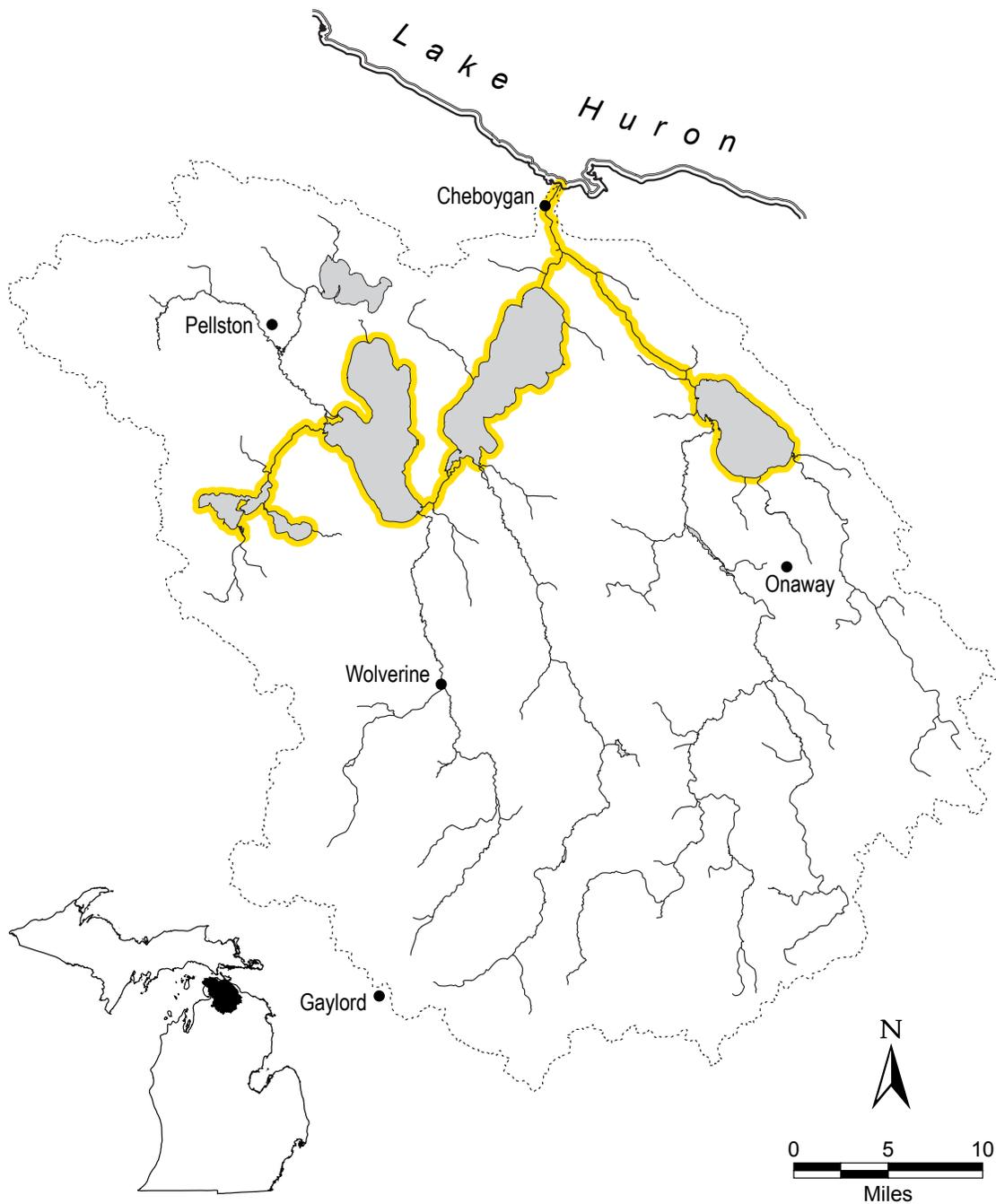


Muskellunge *Esox masquinongy*

Habitat:

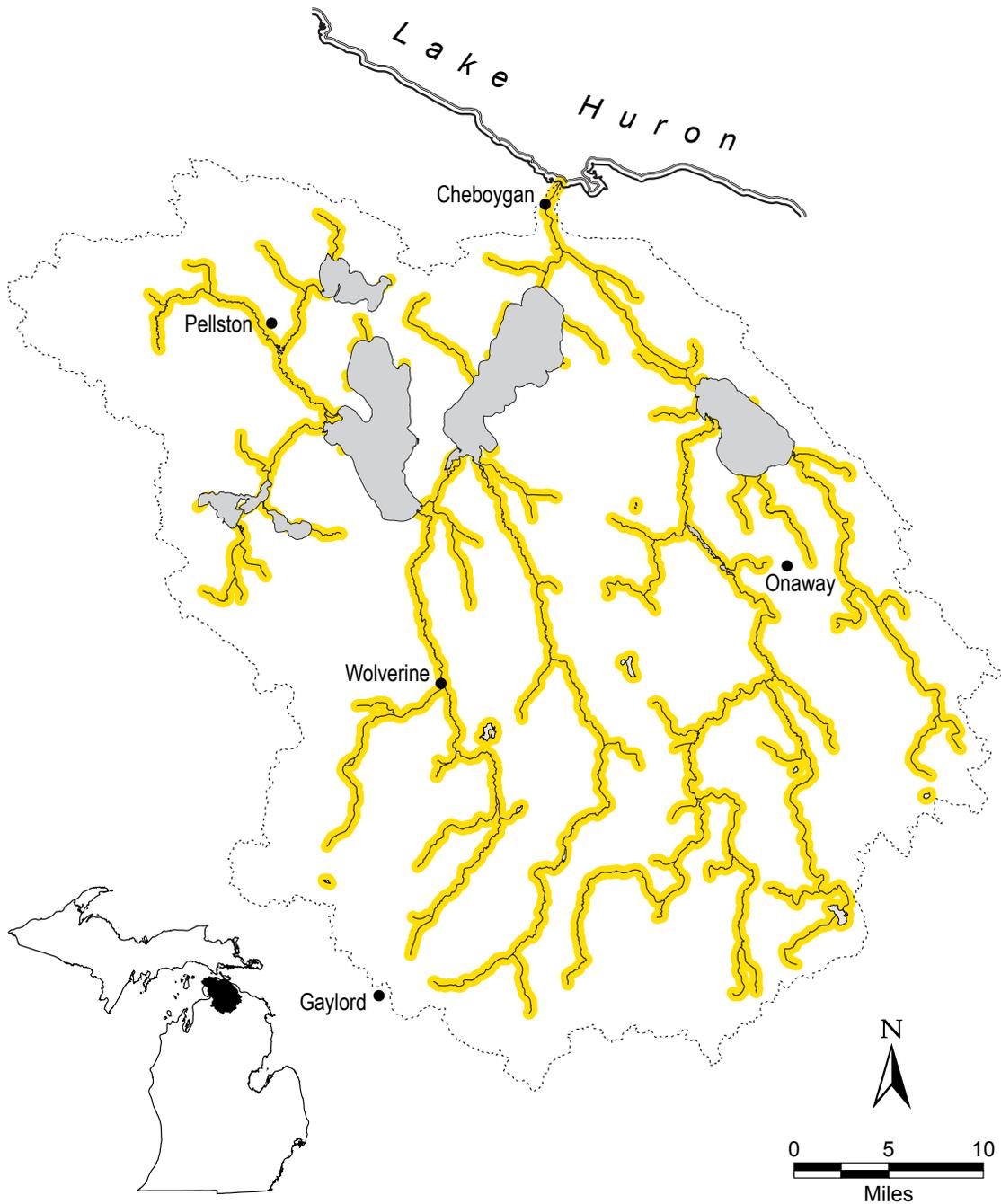
- feeding - warm, heavily vegetated lakes, stumpy weedy bays, and slow heavily vegetated medium to large rivers
- shallow cool water
- tolerant of low oxygen
- spawning - clear shallow waters (15-20") in heavily vegetated areas



Central mudminnow *Umbra limi*

Habitat:

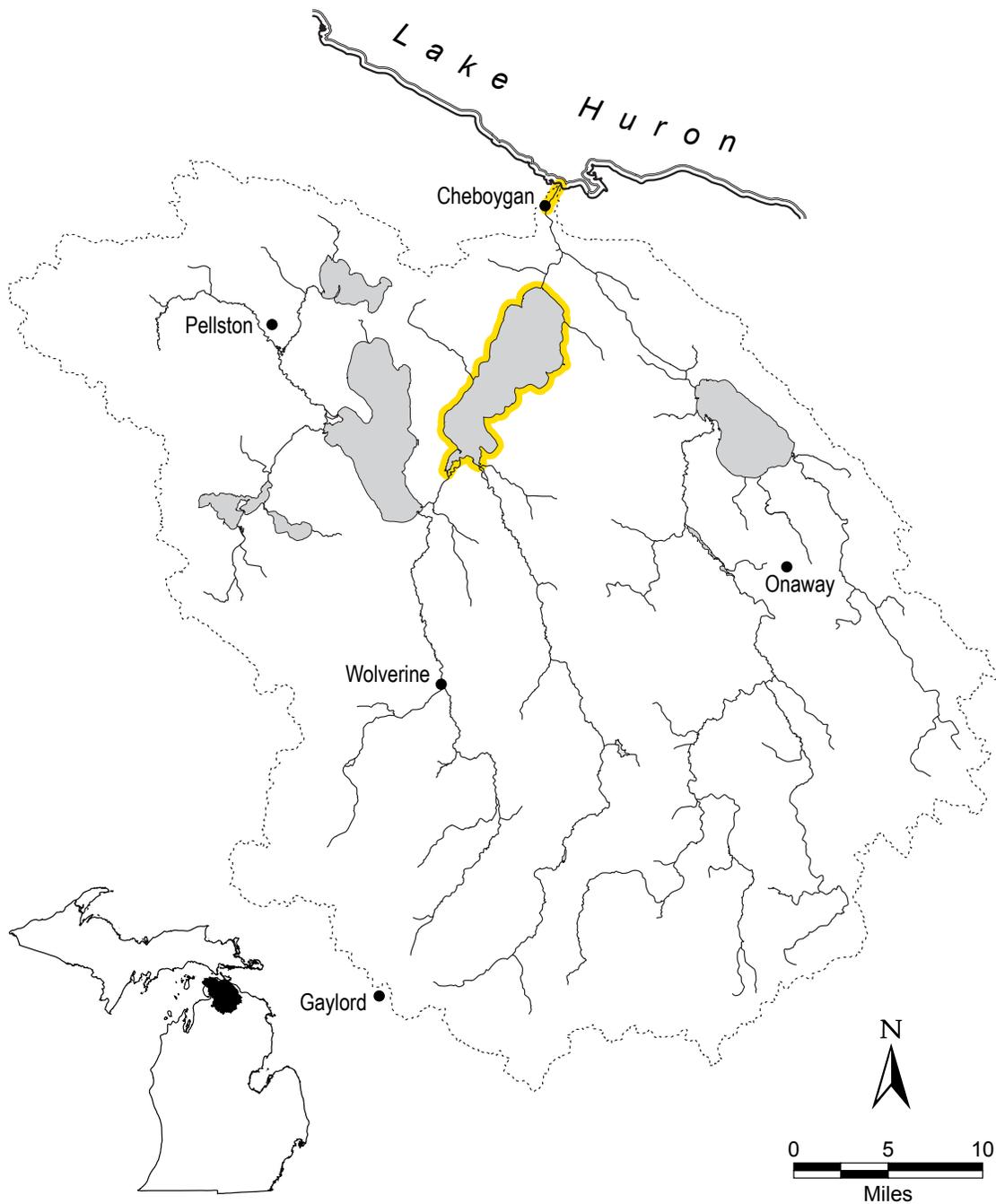
- feeding - undisturbed clear, low-gradient streams or rivers and lakes and impoundments
- organic debris, muck, or peat substrates
- aquatic vegetation
- spawning - floodplain areas, on vegetation



Rainbow smelt *Osmerus mordax*

Habitat:

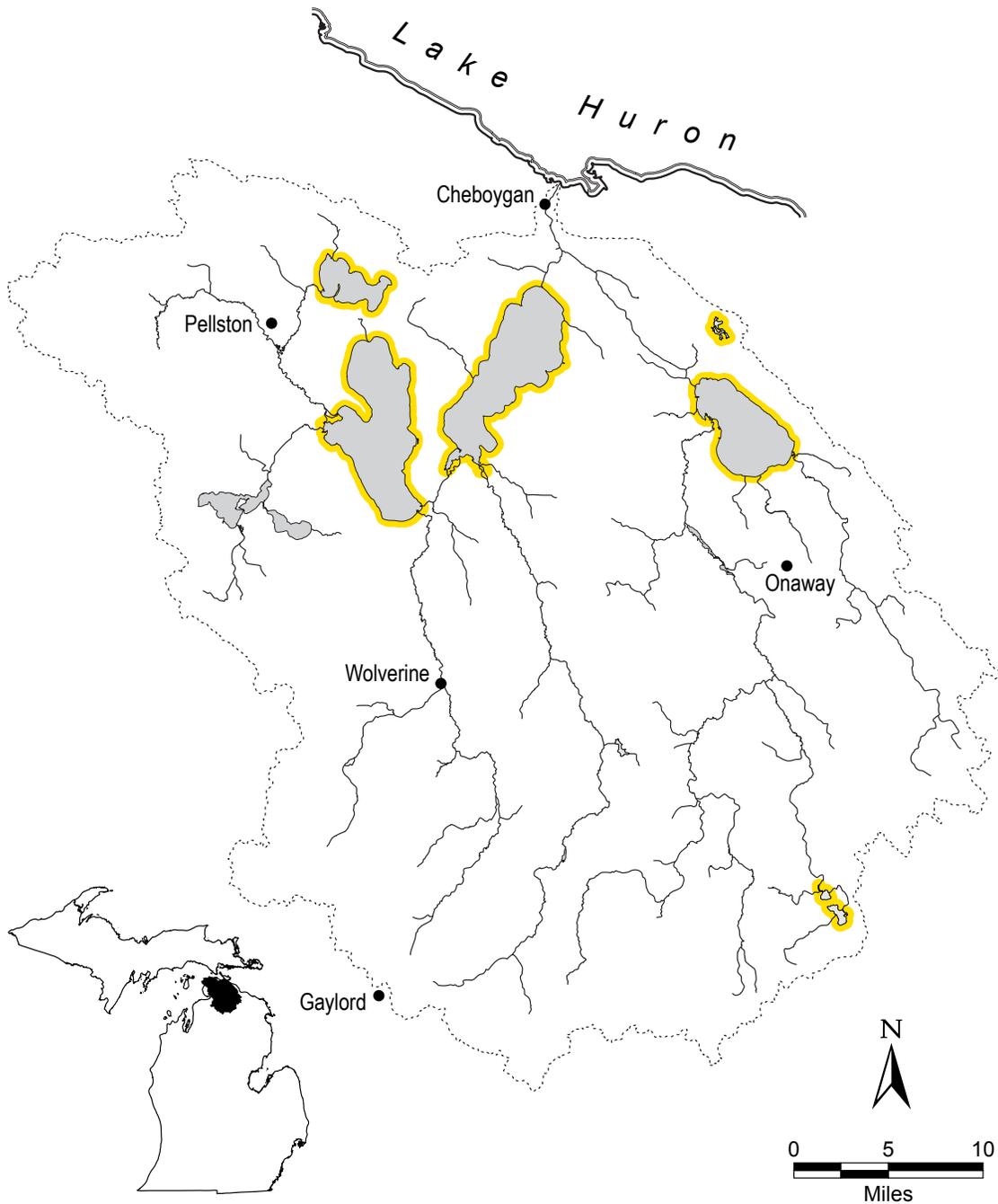
- feeding - young: close inshore lake habitat along sand and gravel beaches
- cold water
- spawning - clear high-gradient streams or wave swept shoreline
- riffles with coarse sand or gravel substrate
- winter refuge - midwaters of lakes or inshore coastal waters



Cisco {Lake herring} *Coregonus artedii* - threatened

Habitat:

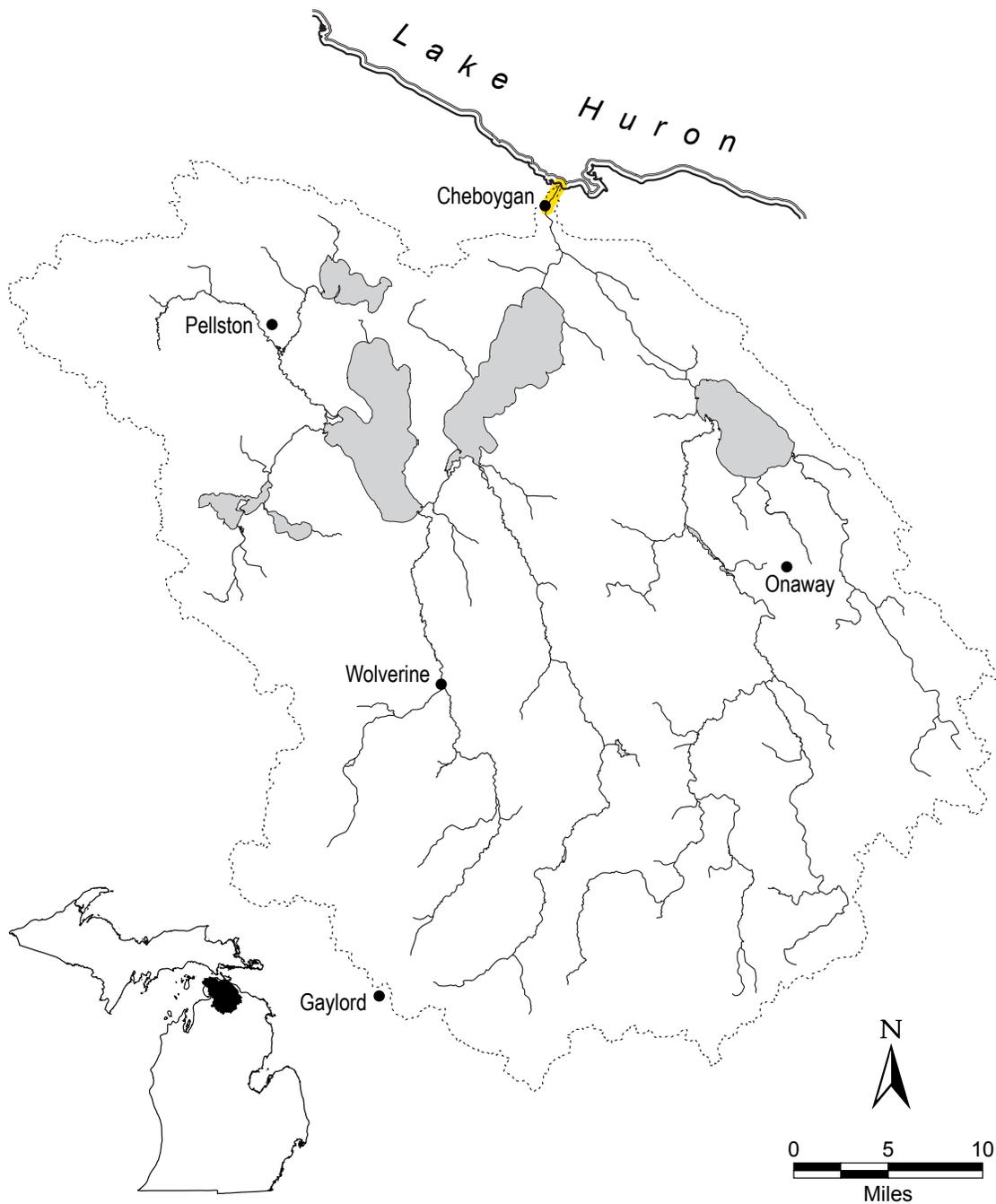
- feeding - deep cool lakes, preferably oligotrophic
- spawning - usually in lakes
 - 3 to 6 feet of water with no vegetation
 - often over gravel or stony substrate



