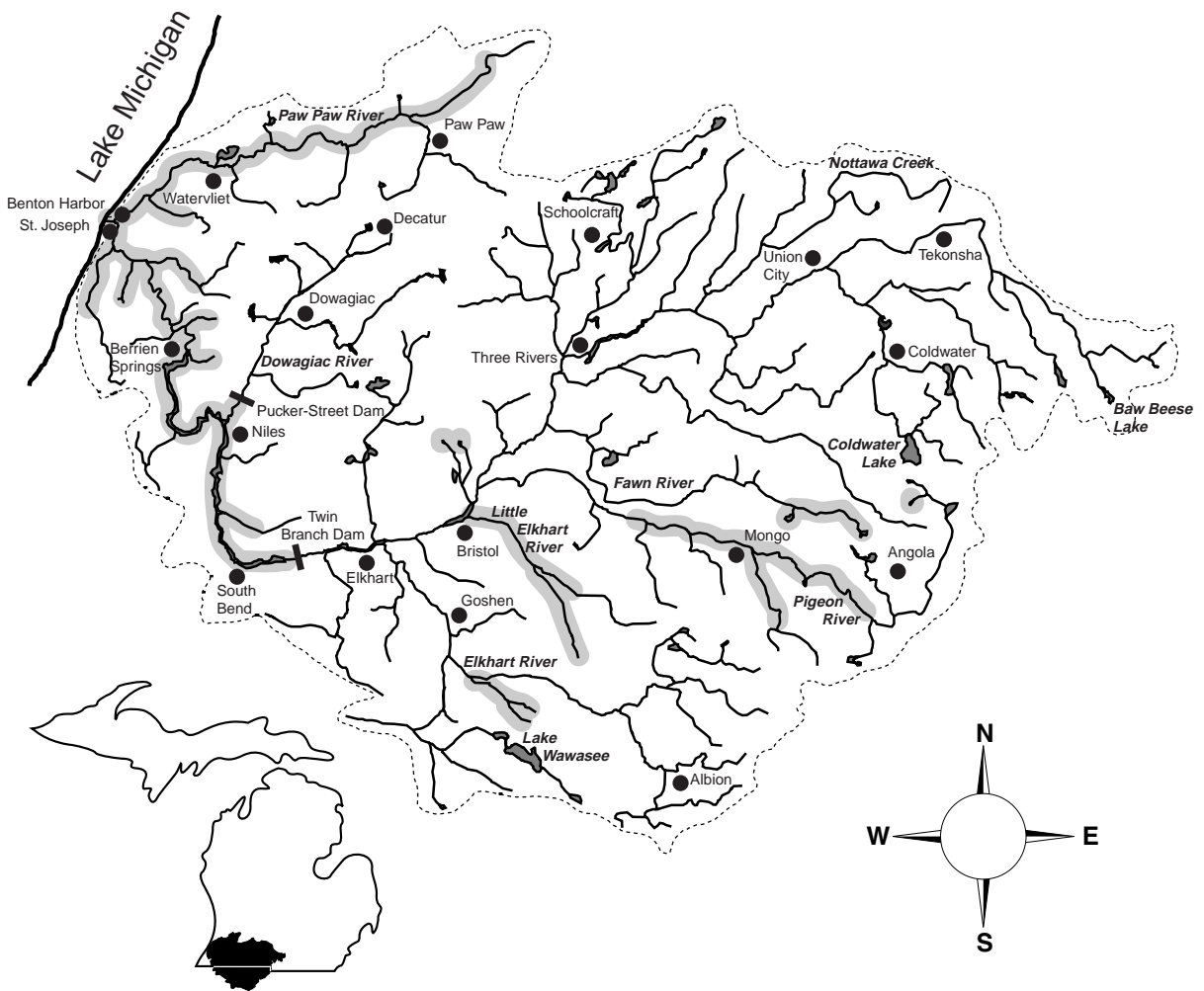


Rainbow trout (*Oncorhynchus mykiss*)

Habitat:

- feeding - cold clear water of rivers and Lake Michigan
- moderate current

- spawning - gravelly riffles above a pool
- smaller tributaries

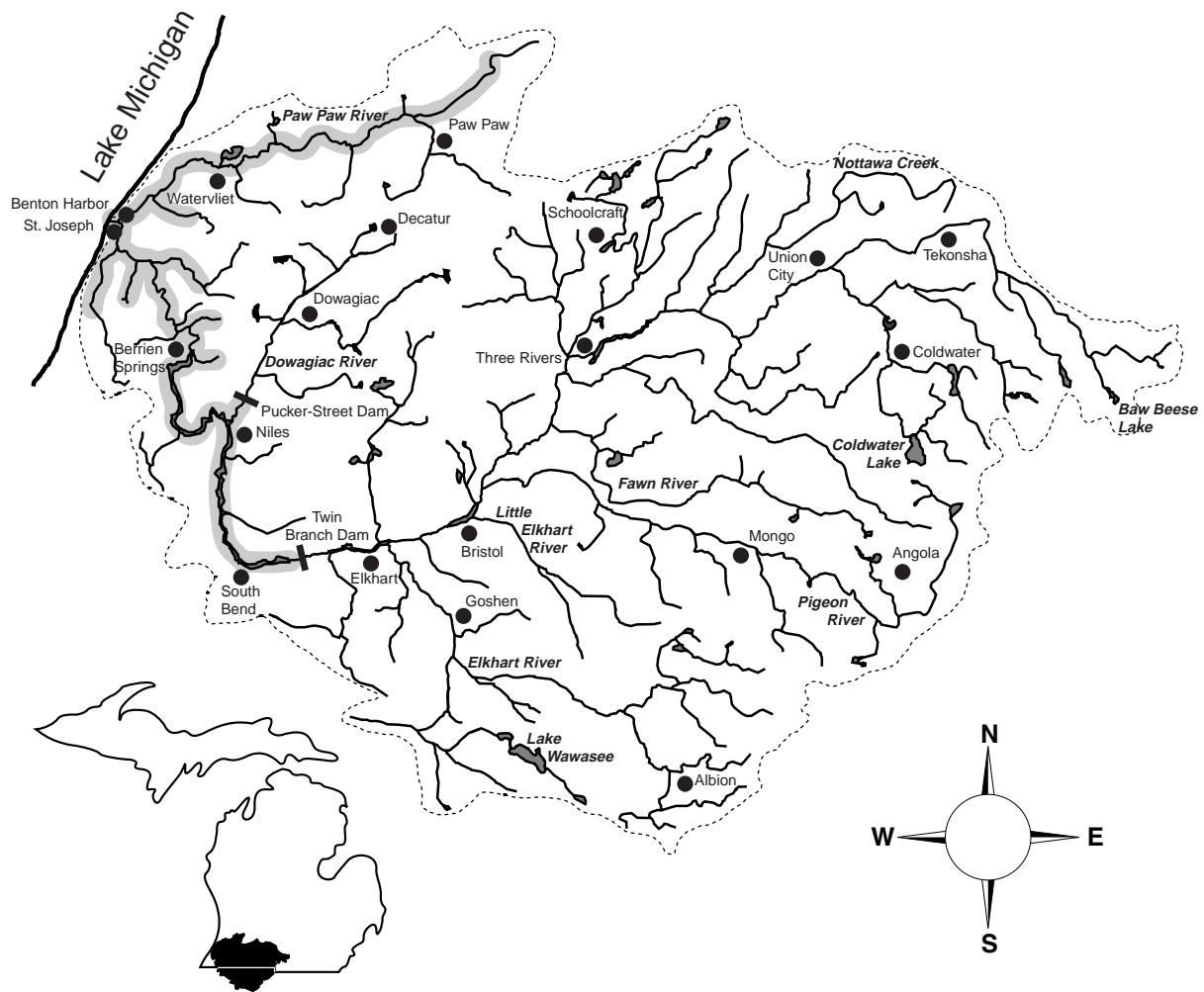


Chinook salmon (*Oncorhynchus tshawytscha*)

Habitat:

- feeding - adults: Lake Michigan
- young: shallow gravel substrate in cool streams, later into pools

- spawning - gravelly substrate in cool streams

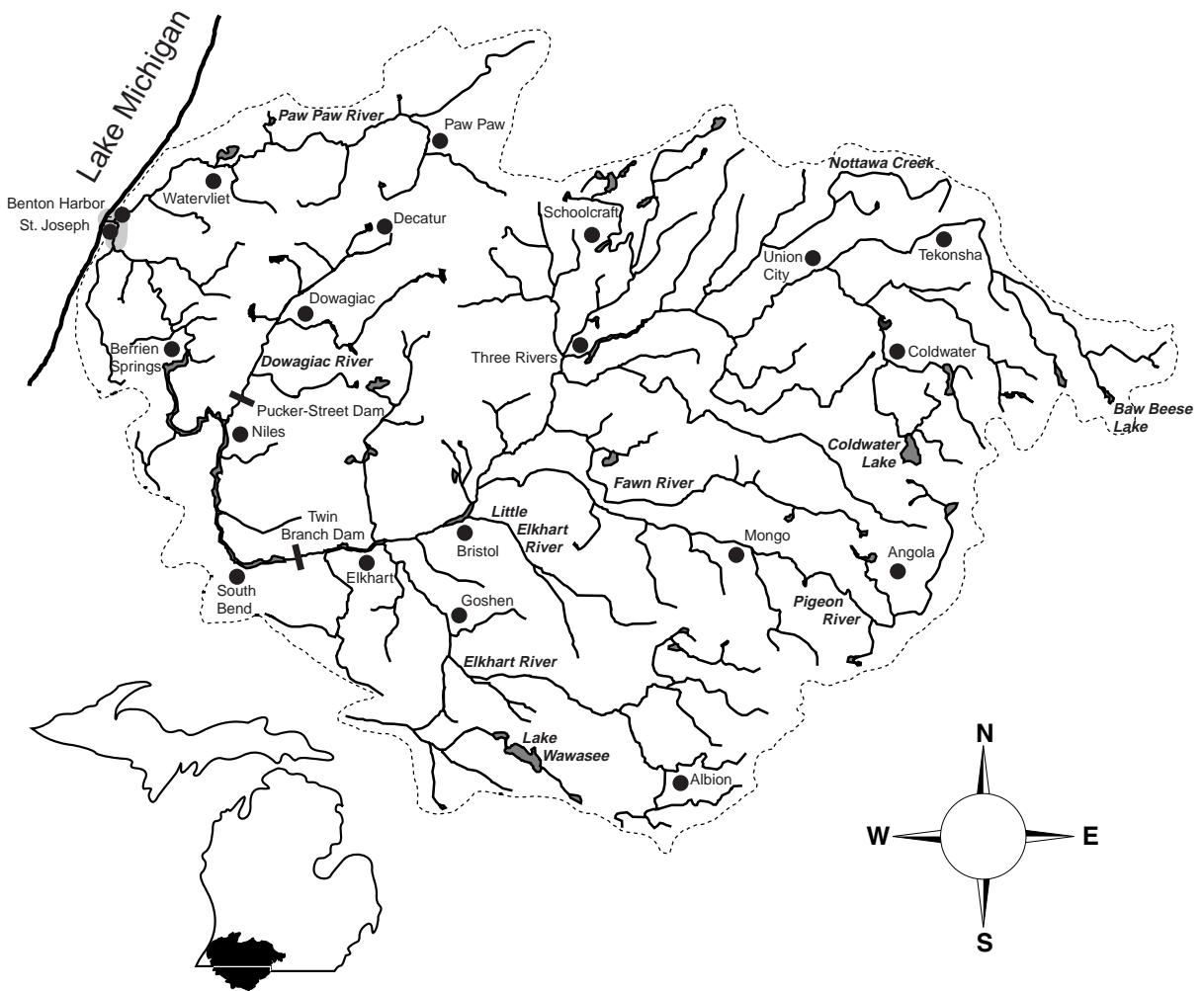


Round whitefish (*Prosopium cylindraceum*)

Habitat:

- feeding - lakes, rivers, and streams

- spawning - shallows of lakes and rivers
 - gravel or rock substrate

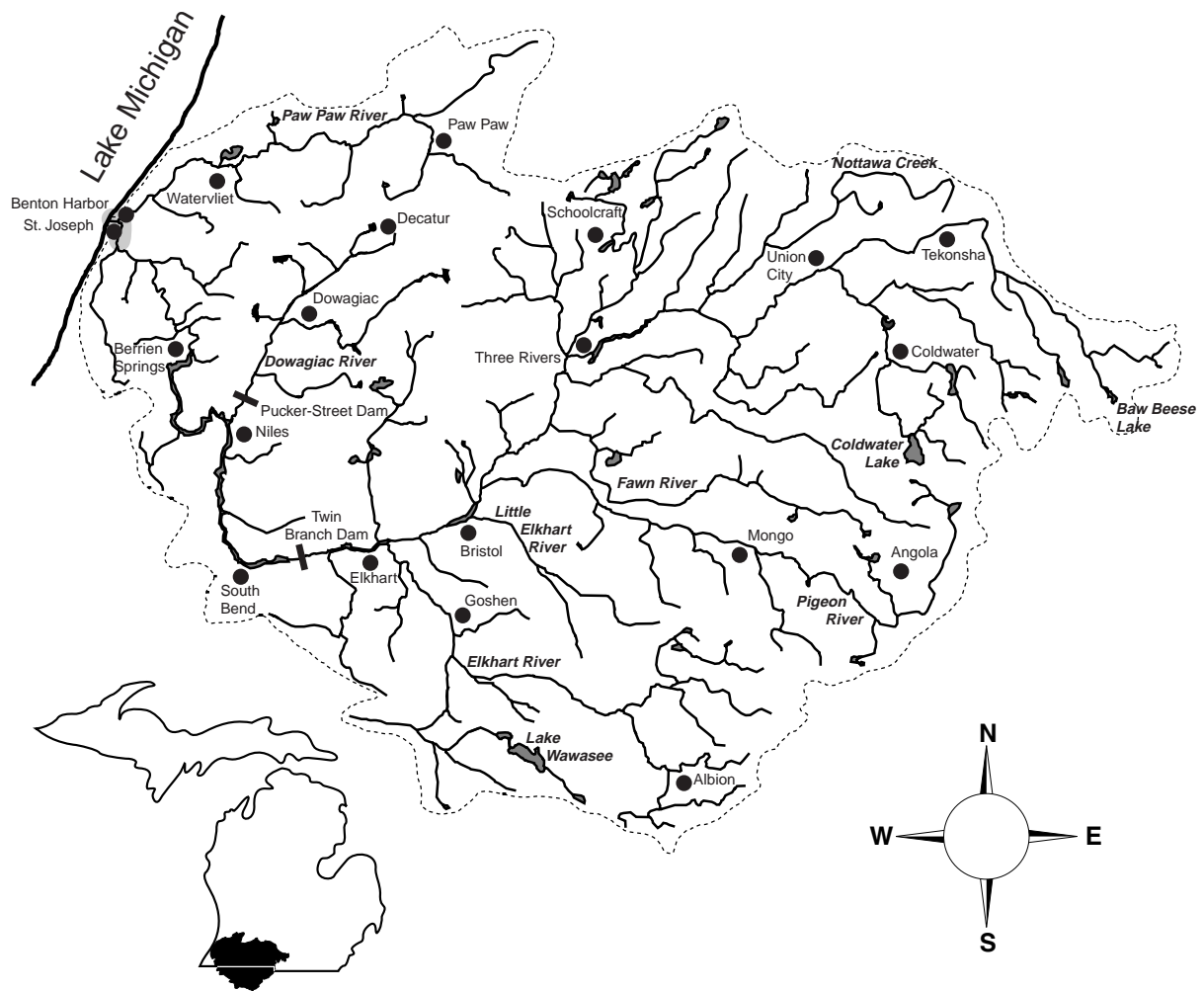


Atlantic salmon (*Salmo salar*)

Habitat:

- feeding - young: gravel substrate streams
- adults: Lake Michigan

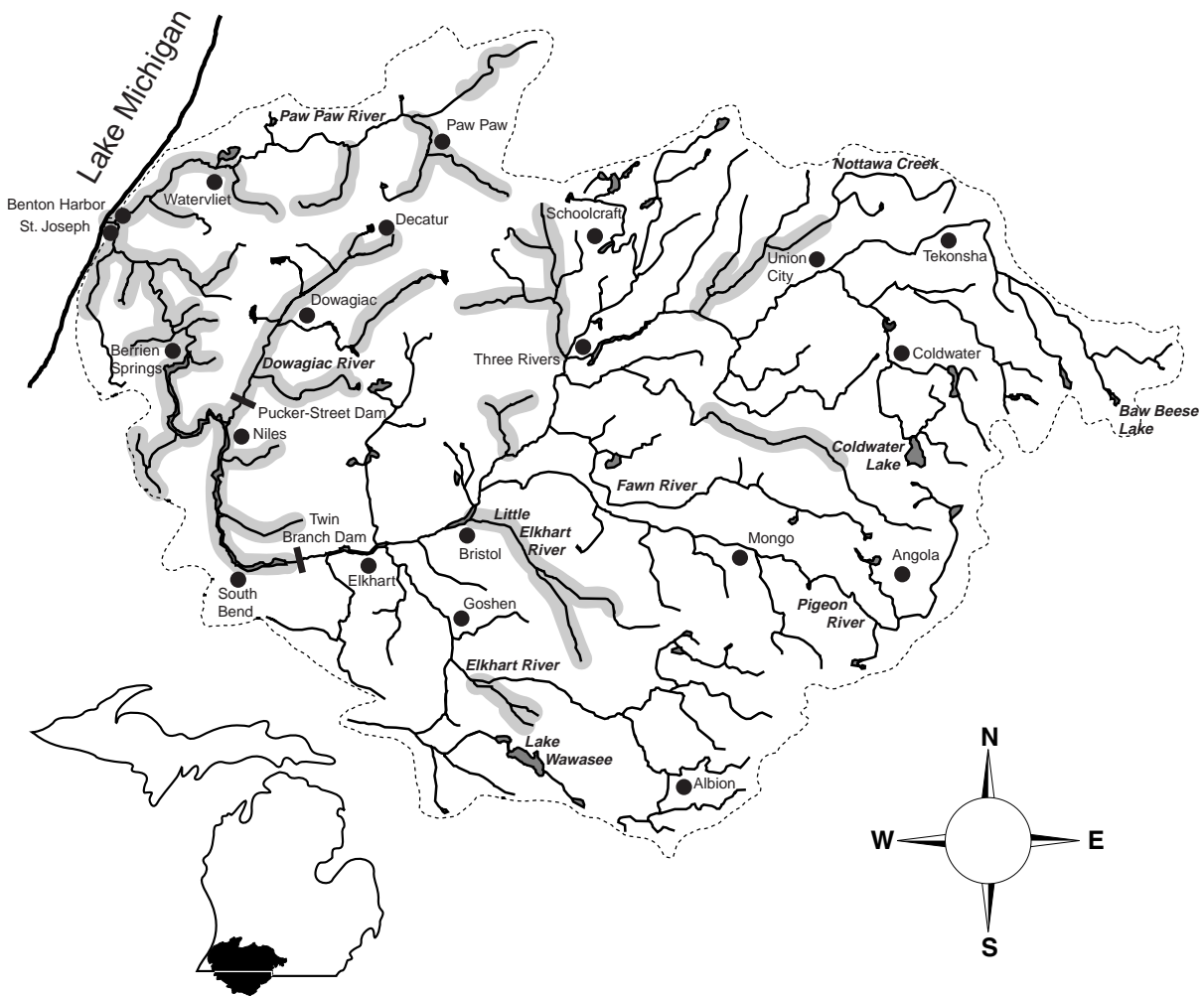
- spawning - streams and rivers
- nests in gravel substrate
- swift current