Lake whitefish *Coregonus clupeaformis*

Habitat:

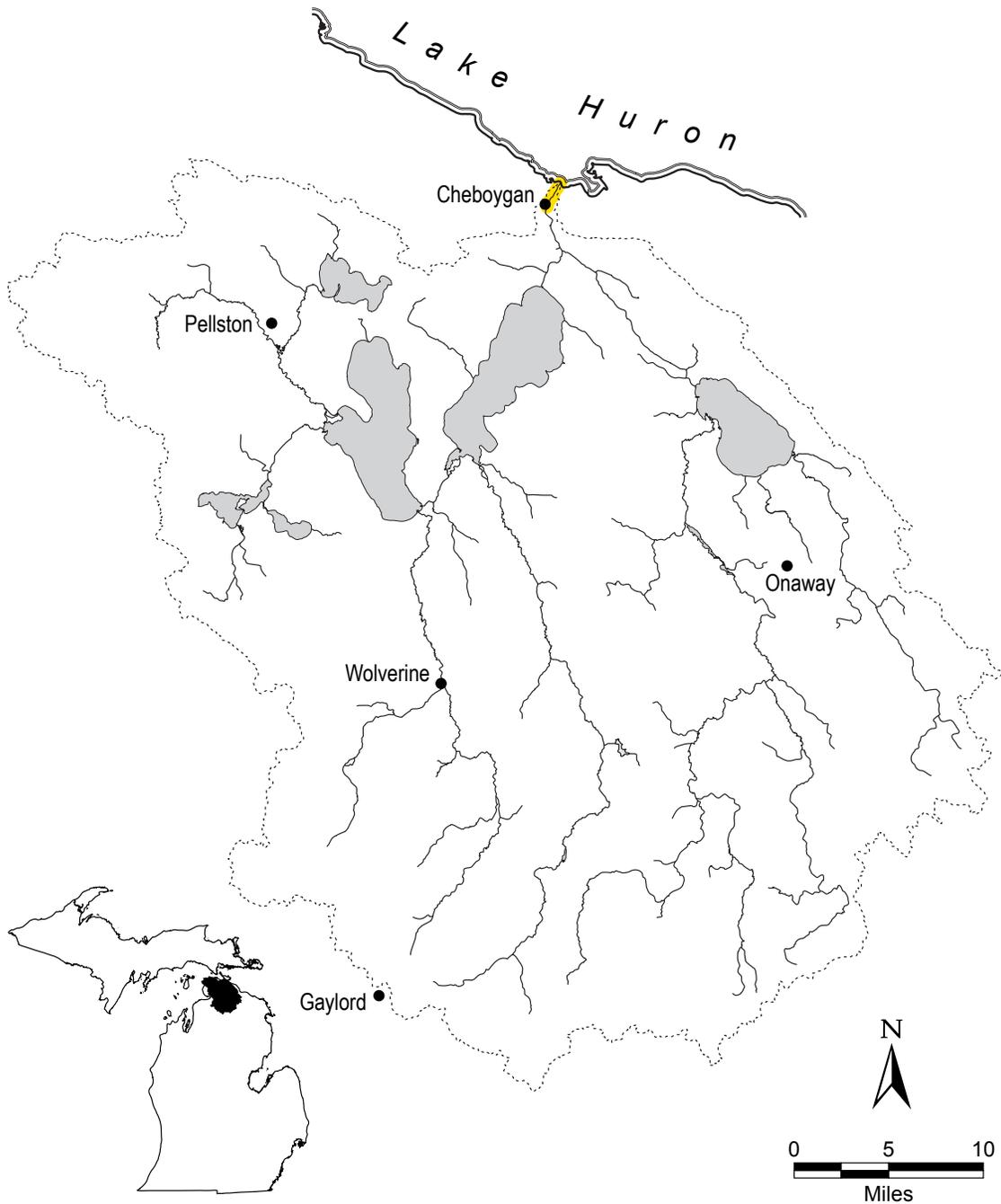
- feeding - shallow water (for coregonids; 55-105 ft.)
- spawning - cold shallow water (<25 ft.)
 - hard, stony, or sand substrate