Brown trout (*Salmo trutta*)

Habitat:

- feeding - cold, clear streams, rivers, and lakes (not >72°F)
 - medium to swift current in streams
 - does not tolerate silt well
 - prefers few individuals and species around
 - abundance of aquatic and land insects
- spawning - gravelly riffles; shallow headwater areas

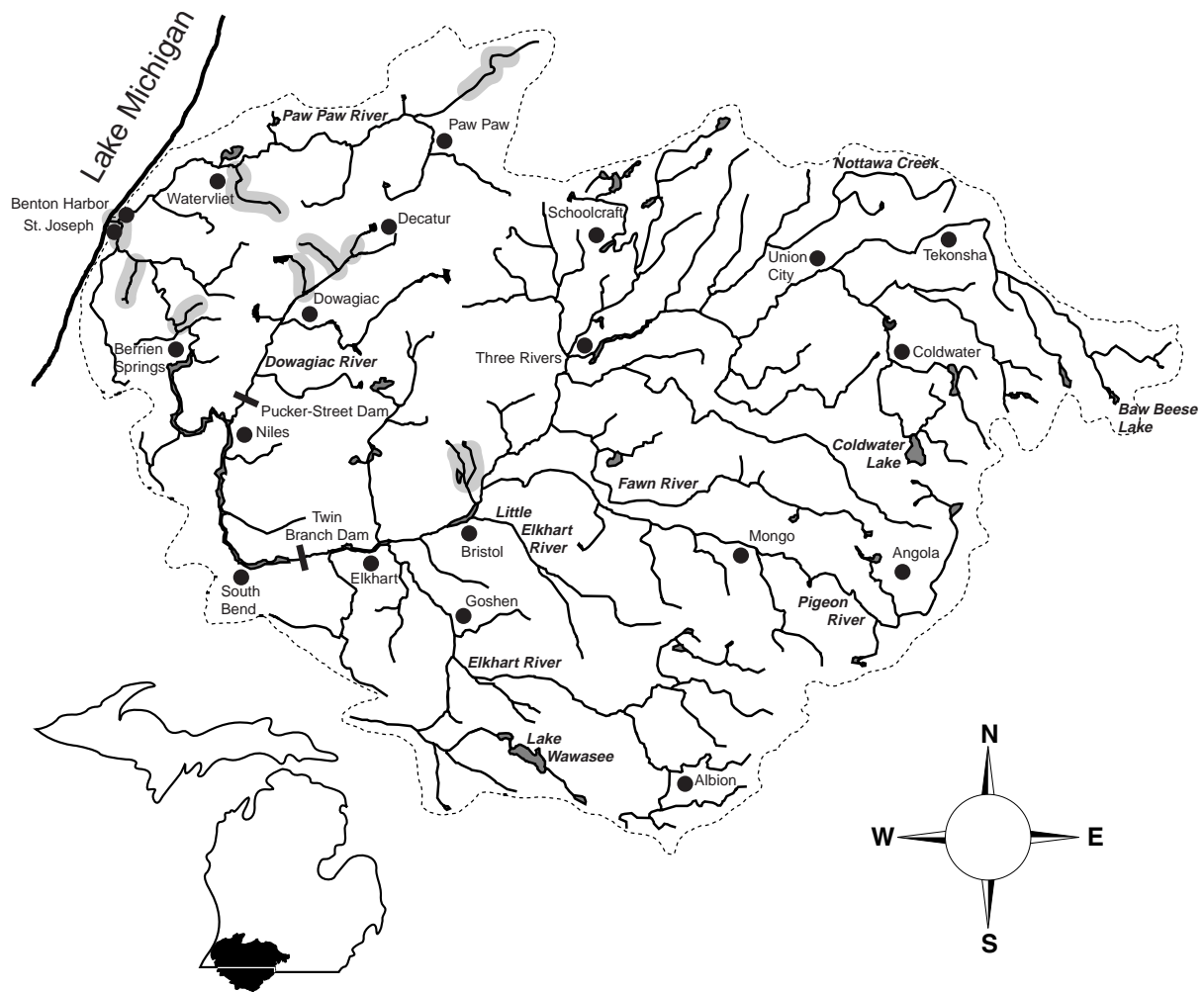


Brook trout (*Salvelinus fontinalis*)

Habitat:

- feeding - cold, clear streams, rivers, and lakes (not >72°F)
- low current
- well oxygenated water

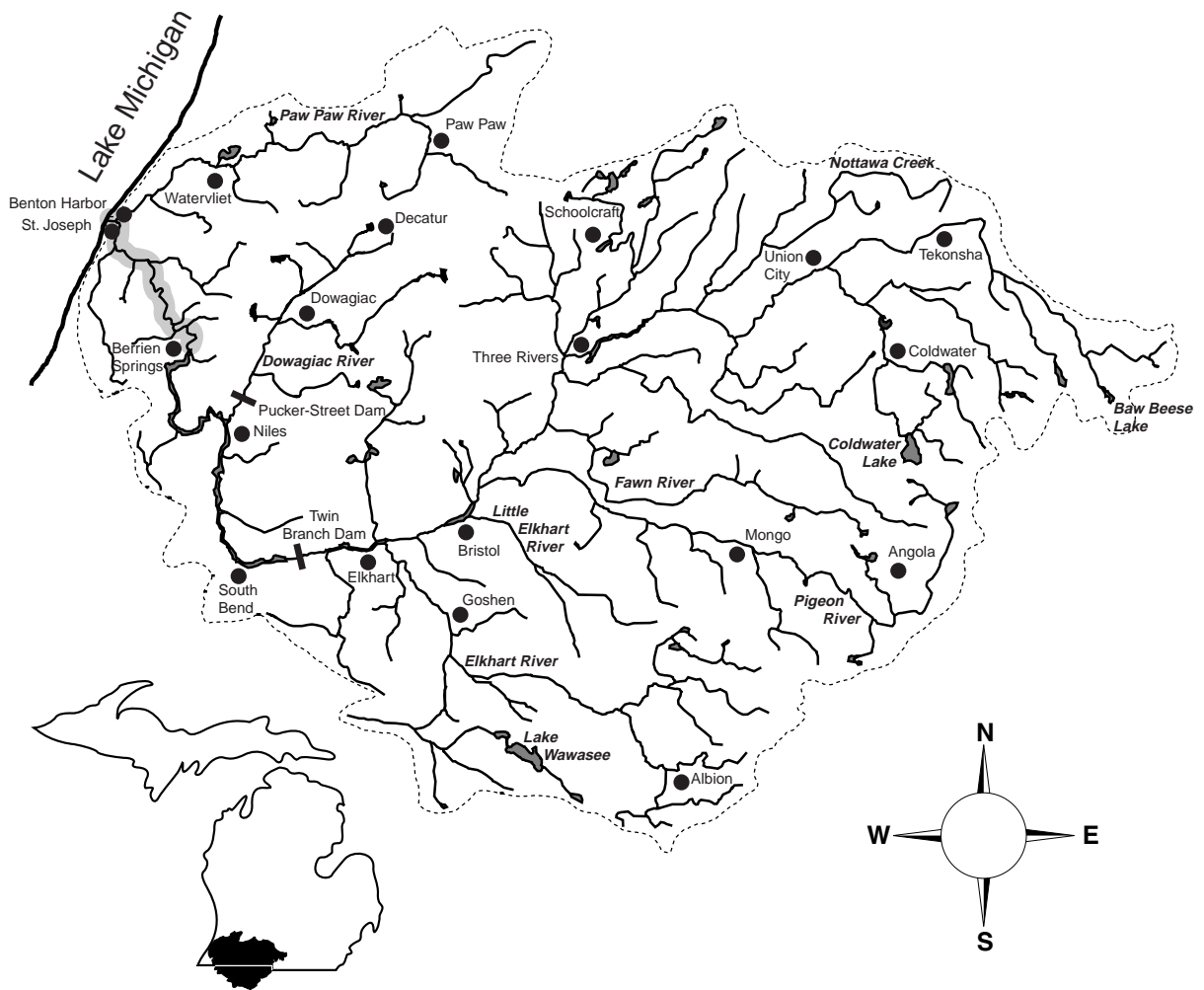
- spawning - gravelly riffles; shallow or headwater streams



Lake trout (*Salvelinus namaycush*)

Habitat:

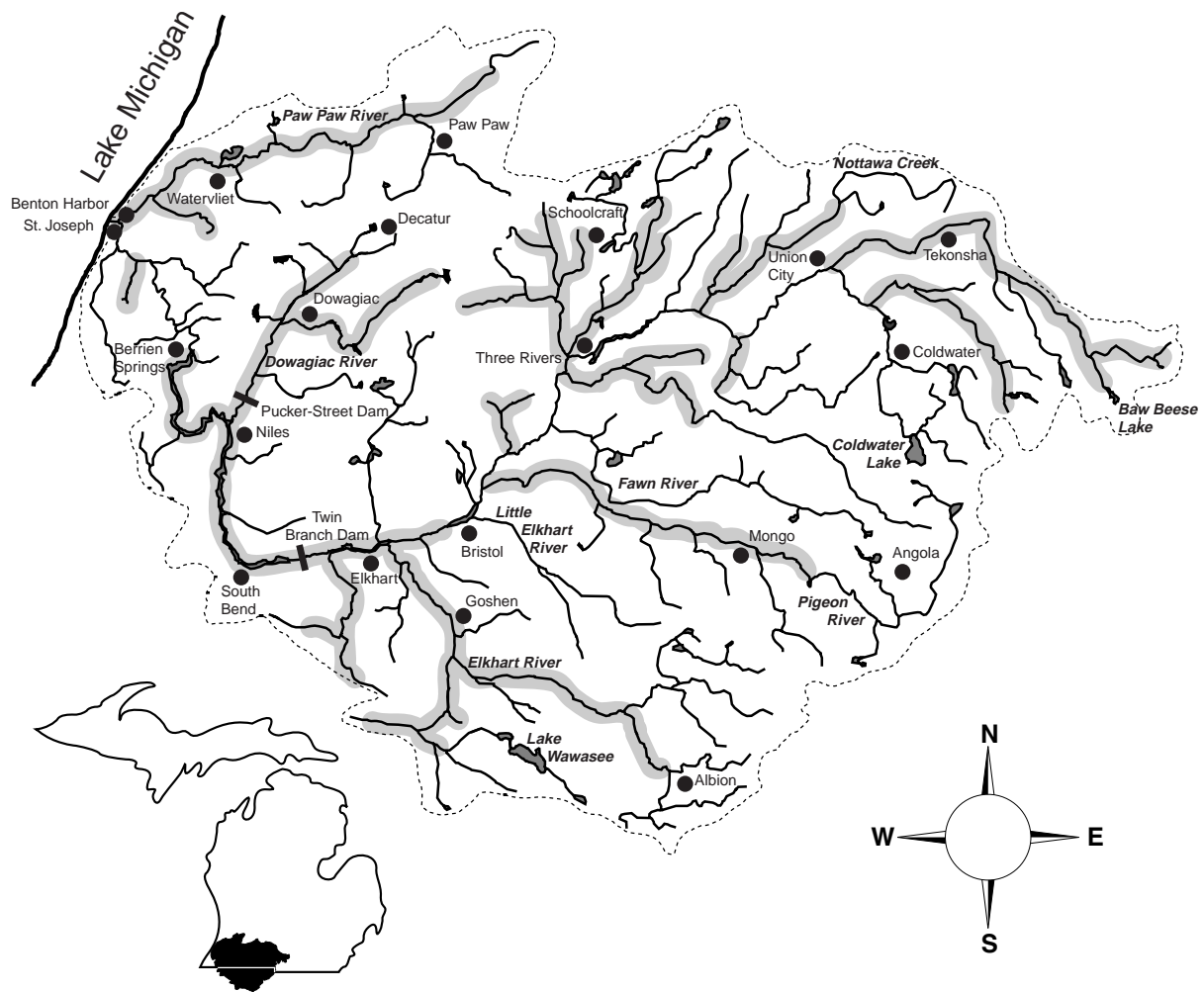
- feeding - cold lakes and rivers
- spawning - large boulder or rubble substrate
- shallow water of lakes and rivers



Pirate perch (*Aphredoderus sayanus*)

Habitat:

- feeding - oxbows, overflow ponds, marshes, estuaries, pools
- medium to large rivers
- low gradient, less than 3ft/mi
- sand or muck substrates covered with organic debris
- pools bordered by emergent aquatic vegetation
- clear, warm, quiet water

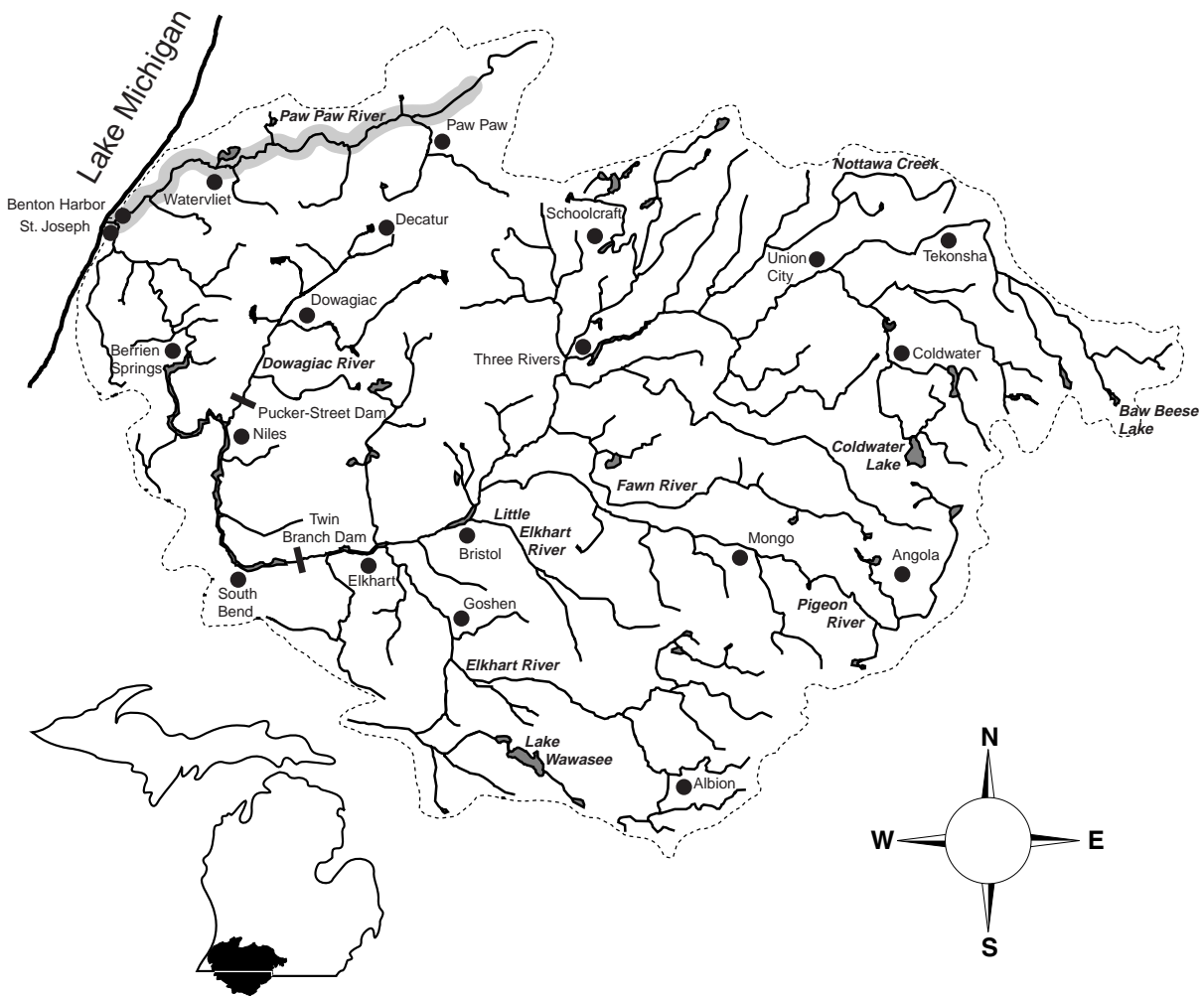


Burbot (*Lota lota*)

Habitat:

- feeding - deep cold lakes and large cool rivers
- mud, sand, rubble, boulder, silt, and gravel substrates

- spawning - in 1 to 4 feet of water in shallow bays or on shoals 5-10 feet deep usually in lakes, sometimes rivers
- over sand or gravel substrate
- under ice

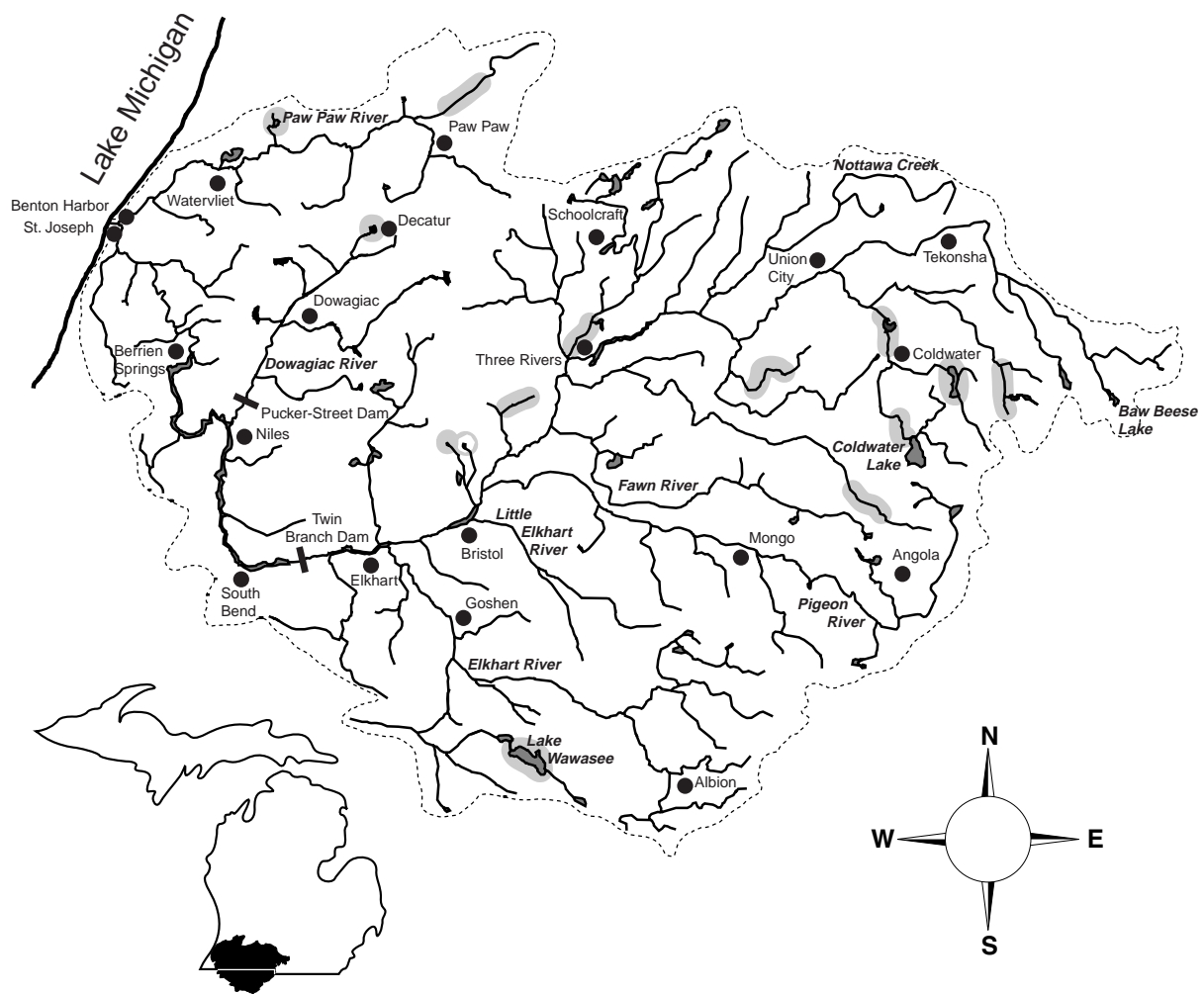


Banded killifish (*Fundulus diaphanus*)