Pink salmon *Oncorhynchus gorbuscha*

Habitat:

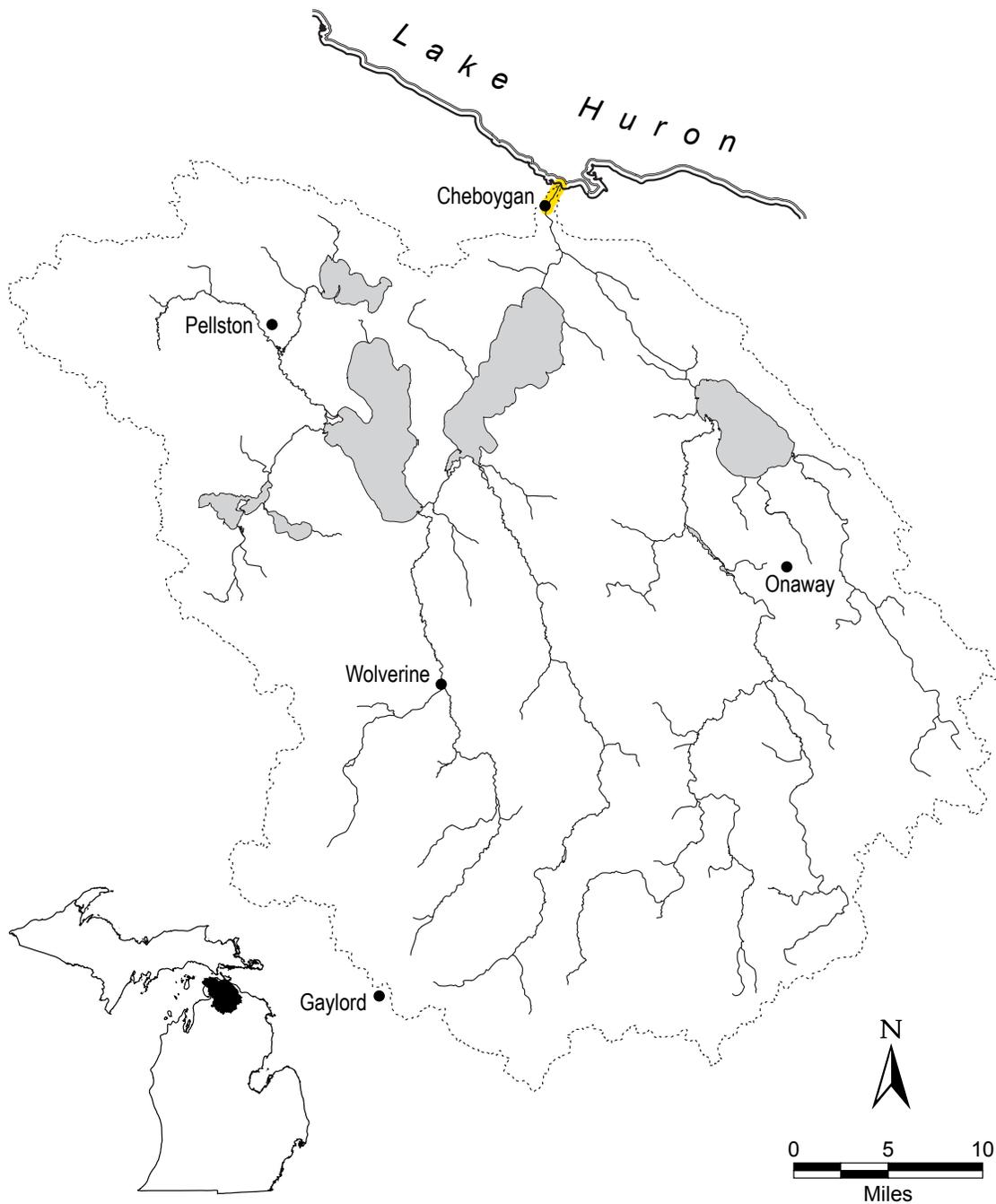
- feeding - large cold deep lakes - Lake Huron
- spawning - gravel substrate in rivers
- female prepares and guards nest until death



Coho salmon *Oncorhynchus kisutch*

Habitat:

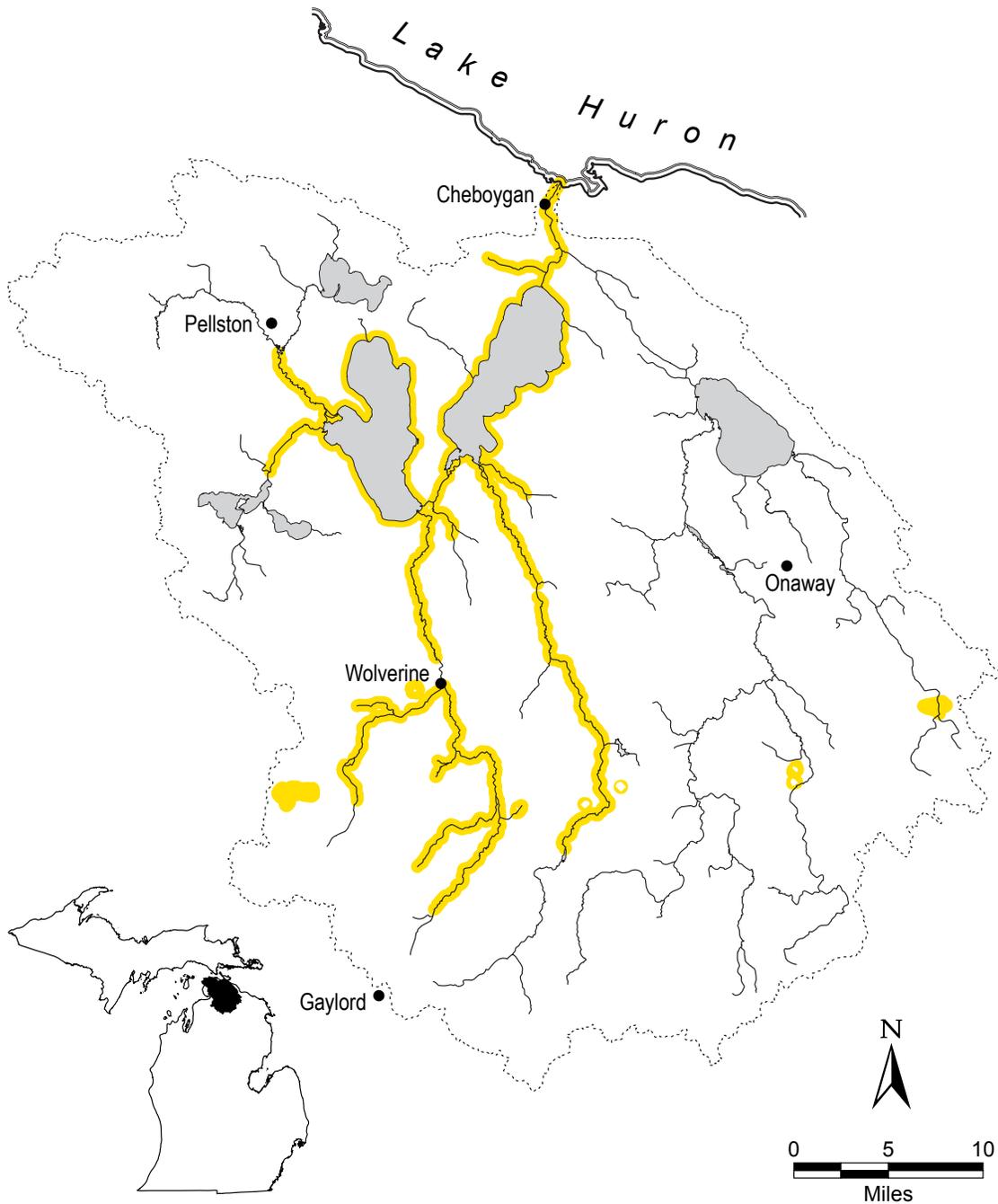
- feeding - adults: Lake Huron
- young: shallow gravel substrate in cold streams, later into pools
- spawning - cold streams and rivers
- swifter water of shallow gravelly substrate