Habitat:

- feeding - quiet backwaters at the mouths of streams and lakes
- substrate of sand, gravel, and a few boulders
- also found over detritus substrate where patches of submerged aquatic vegetation are present

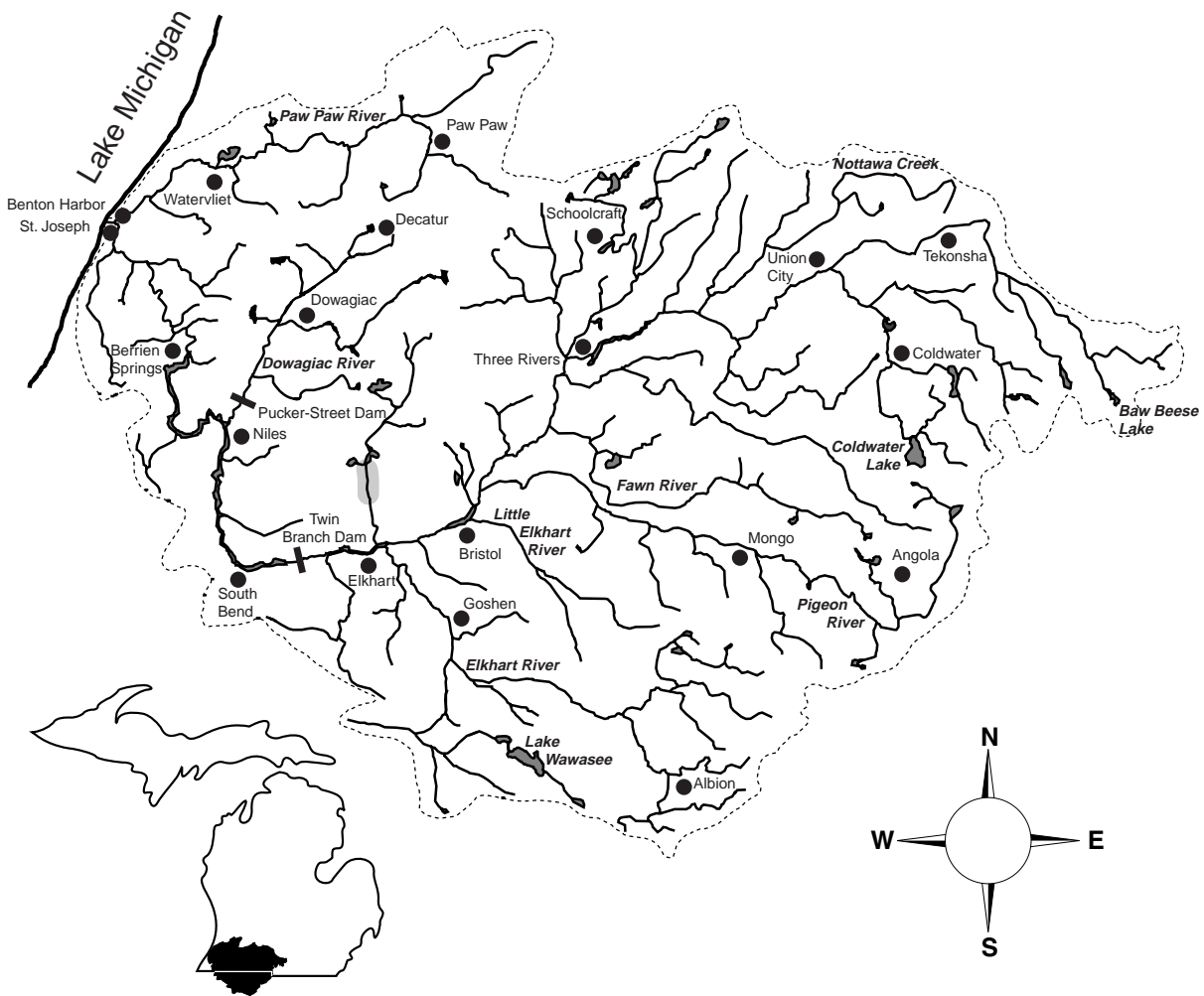
spawning - quiet areas of weedy pools



Starhead topminnow (*Fundulus dispar*)

Habitat:

- feeding - clear, warm pools in streams and rivers; also lakes
 - does not tolerate turbidity
 - most frequently at surface
-
- spawning - in and around aquatic vegetation or over gravel substrate with a moderate current



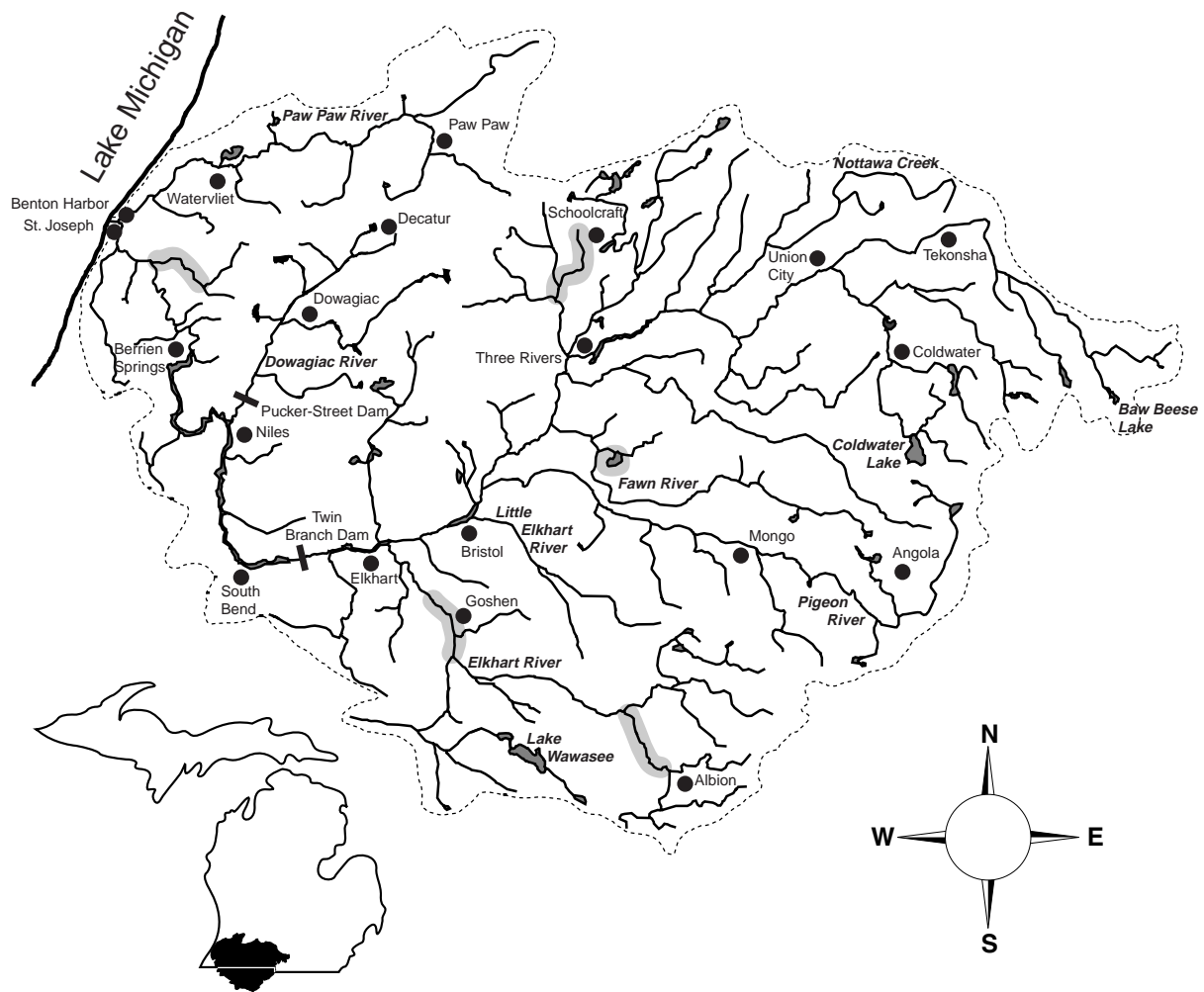
Blackstripe topminnow (*Fundulus notatus*)

Habitat:

- feeding - clear waters of lakes, impoundments and in low-gradient streams
- aquatic or submerged land vegetation
- somewhat tolerant of turbid water

spawning - in vegetation or algae

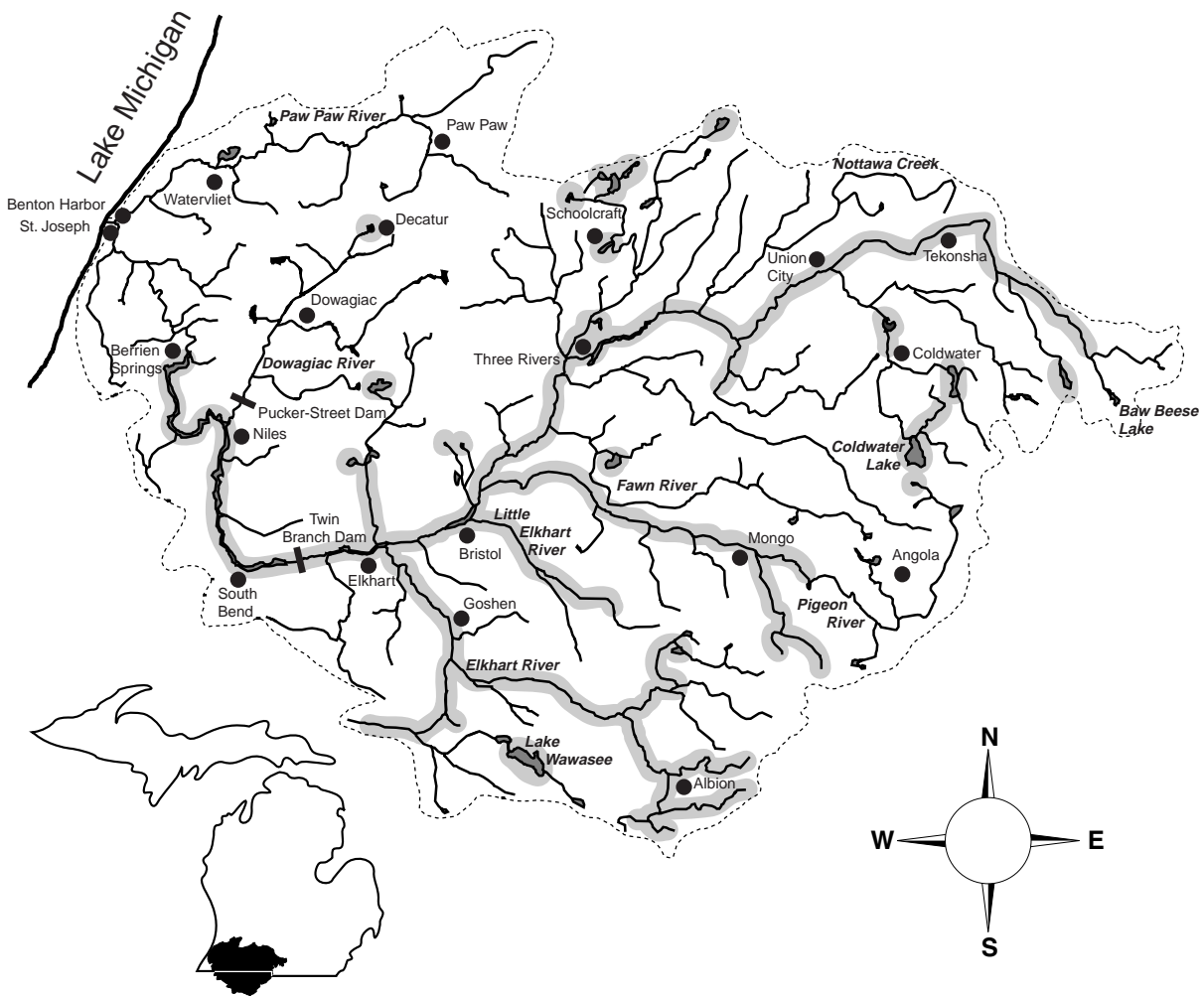
winter refuge - in deeper water with bottom vegetation



Brook silverside (*Labidesthes sicculus*)

Habitat:

- feeding - clear, warm pools in streams and rivers; also lakes
 - does not tolerate turbidity
 - most frequently at surface
-
- spawning - in and around aquatic vegetation or over gravel substrate with a moderate current

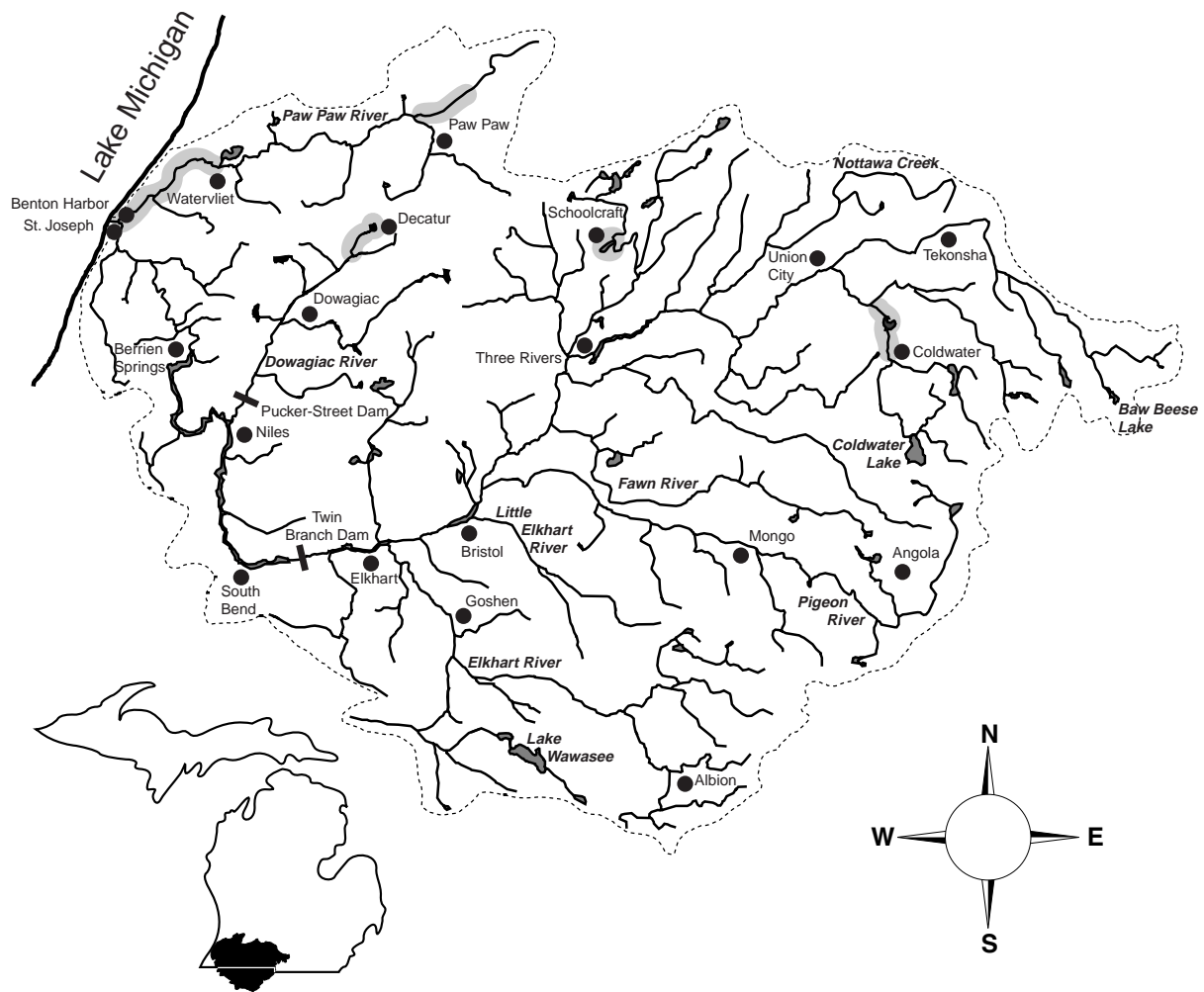


Brook stickleback (*Clupea inconstans*)

Habitat:

- feeding - clear, cold, densely vegetated streams, and swampy margins of lakes
- low gradient
- muck, peat, or marl substrate
- not tolerant of turbidity

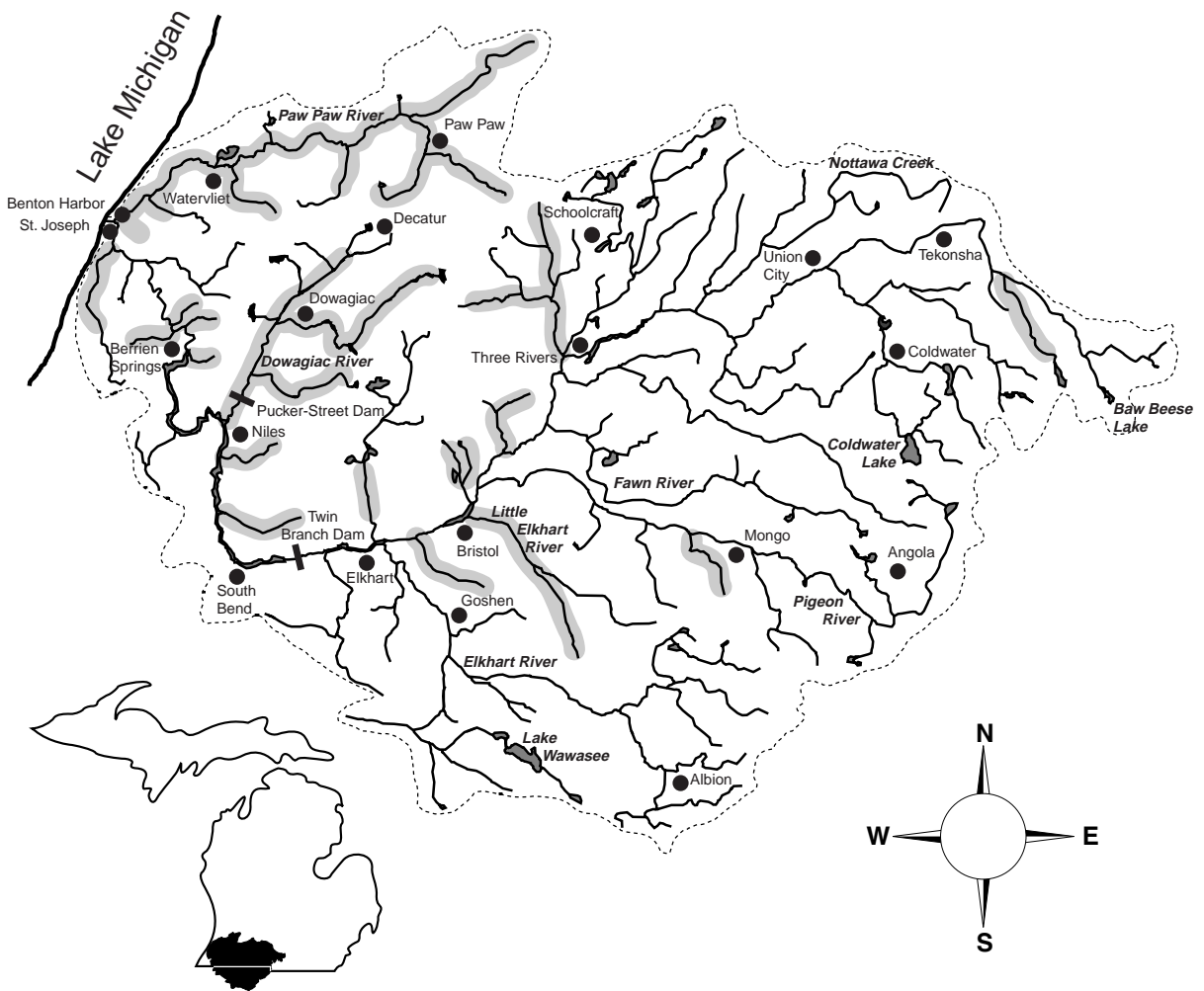
- spawning - shallow cool (<66°F) water
- aquatic reeds or grasses necessary



Mottled sculpin (*Cottus bairdi*)

Habitat:

- feeding - cool to cold streams
 - riffle and rock substrates preferred
 - clear to slightly turbid shallow water
-
- spawning - nests under logs or rock

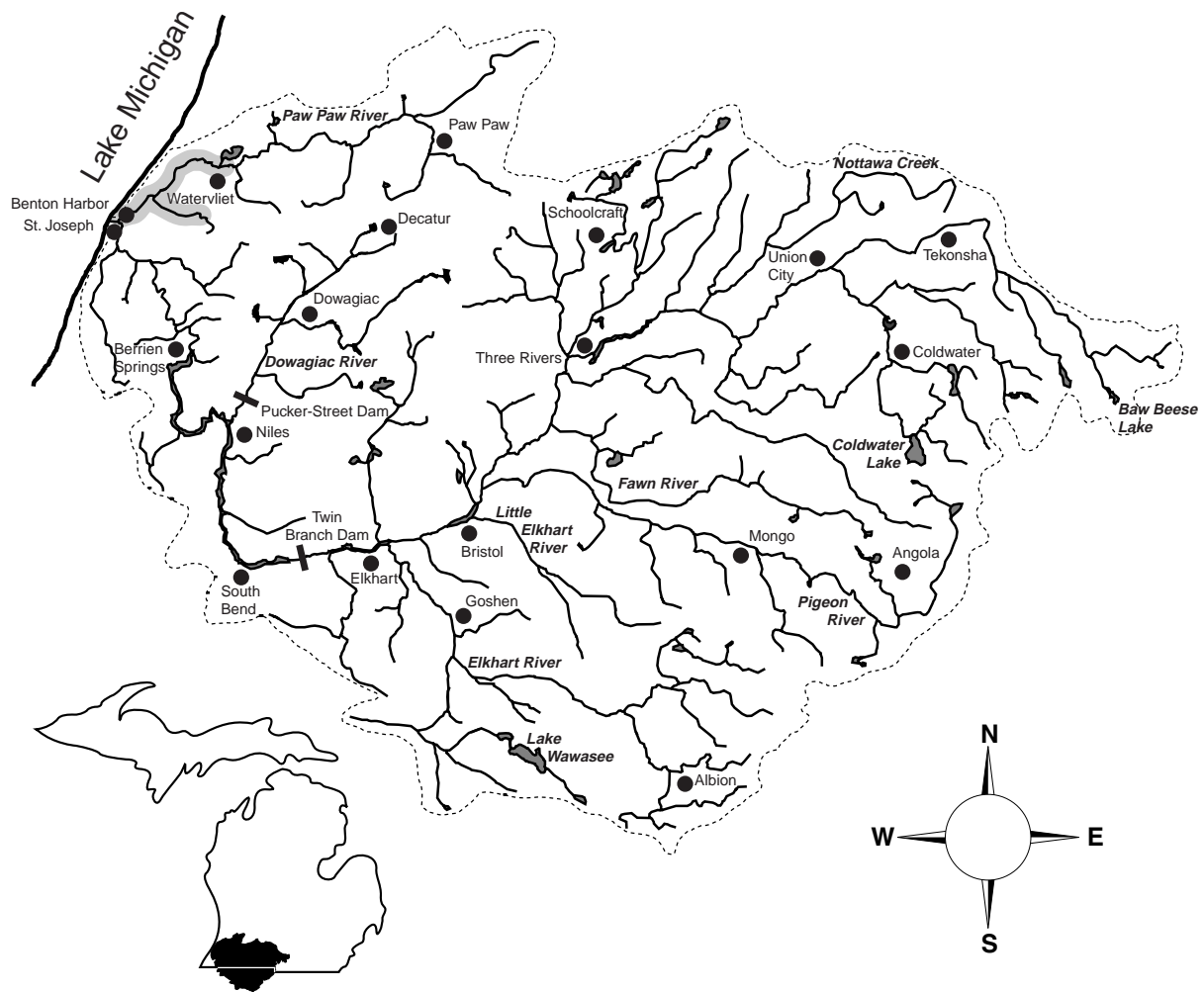


Slimy sculpin (*Cottus cognatus*)

Habitat:

- feeding - cool lakes, impoundments, rivers, and streams
- gravel or rock substrate

- spawning - nest in shallow areas of lakes
- gravel substrate or rock ledge
- male parental care



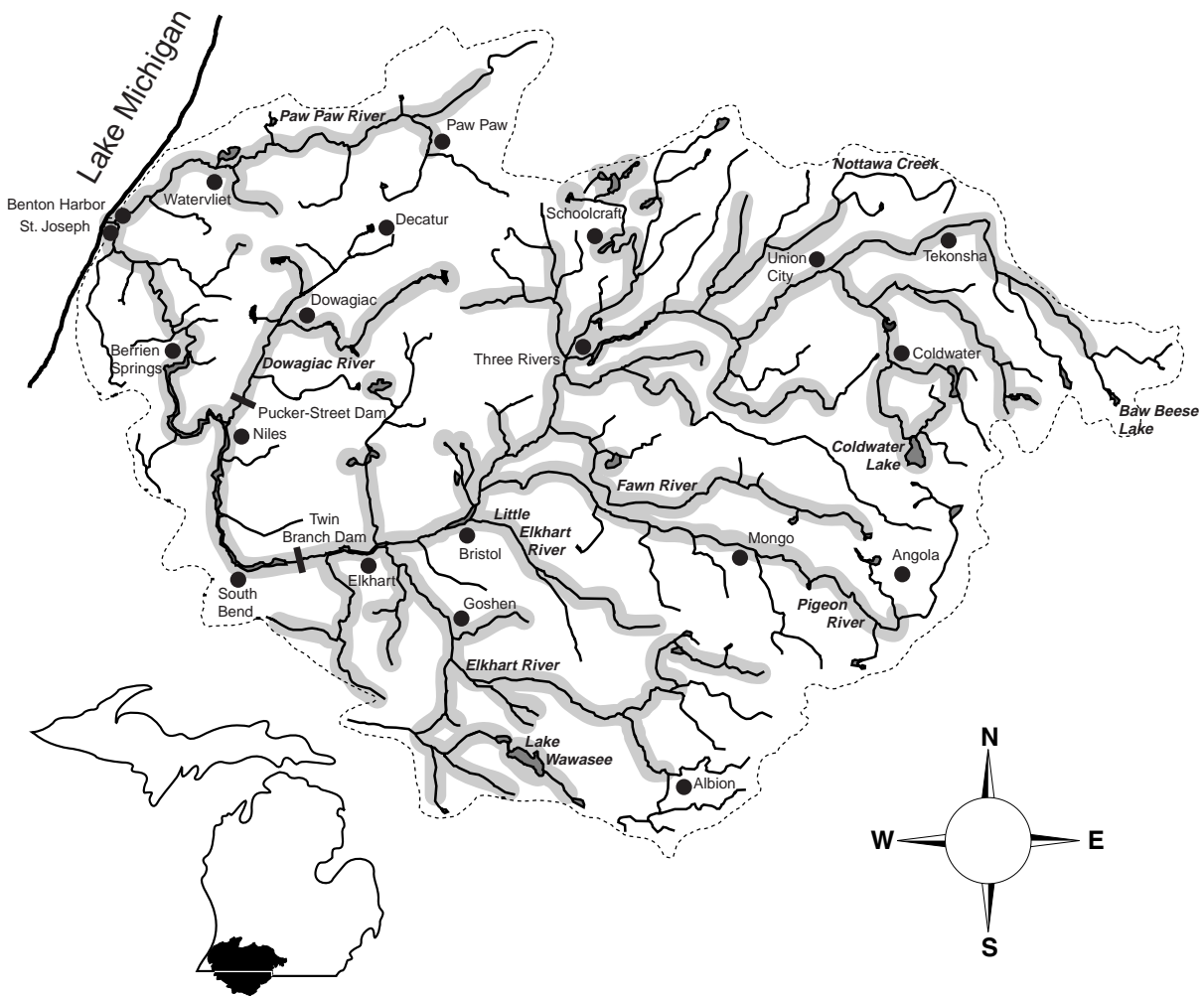
Rock bass (*Ambloplites rupestris*)

Habitat:

- feeding - clear, cool streams, rivers, and lakes
- rocky to sand substrate
- woody or vegetative cover

- spawning - sand or gravel nests
- shallow water

- winter refuge - deep water

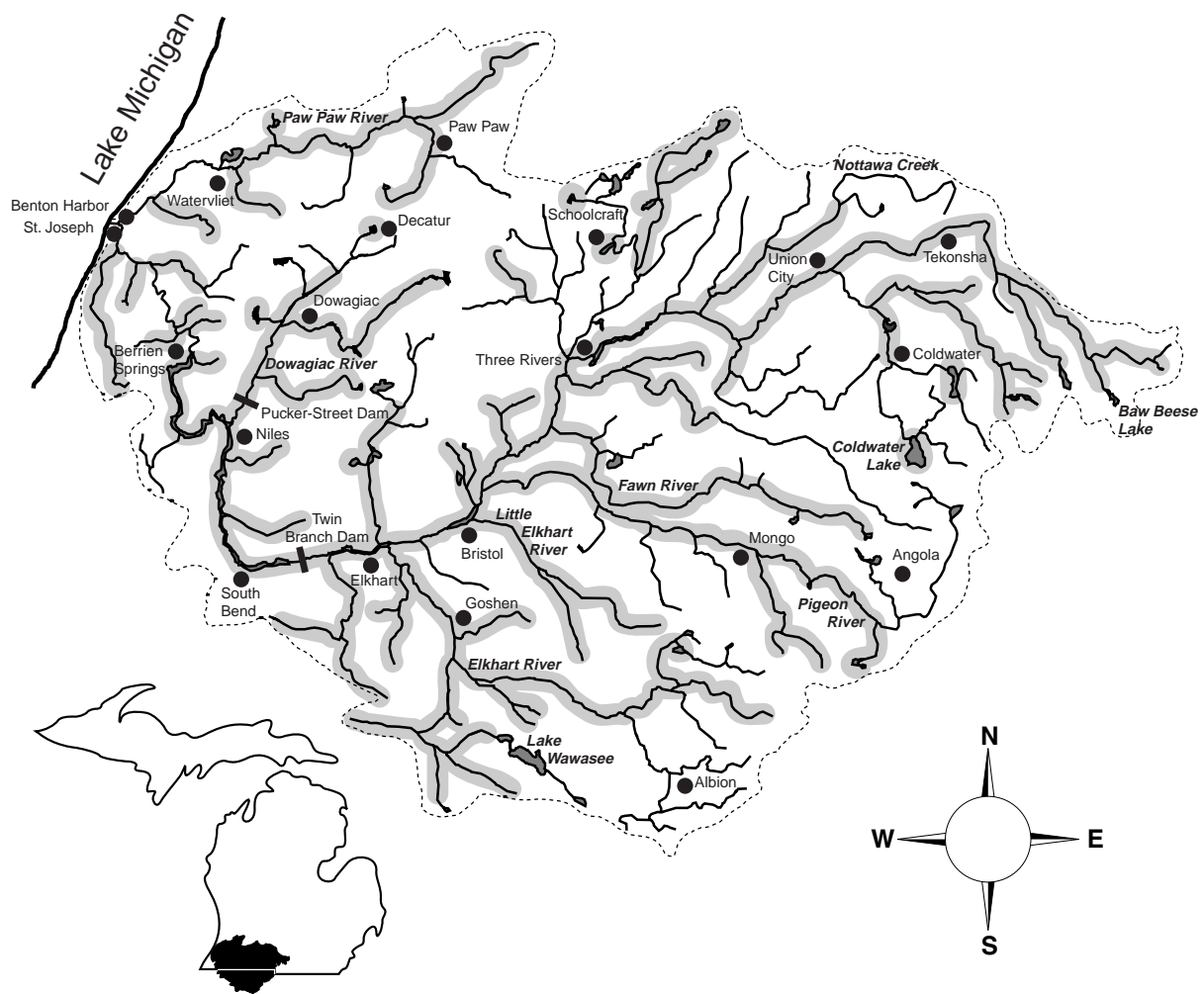


Green sunfish (*Lepomis cyanellus*)

Habitat:

- feeding - impoundments and lakes, and low-current streams and rivers
- no substrate preference

- spawning - nests in shallow areas sheltered by rocks, logs, or aquatic vegetation

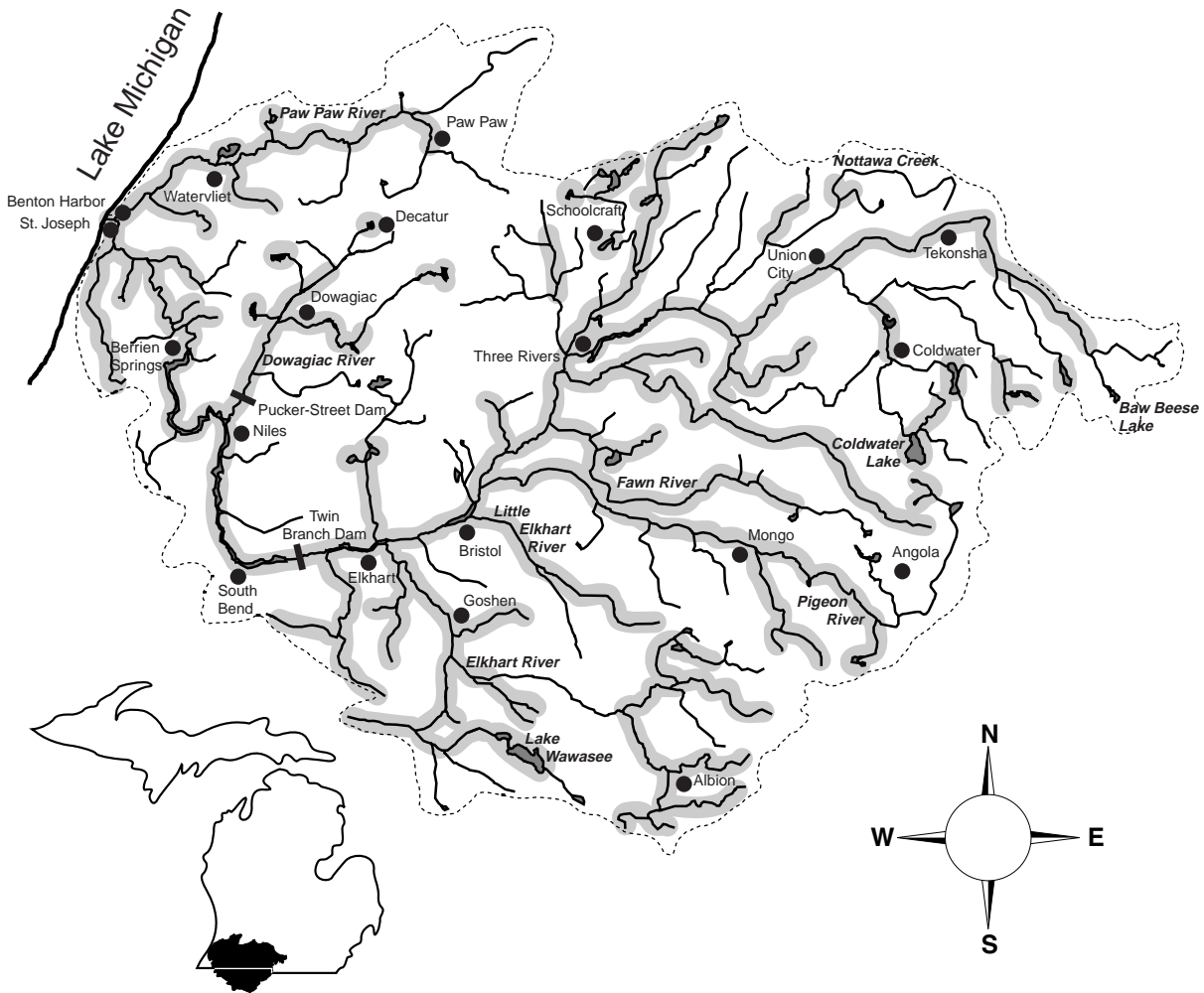


Pumpkinseed sunfish (*Lepomis gibbosus*)

Habitat:

- feeding - non-flowing clear water in streams and rivers; also lakes and impoundments
- muck or sand partly covered with organic debris substrate
- dense beds of submerged aquatic vegetation

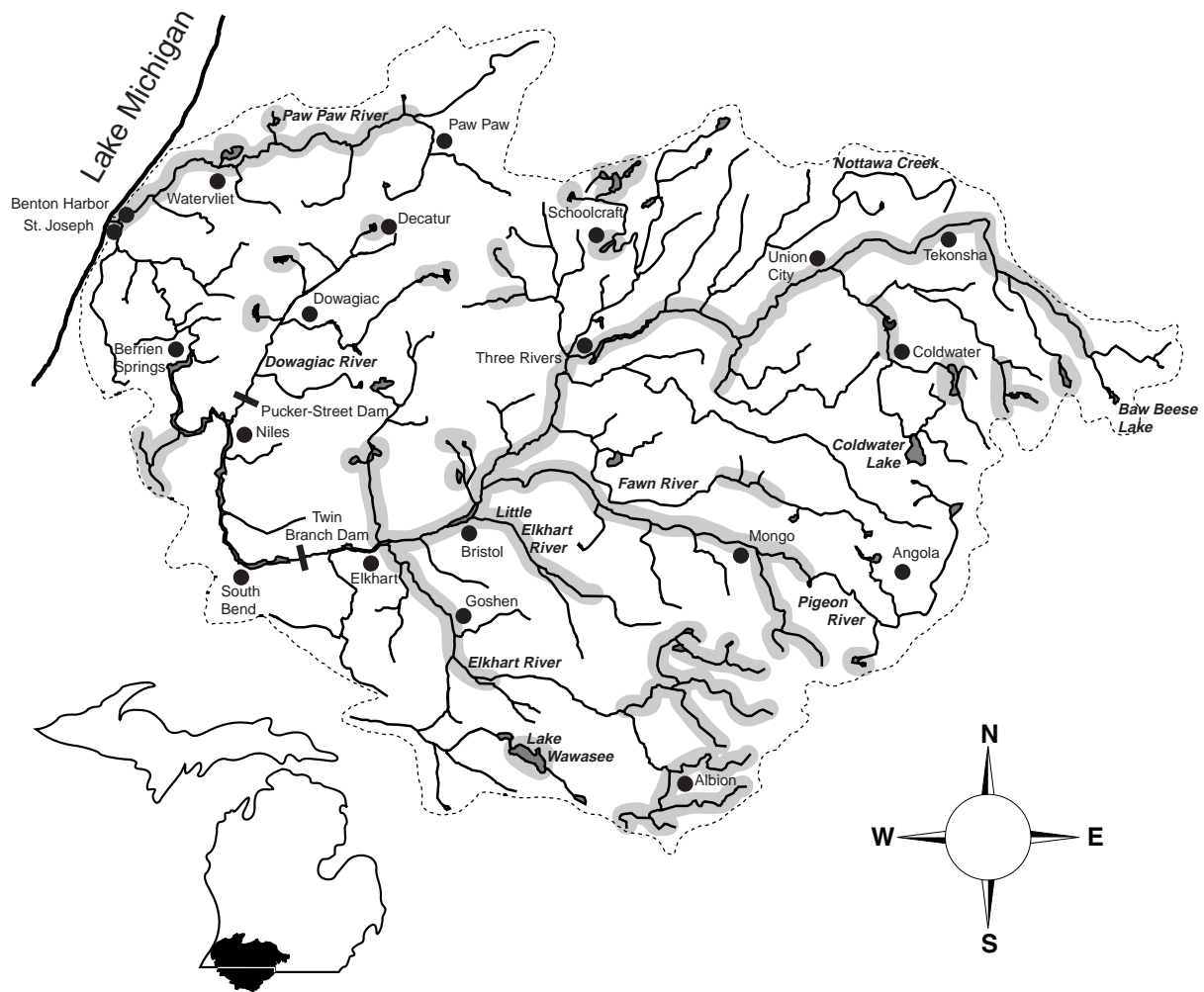
- spawning - nest in sand, gravel, or rock substrate
- in shallow water near submerged vegetation



Warmouth (*Lepomis gulosus*)

Habitat:

- feeding - clear lakes and impoundments and very low-gradient streams
 - abundant aquatic vegetation
 - silt-free water
 - mucky substrate often covered with organic debris
- spawning - nesting sites in loose silt, sand with silt, or rubble over silt near stumps, roots, or vegetation



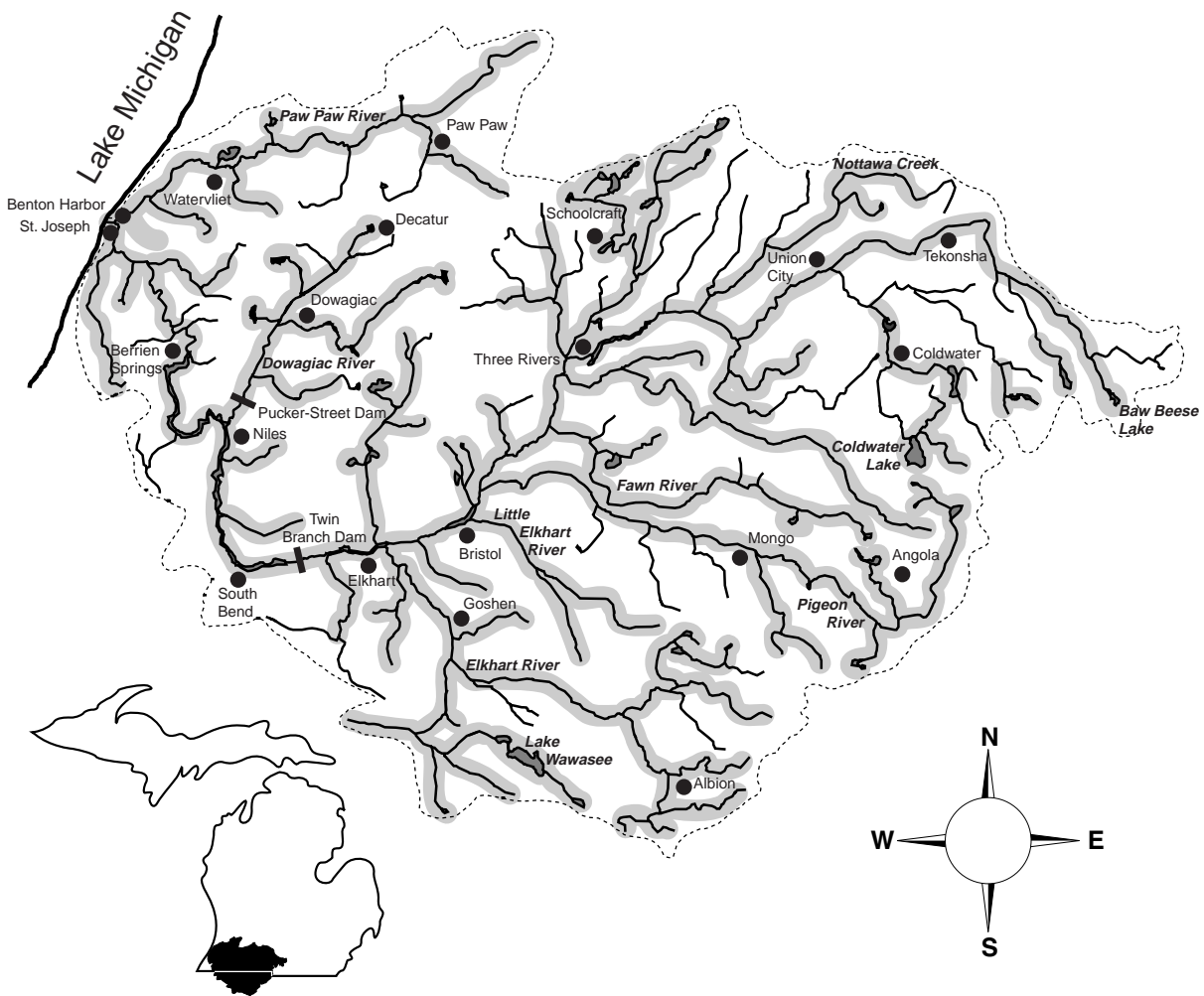
Bluegill (*Lepomis macrochirus*)

Habitat:

- feeding - non-flowing clear streams and rivers; also lakes and impoundments
- sand, gravel, or muck containing organic debris substrate
- scattered beds of aquatic vegetation
- cannot tolerate low oxygen or continuous high turbidity and siltation

spawning - nests in firm substrate of gravel, sand, or mud

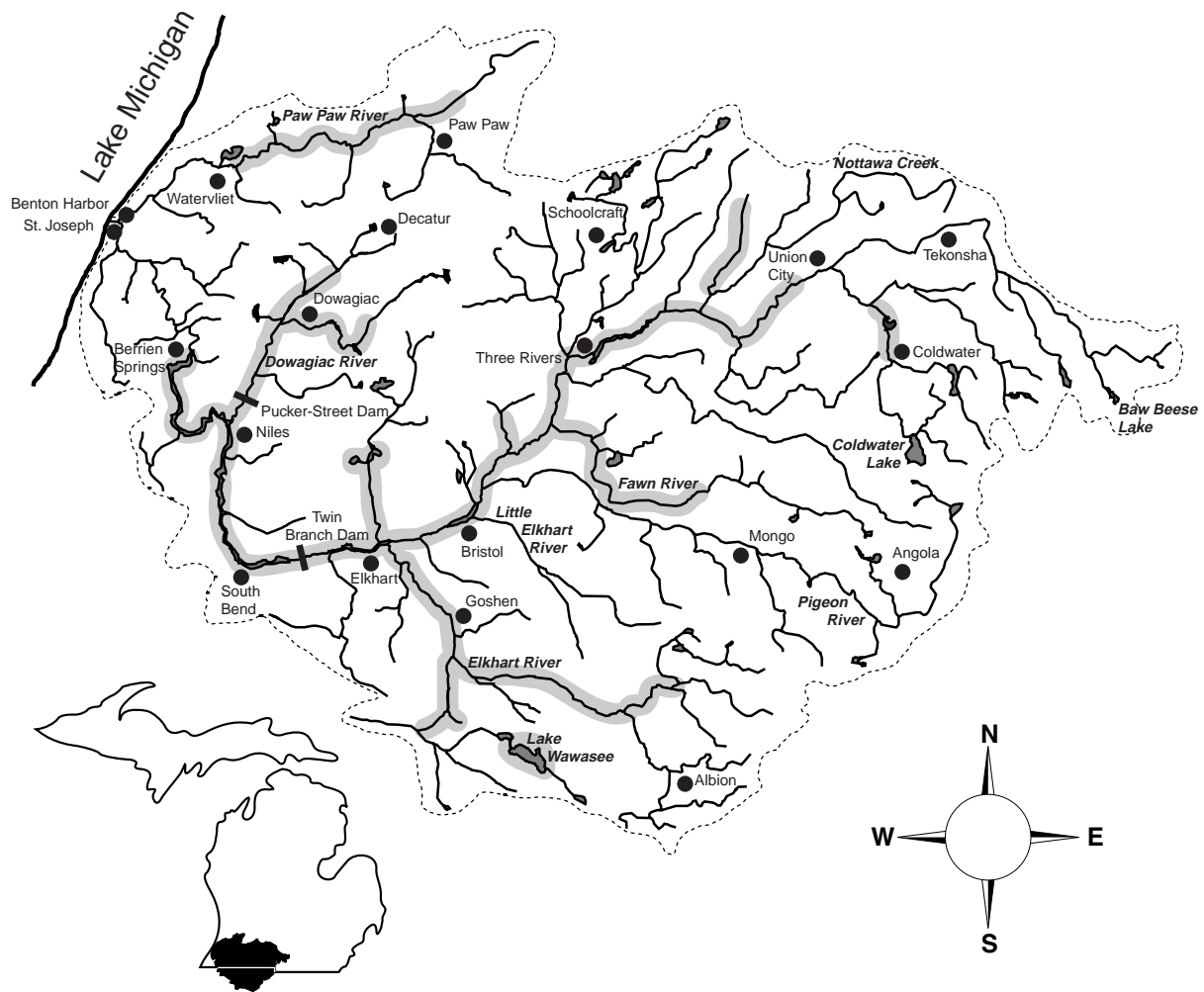
winter refuge - deep water



Longear sunfish (*Lepomis megalotis*)

Habitat:

- feeding - clear moderate-sized shallow streams with moderate vegetation
 - rocky substrates
 - little to no current
- spawning - nests in gravel, sand, or hard rock substrate

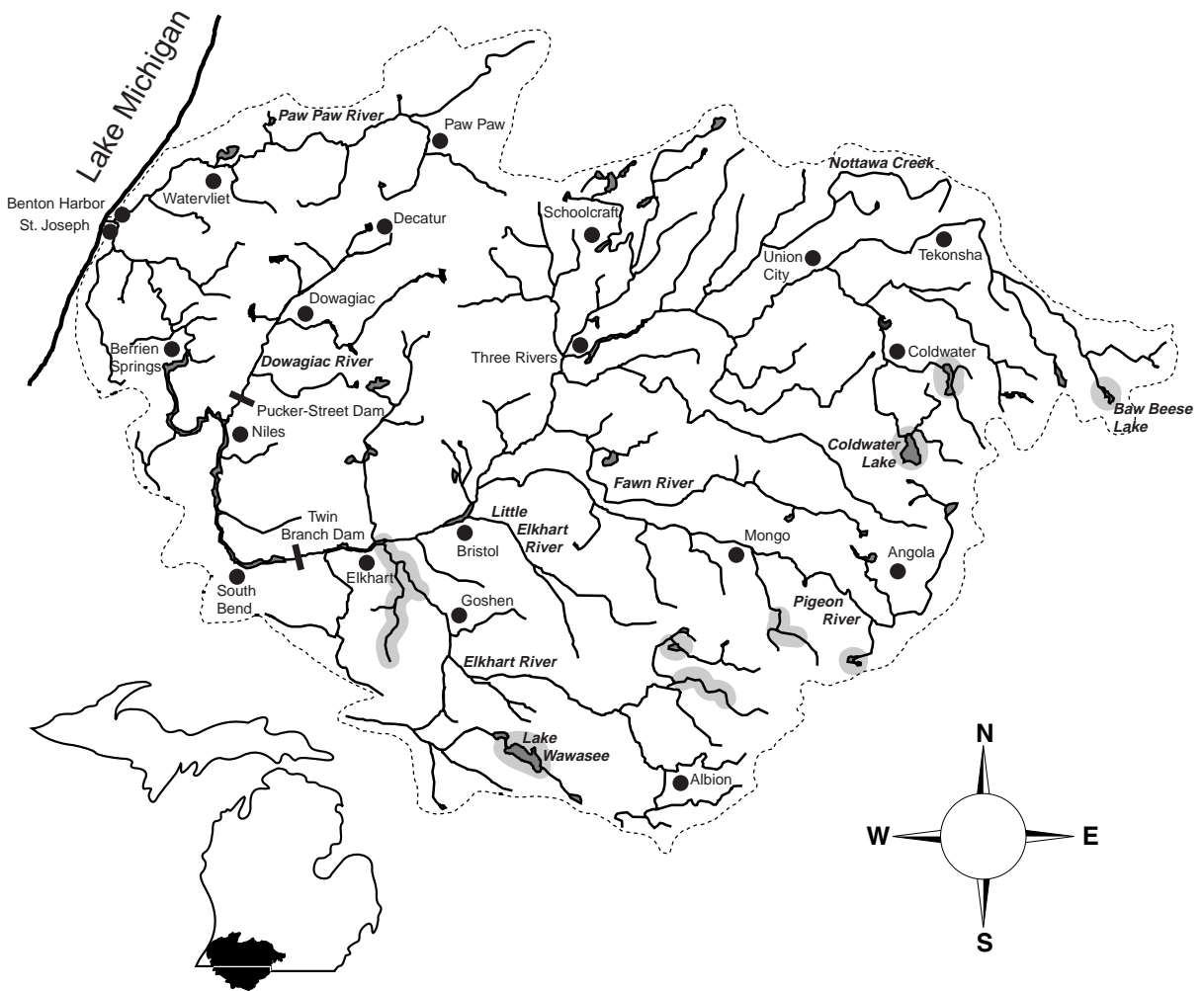


Redear sunfish (*Lepomis microlophus*)

Habitat:

- feeding - non-flowing clear waters of streams and lakes
- some aquatic vegetation

- spawning - nest in silt or gravel substrate



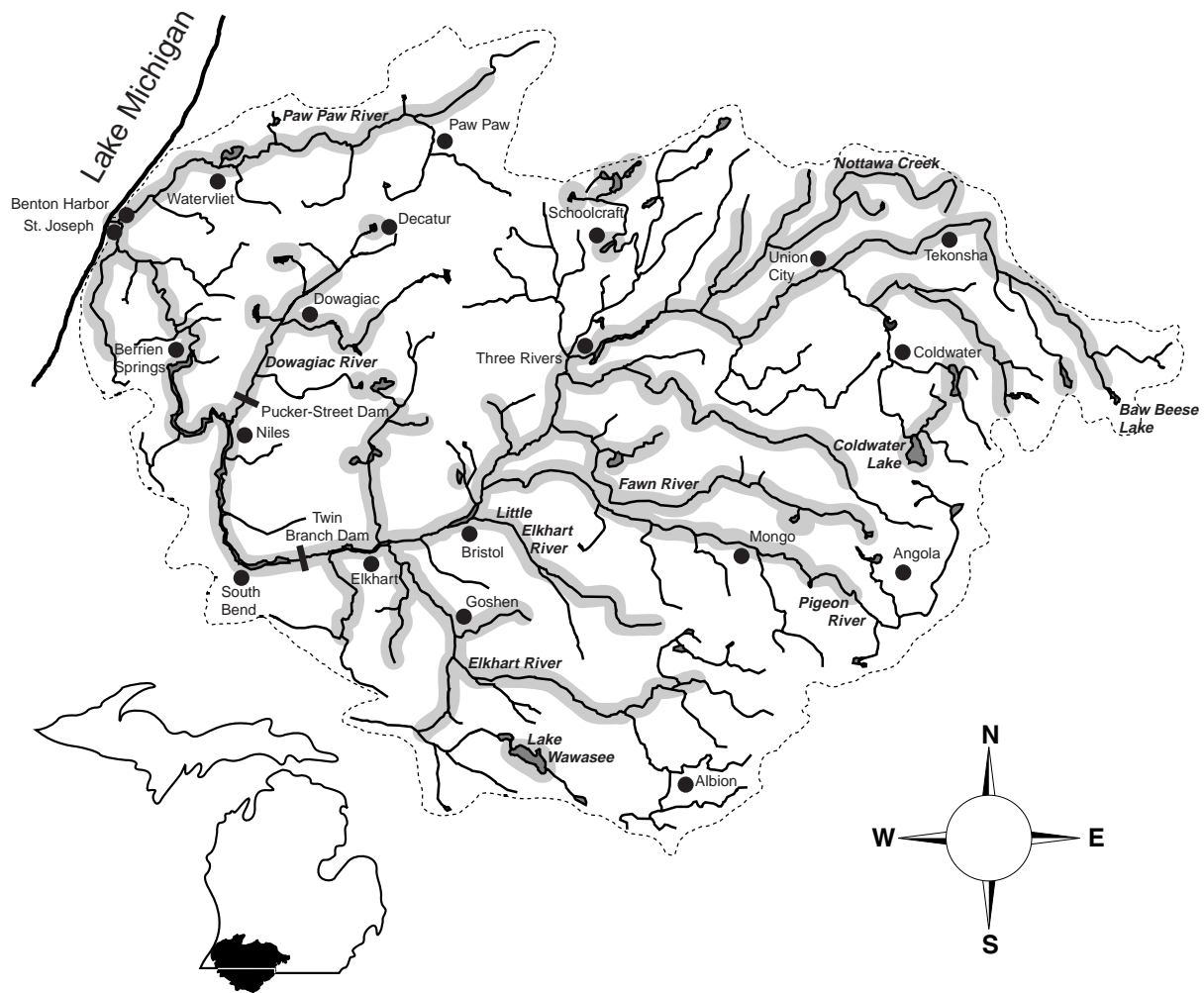
Smallmouth bass (*Micropterus dolomieu*)

Habitat:

- feeding - clear, cool, deep lakes and rivers
- streams where 40% consists of riffles over clean gravel, boulder, or bedrock substrate
- in pools with a current and >4 feet of depth
- gradients between 4 and 25 feet per mile

- spawning - nest in sandy, gravel, or rocky substrate
- gradients 7 to 25 feet per mile
- streams 20 to 100 feet wide

- winter refuge - larger deeper waters with gradients between 3 to 7 feet per mile

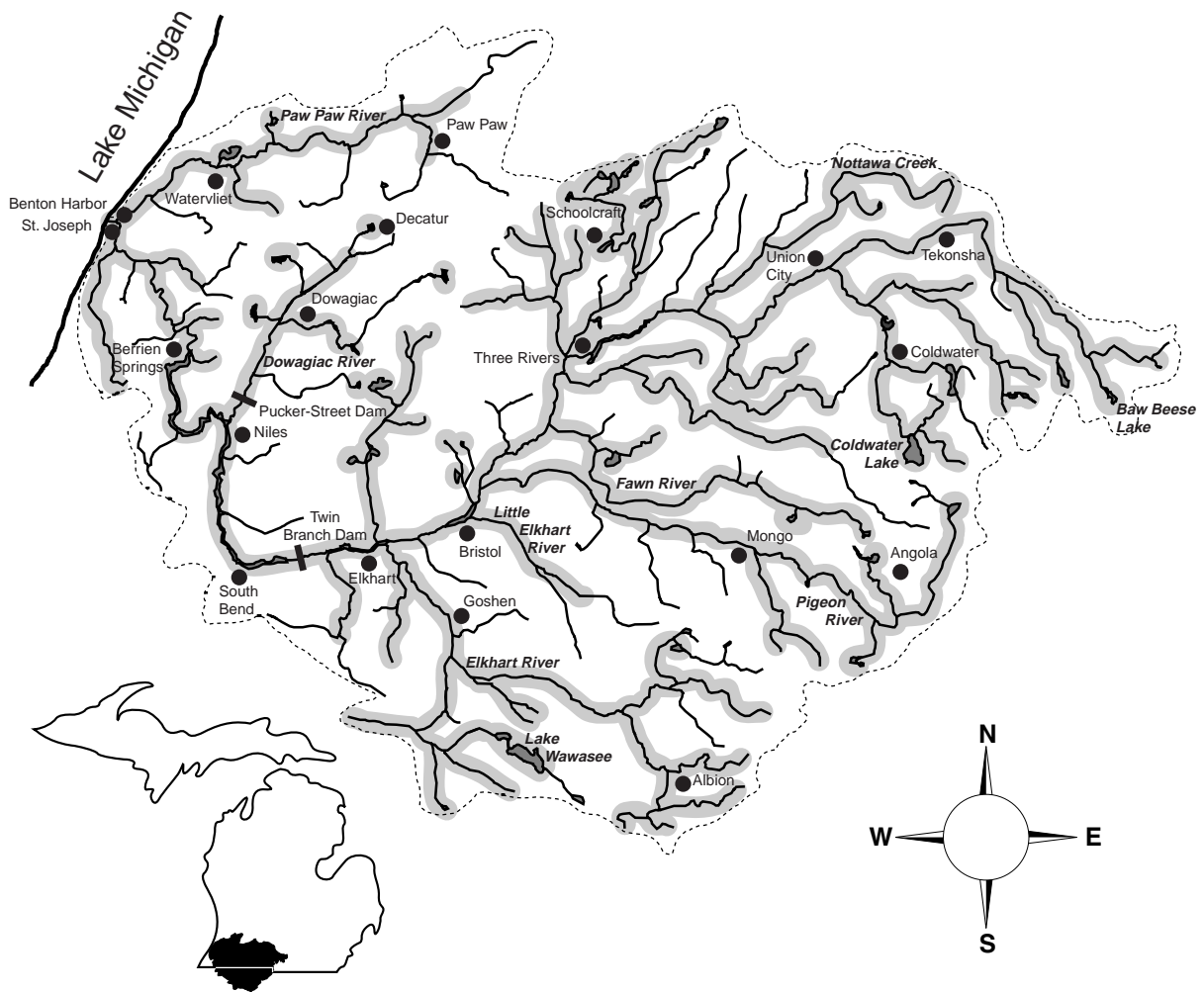


Largemouth bass (*Micropterus salmoides*)

Habitat:

- feeding - non-flowing clear waters - lakes, impoundments, and pools of streams
- abundant aquatic vegetation
- soft muck, organic debris, gravel, sand, and hard non-flocculent clay substrates

- spawning - nest in gravelly sand to marl and soft mud substrates
- emergent vegetation
- quiet shallow bays; no current

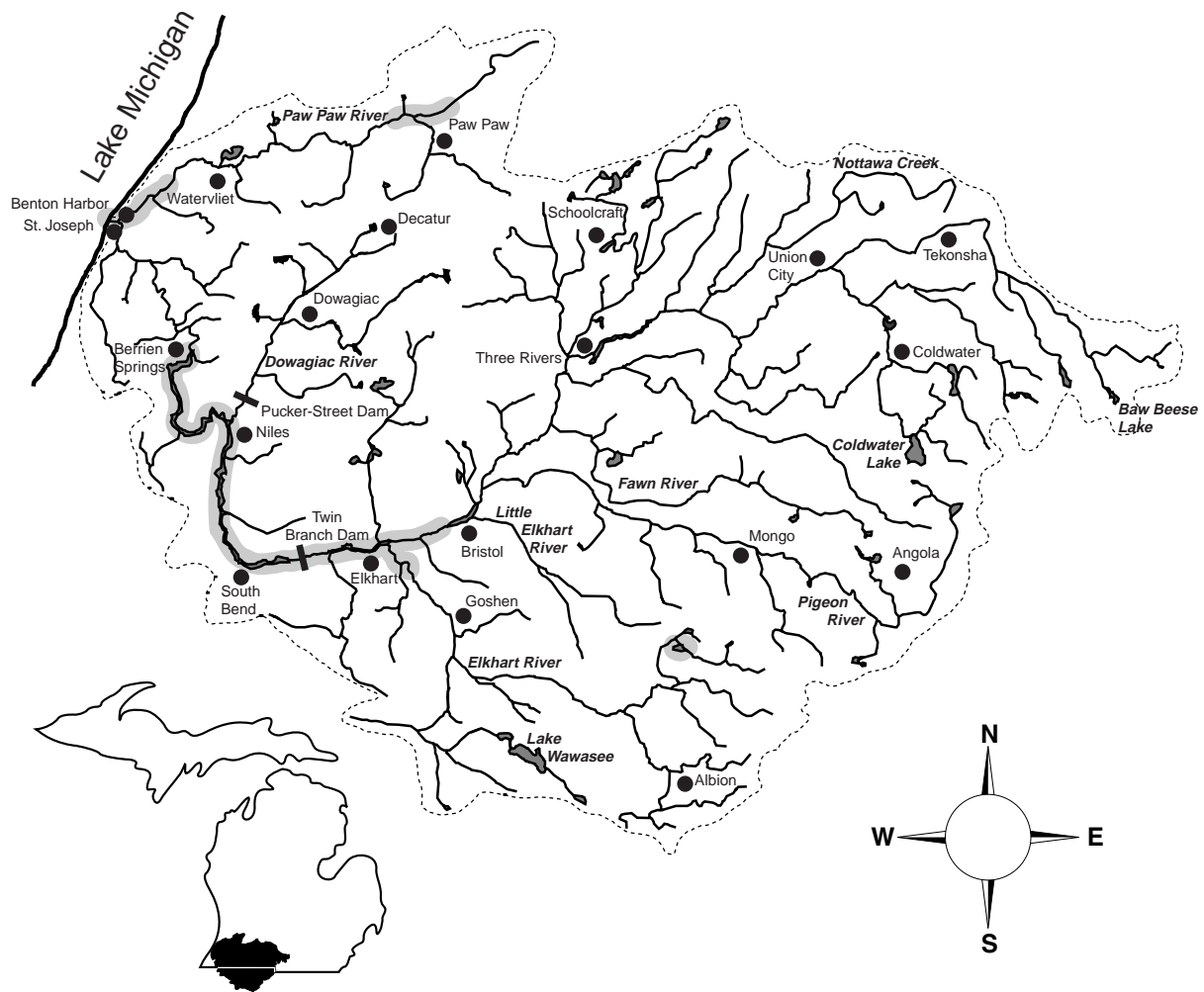


White crappie (*Pomoxis annularis*)

Habitat:

- feeding - lakes and impoundments >5 acres
- sluggish pools of moderate to large low-gradient rivers
- no substrate preference
- can tolerate severe turbidity and rapid siltation

- spawning - various substrates usually beside rooted aquatic vegetation
- sometimes under banks

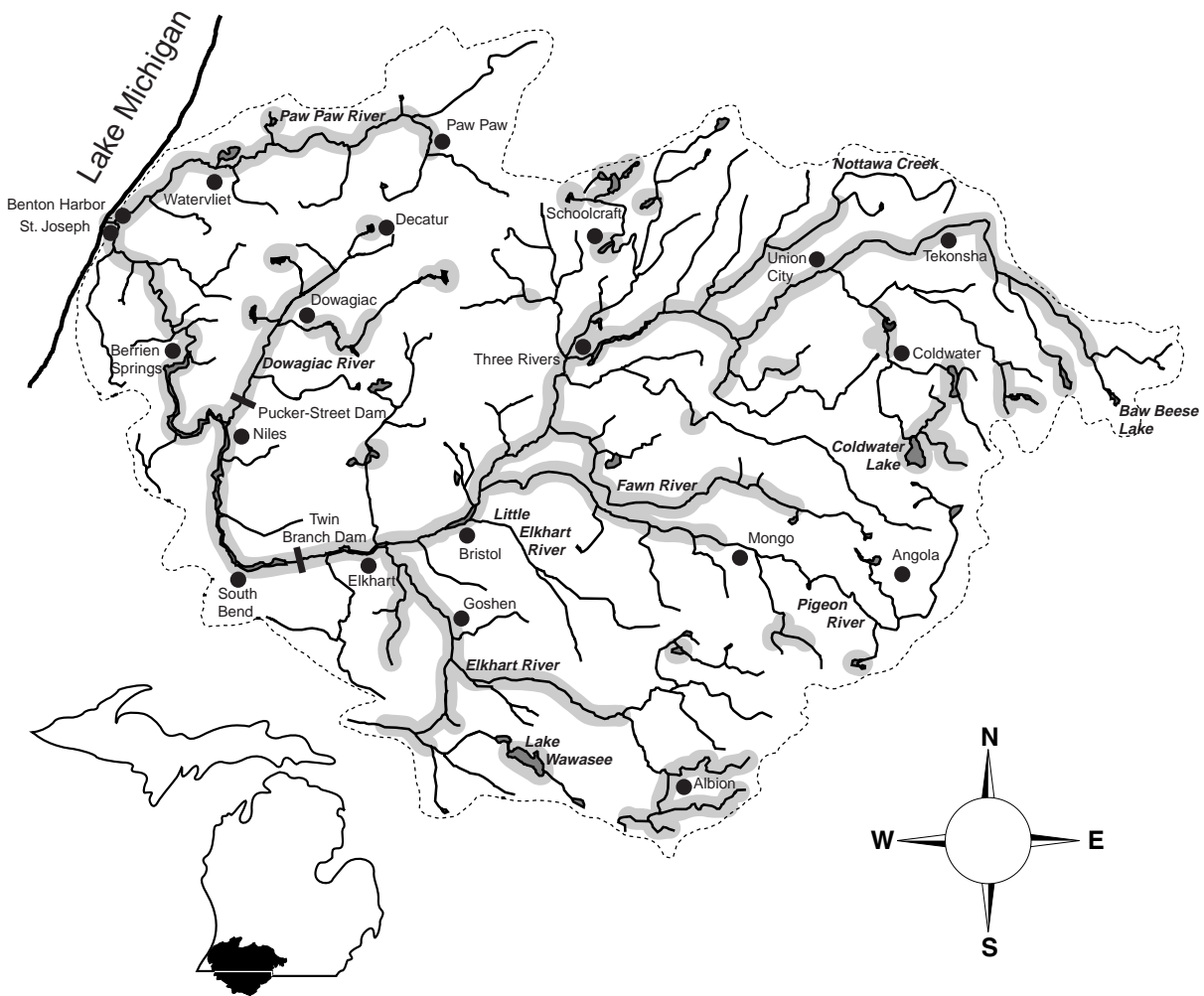


Black crappie (*Pomoxis nigromaculatus*)

Habitat:

- feeding - larger clear non-silty low-gradient rivers; also in lakes and impoundments
 - clean hard sand or muck substrate
 - associated with submerged aquatic vegetation
 - does not tolerate silt or turbidity well

- spawning - nests in gravel, sand, or mud substrate
 - some vegetation must be present
 - sometimes nests under banks

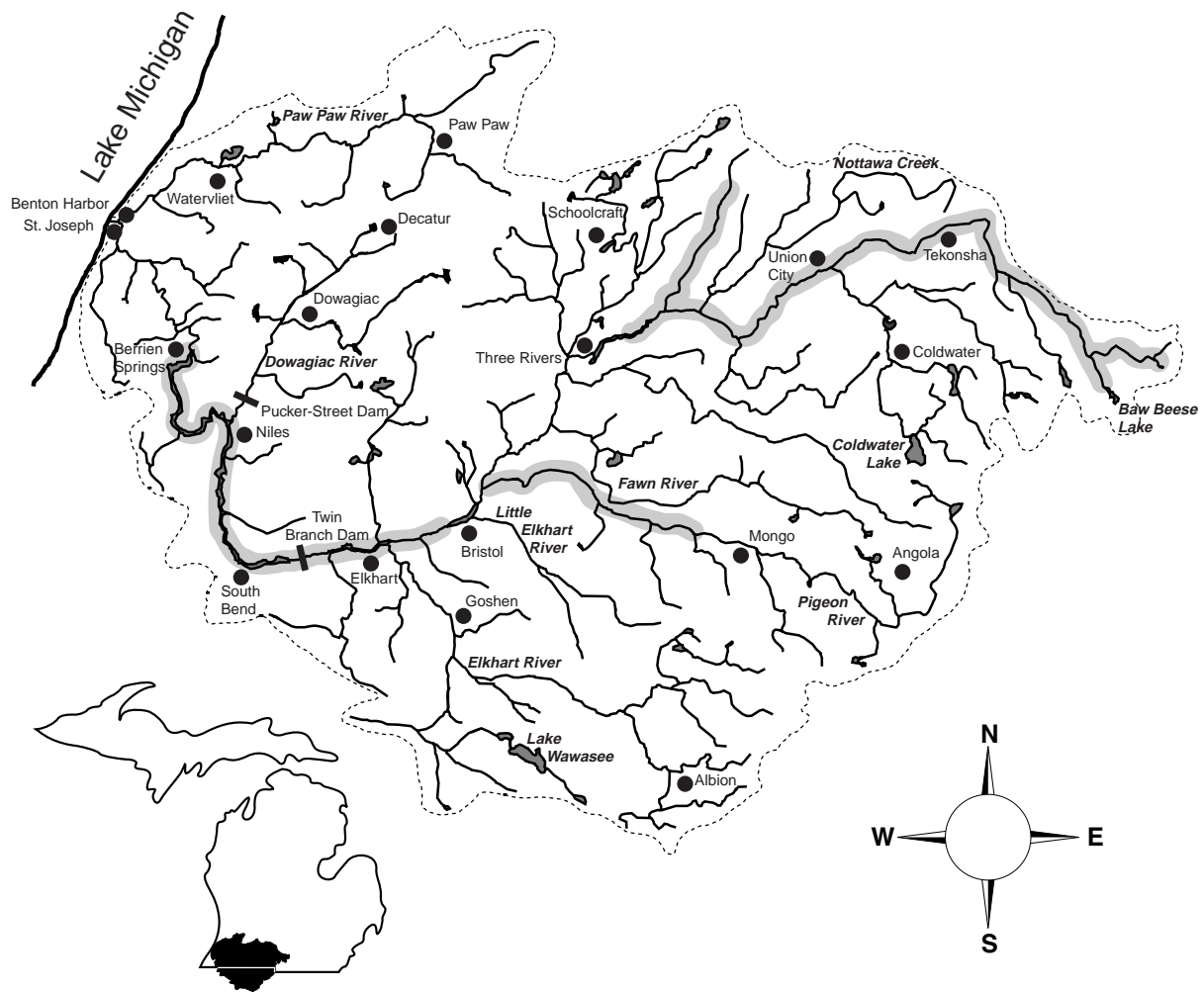


Greenside darter (*Etheostoma blennioides*)

Habitat:

- feeding - young: in quiet water
- swift gravelly riffles or pools with current of streams and rivers

- spawning - filamentous algae necessary for egg deposition

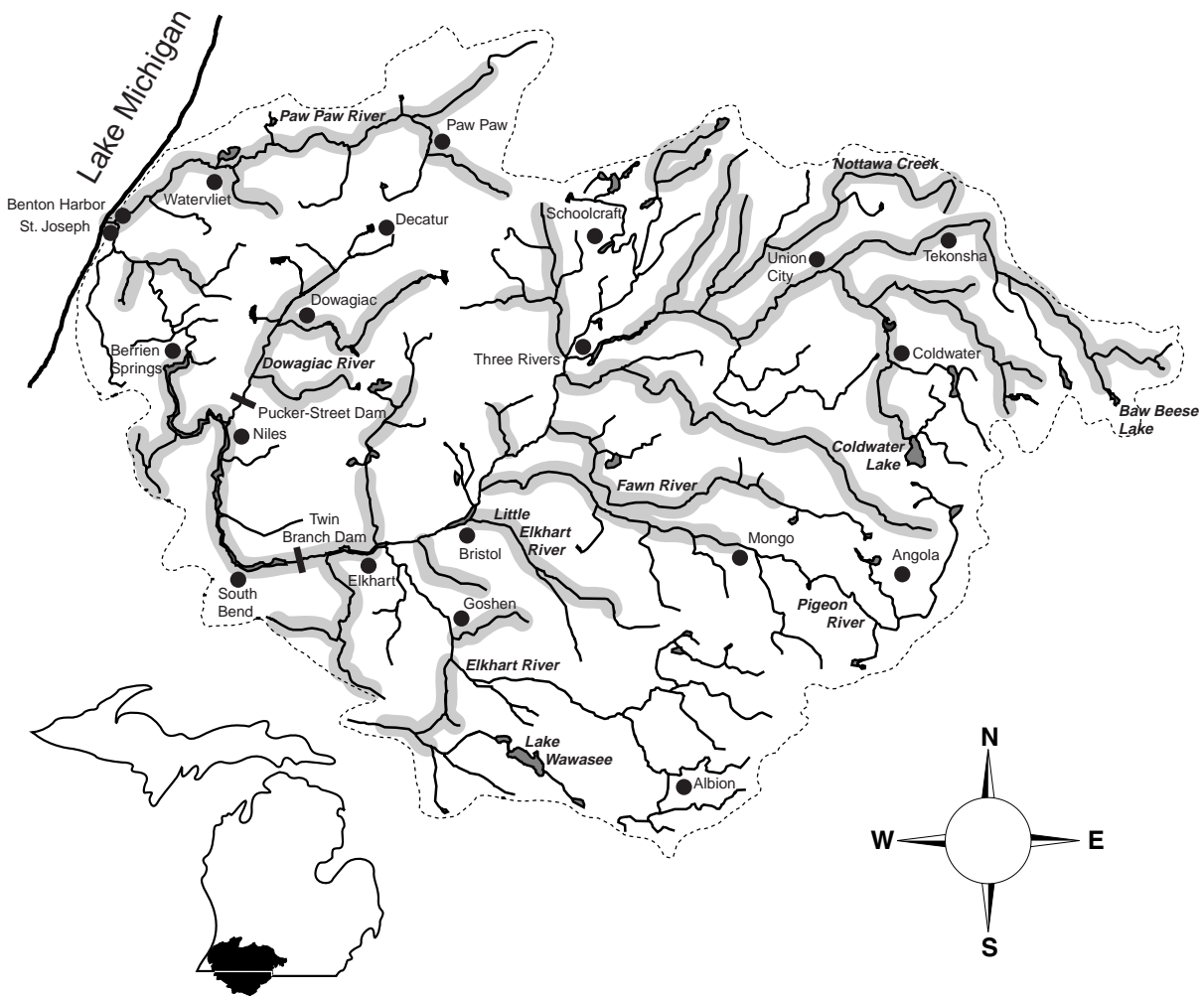


Rainbow darter (*Etheostoma caeruleum*)

Habitat:

- feeding - gravelly high gradient riffles
- clear, moderate to large streams
- in shallows (average 1 foot)

- spawning - gravel or rubble riffles

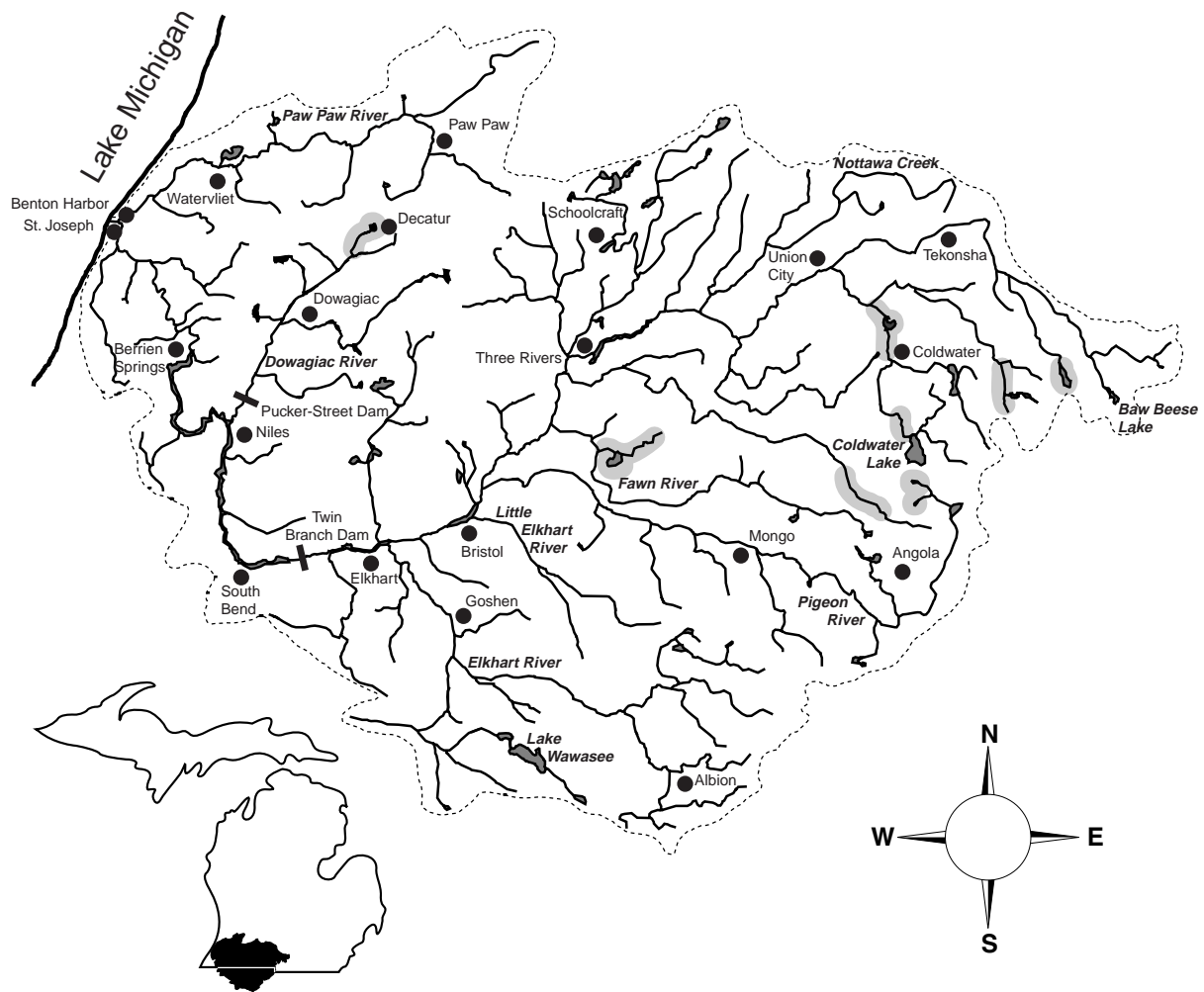


Iowa darter (*Etheostoma exile*)

Habitat:

- feeding - clear, slow moving streams and lakes
 - sandy to muddy substrates
 - intolerant of turbid water
 - lives in rooted aquatic vegetation

- spawning - in pond-like extensions of streams on organic matter or roots
 - in shallows



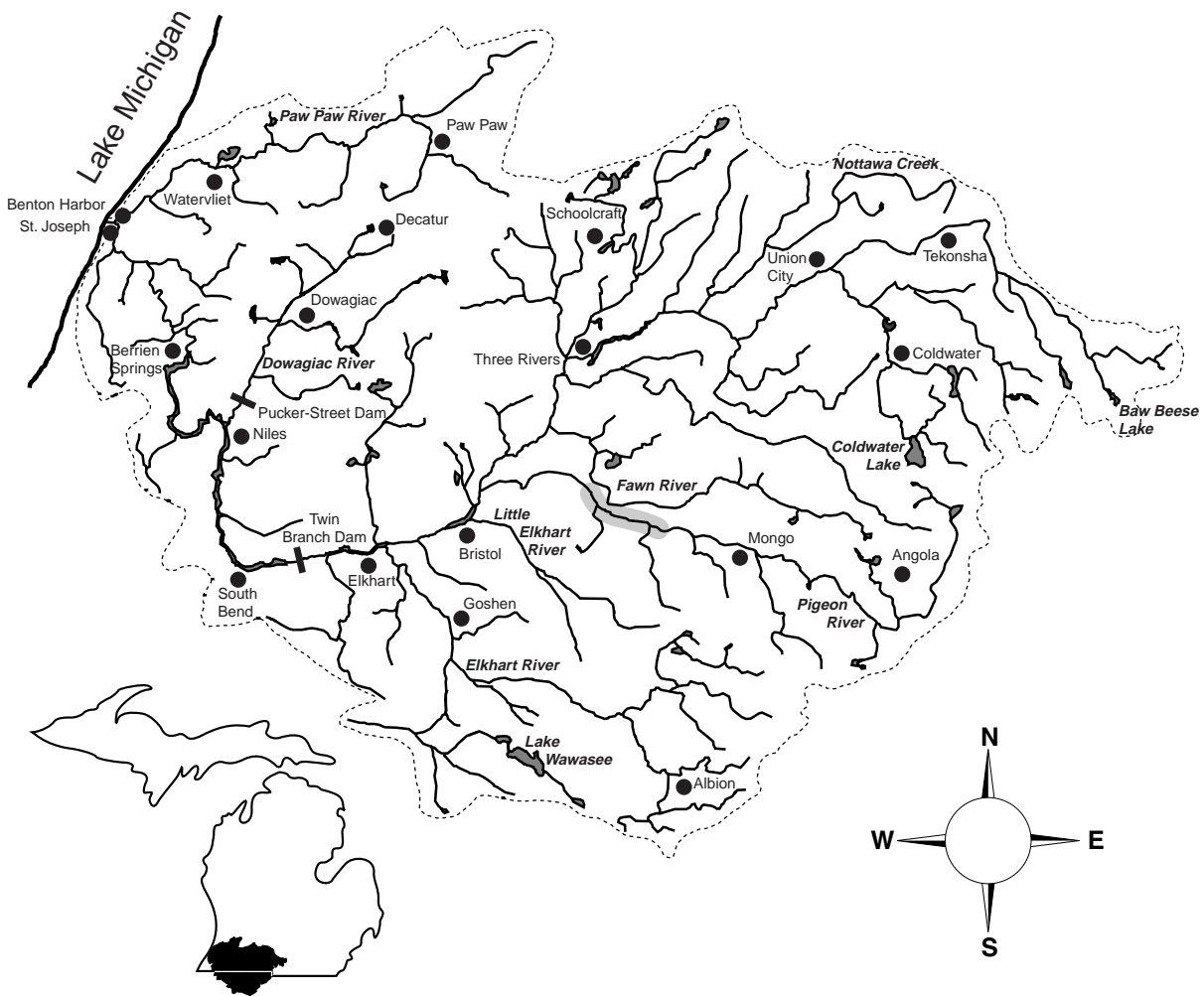
Fantail darter (*Etheostoma flabellare*)

Habitat:

- feeding - small, shallow (<18 inches) streams
- some tolerance of turbidity and siltation
- clear warm waters
- slow to moderate current
- gravel and boulder substrate

- spawning - gravel in slower water
- lays eggs on underside of rocks, male guards and fans them

- winter refuge - moves downstream to larger and deeper waters

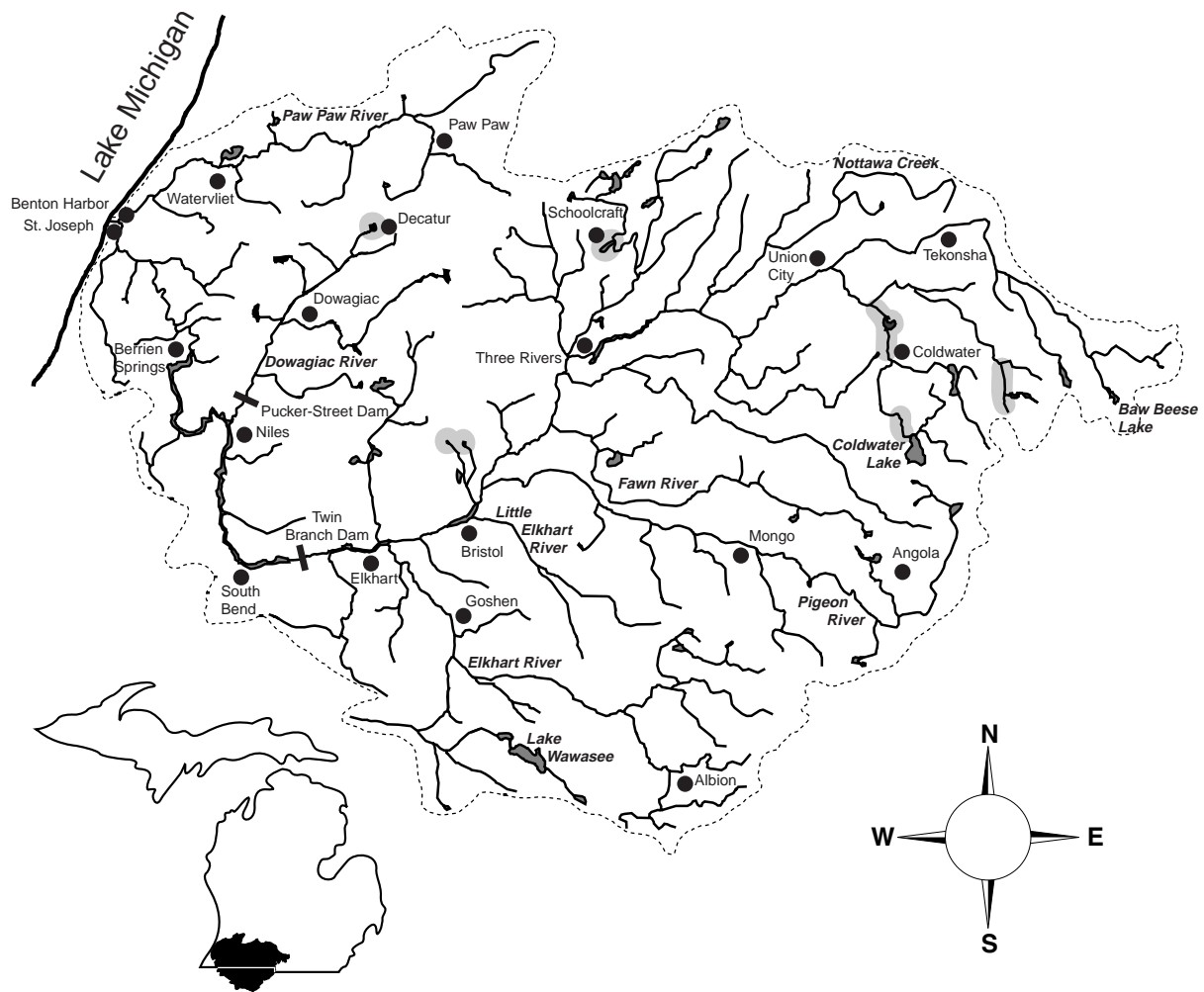


Least darter (*Etheostoma microperca*)

Habitat:

- feeding - moderate to warm temperature
- clear quiet low-gradient vegetated streams (wetlands, floodplains)
- soft substrate

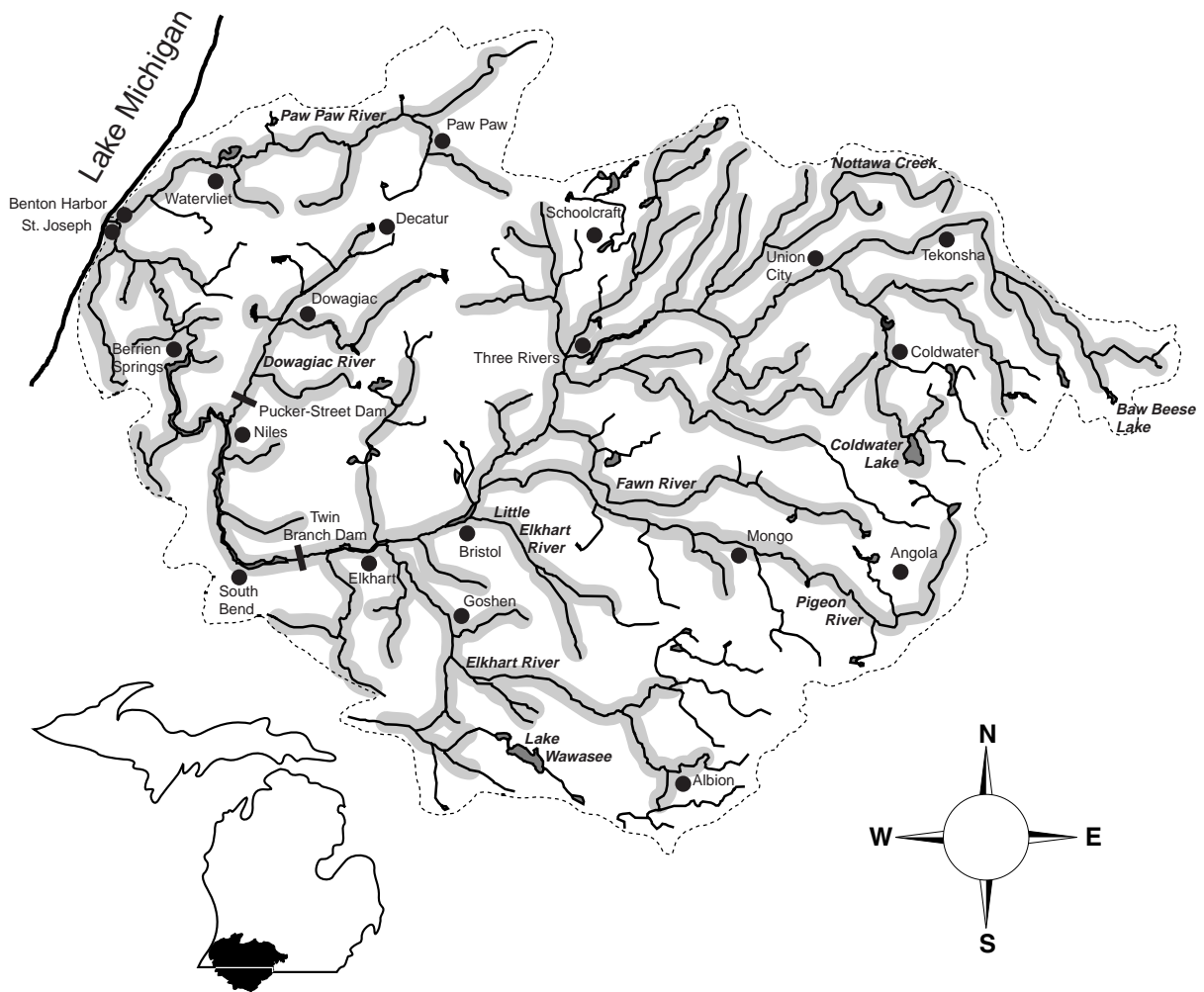
- spawning - spawning occurs on stems of plants
- male guards a territory in a vegetated area



Johnny darter (*Etheostoma nigrum*)

Habitat:

- feeding - sand and silt substrate
 - little to moderate current
 - shallow areas of streams, rivers, lakes, and impoundments
 - tolerant of many organic and inorganic pollutants and turbidity
-
- spawning - underneath rocks
 - in stream pools or protected shallows of lakes

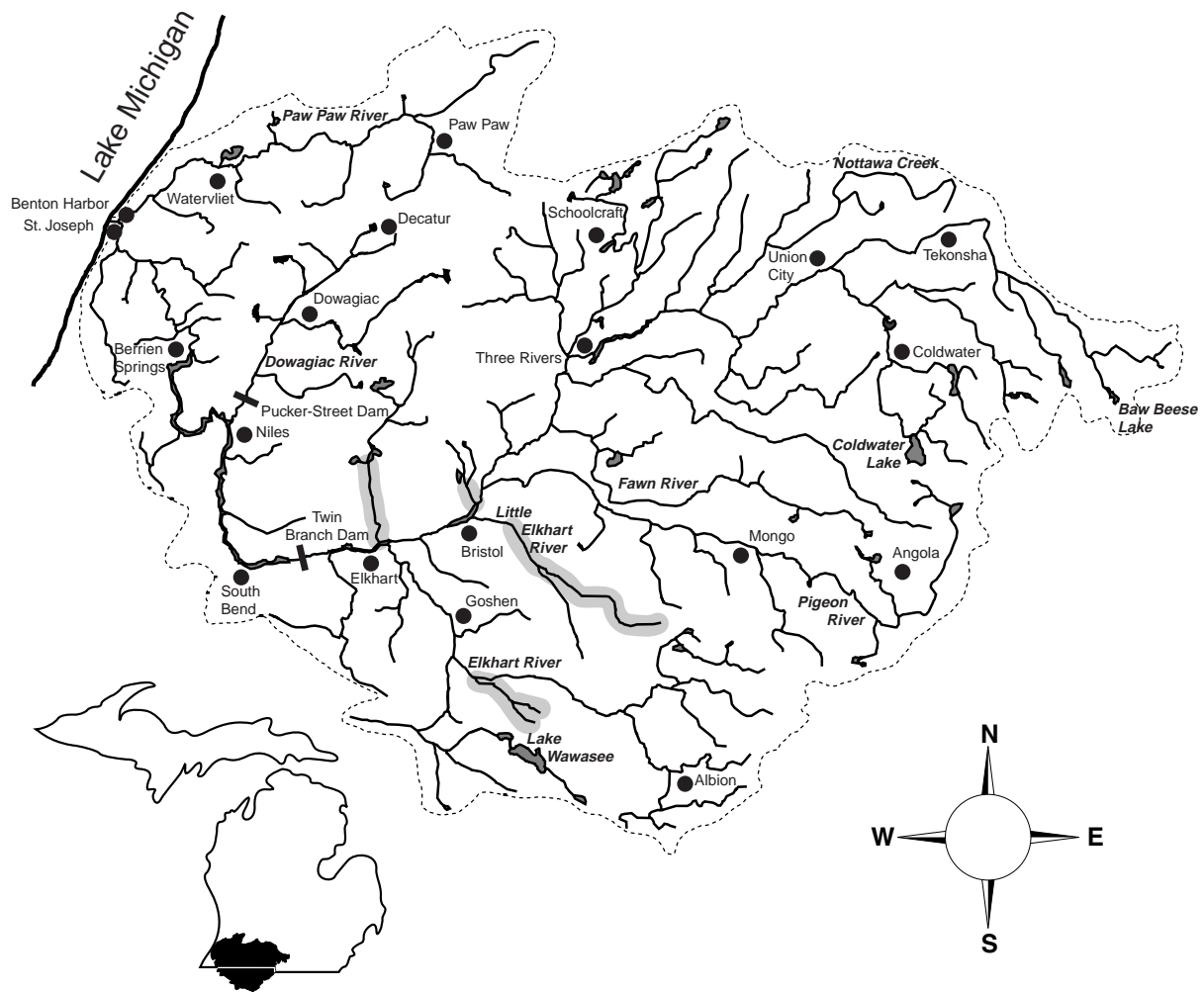


Orangethroat darter (*Etheostoma spectabile*)

Habitat:

- feeding
 - small-moderate size creeks and spring branches
 - sand, gravel, or rock substrate in sluggish riffles or in pools with sufficient current to prevent siltation
 - prefers clear streams but tolerant of turbidity
 - low to moderate gradient

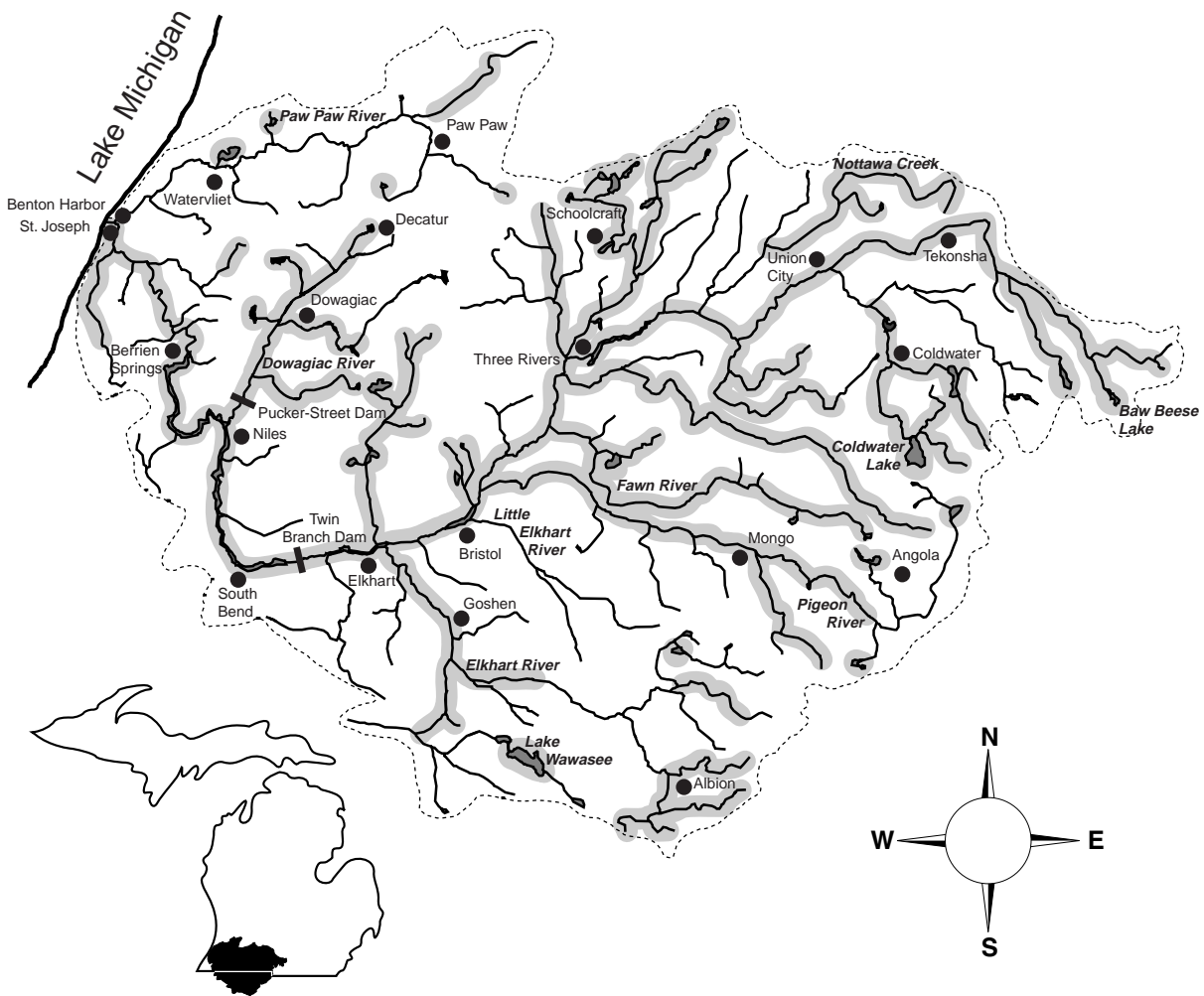
- spawning
 - gravel riffles
 - slow current



Yellow perch (*Perca flavescens*)

Habitat:

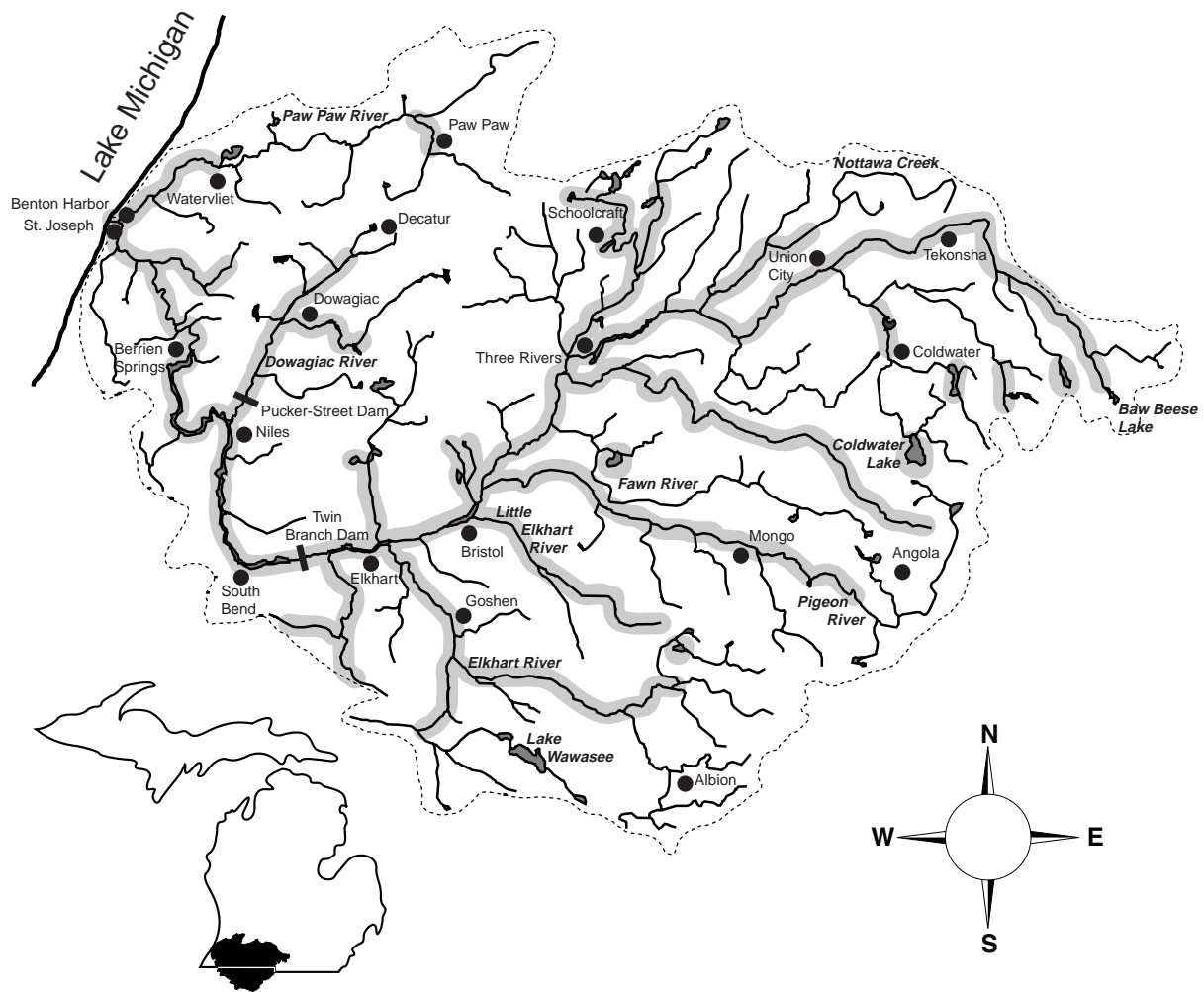
- feeding - clear lakes and impoundments; also Lake Michigan
 - low gradient rivers
 - abundance of rooted aquatics
 - muck, organic debris, sand, or gravel substrate
 - does not tolerate turbidity and siltation
-
- spawning - shallows of lakes, tributaries of streams
 - occurs over rooted vegetation, submerged brush, fallen trees
 - may occur over sand or gravel



Logperch (*Percina caprodes*)

Habitat:

- feeding - gravel riffles, deeper slower sections of rivers
 - medium size streams; also lakes, impoundments, and Lake Michigan
 - sand, gravel, or rock substrate
 - avoids turbidity and silt
- spawning - riffles or sandy in-shore shallows

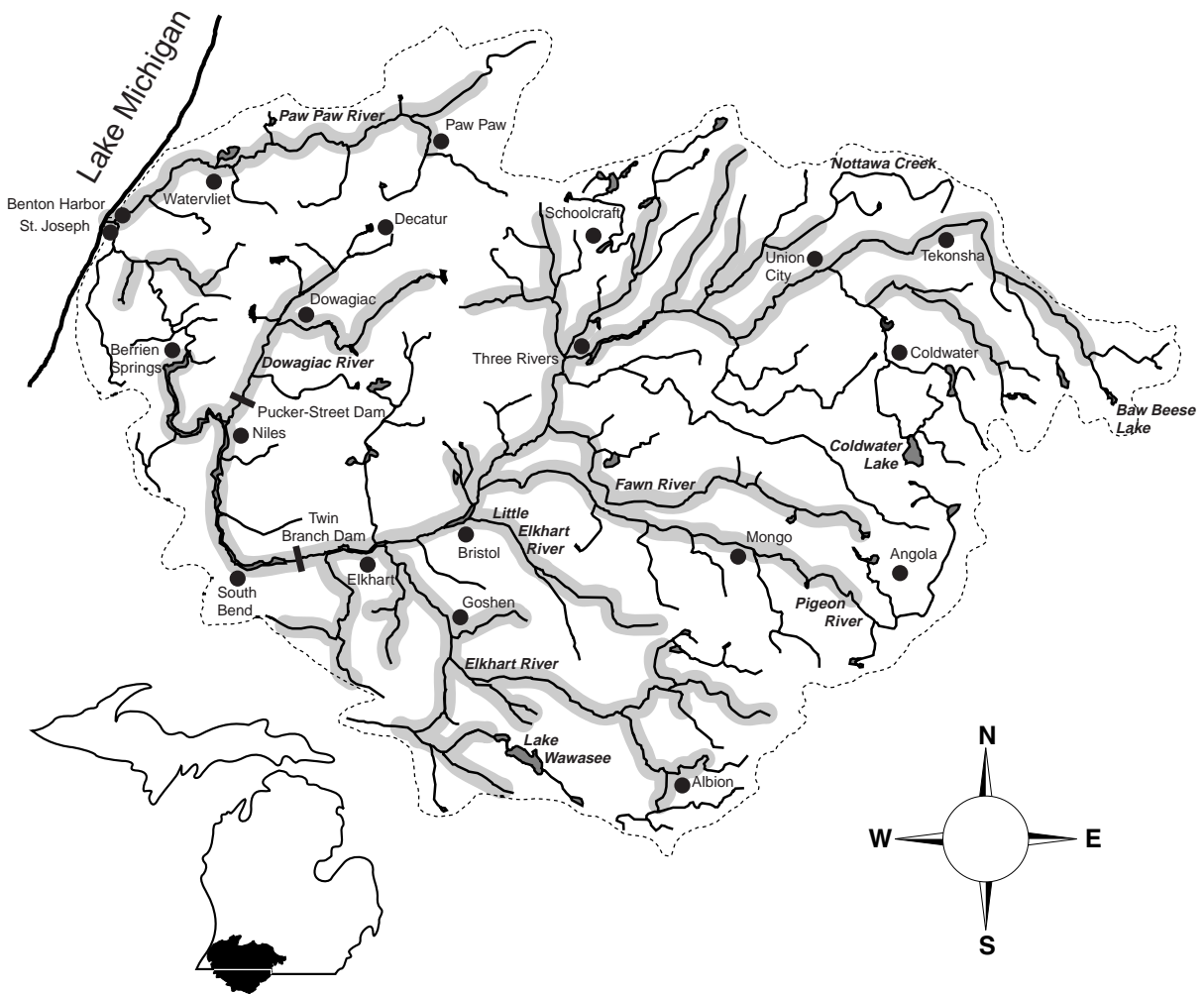


Blackside darter (*Percina maculata*)

Habitat:

- feeding - small to medium streams
- low to medium gradient
- gravel and sand substrate
- tolerate some turbidity

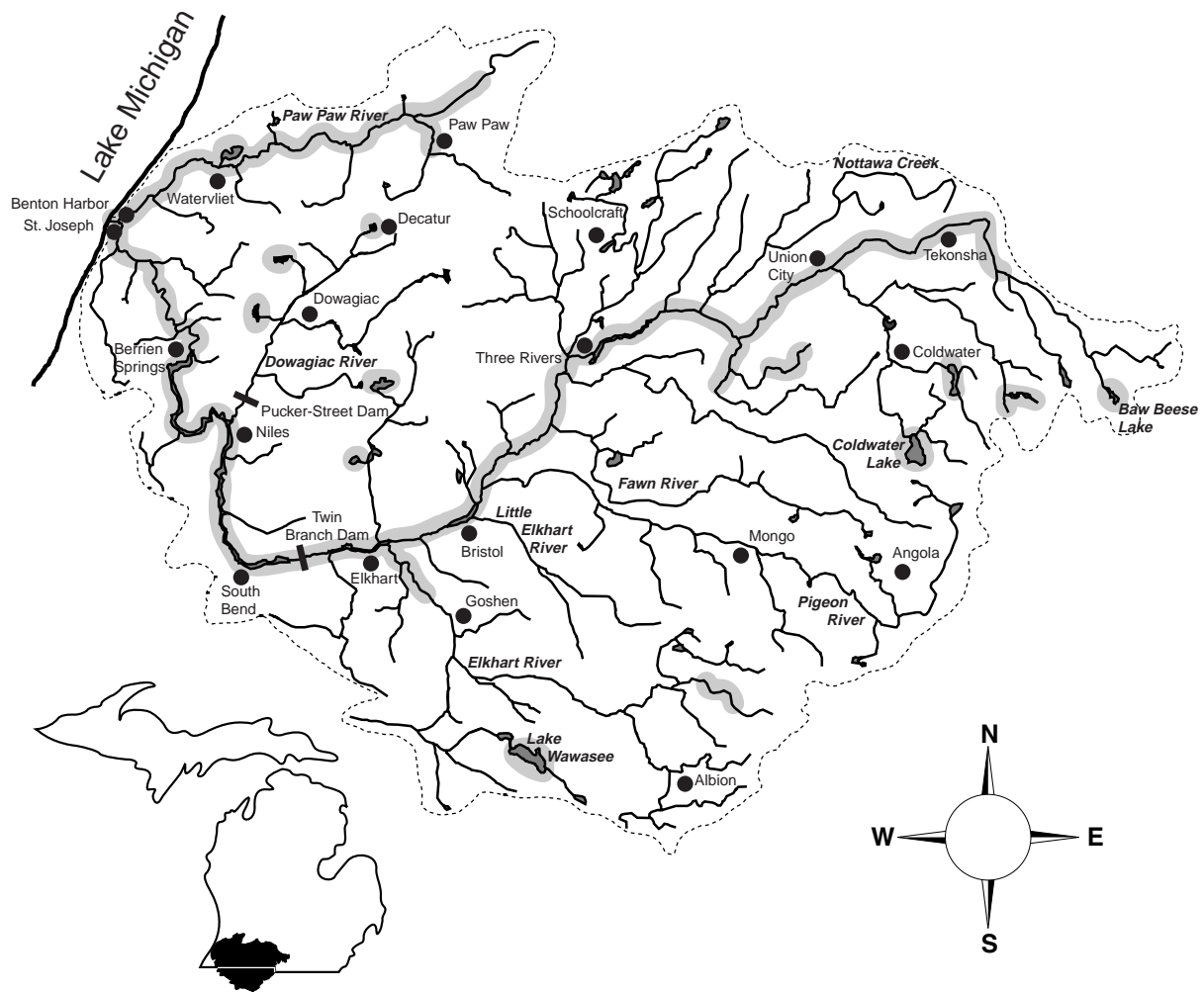
spawning - gravel and sand substrate



Walleye (*Stizostedion vitreum*)

Habitat:

- feeding - larger, deeper streams and in large, shallow, turbid lakes and impoundments; also Lake Michigan
 - gravel, bedrock, and firm substrates preferred
 - does not tolerate a lot of turbidity or low oxygen
- spawning - rocky substrates in high gradient water in rivers
 - boulder to coarse gravel shoals in lakes
- winter refuge - avoids strong currents



Freshwater drum (*Aplodinotus grunniens*)

Habitat:

- feeding - deeper pools of rivers and Lake Michigan
- in shallows
- prefers clear waters and clean substrates
- can adapt to high turbidity levels

- spawning - pelagically, in open water, over sand or mud substrate
- occurs in bays or lower portions of marshes