Rainbow trout *Oncorhynchus mykiss*

Habitat:

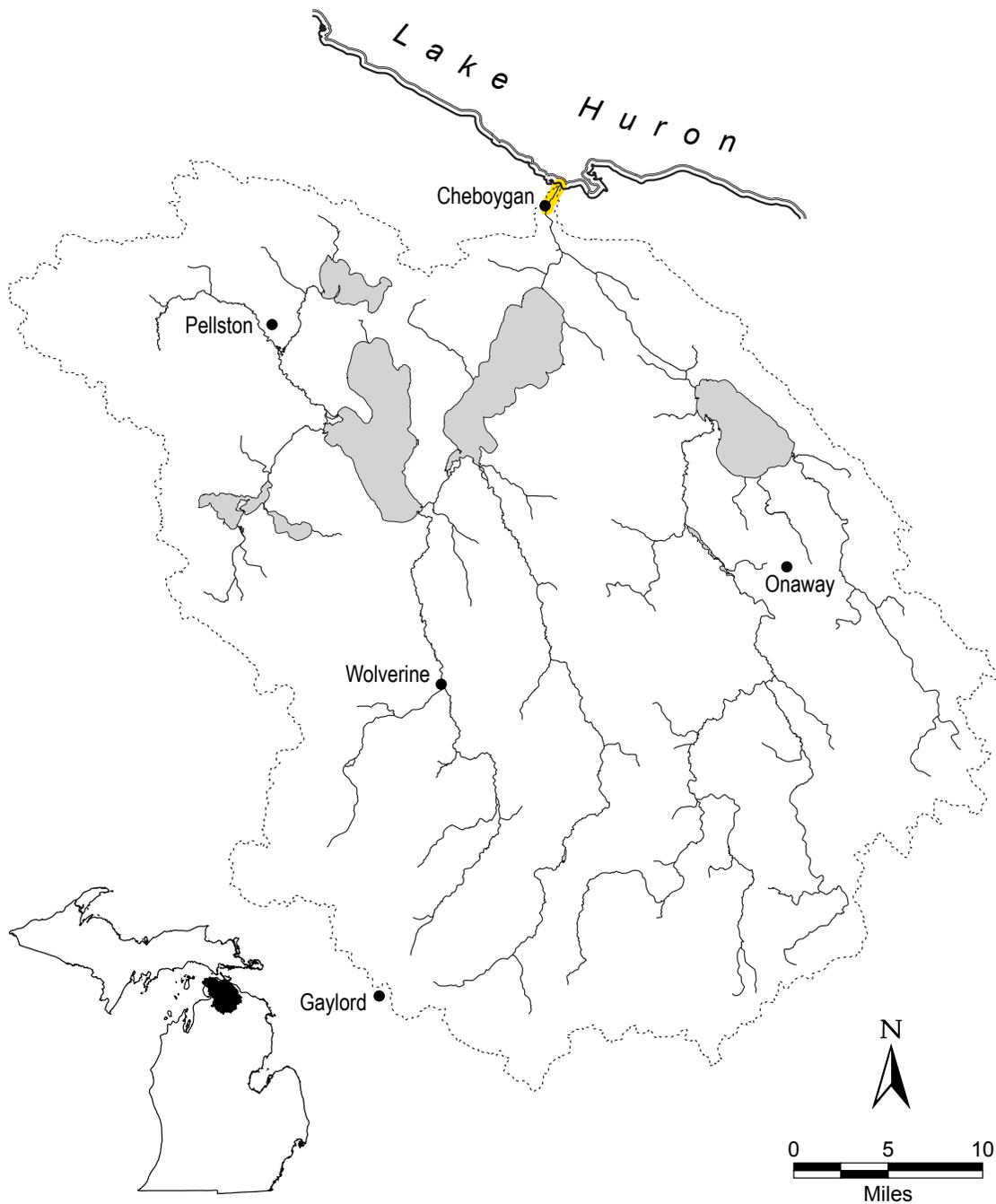
- feeding - cold clear water of rivers and Lake Huron
- moderate current
- spawning - gravelly riffles above a pool
- smaller tributaries



Chinook salmon *Oncorhynchus tshawytscha*

Habitat:

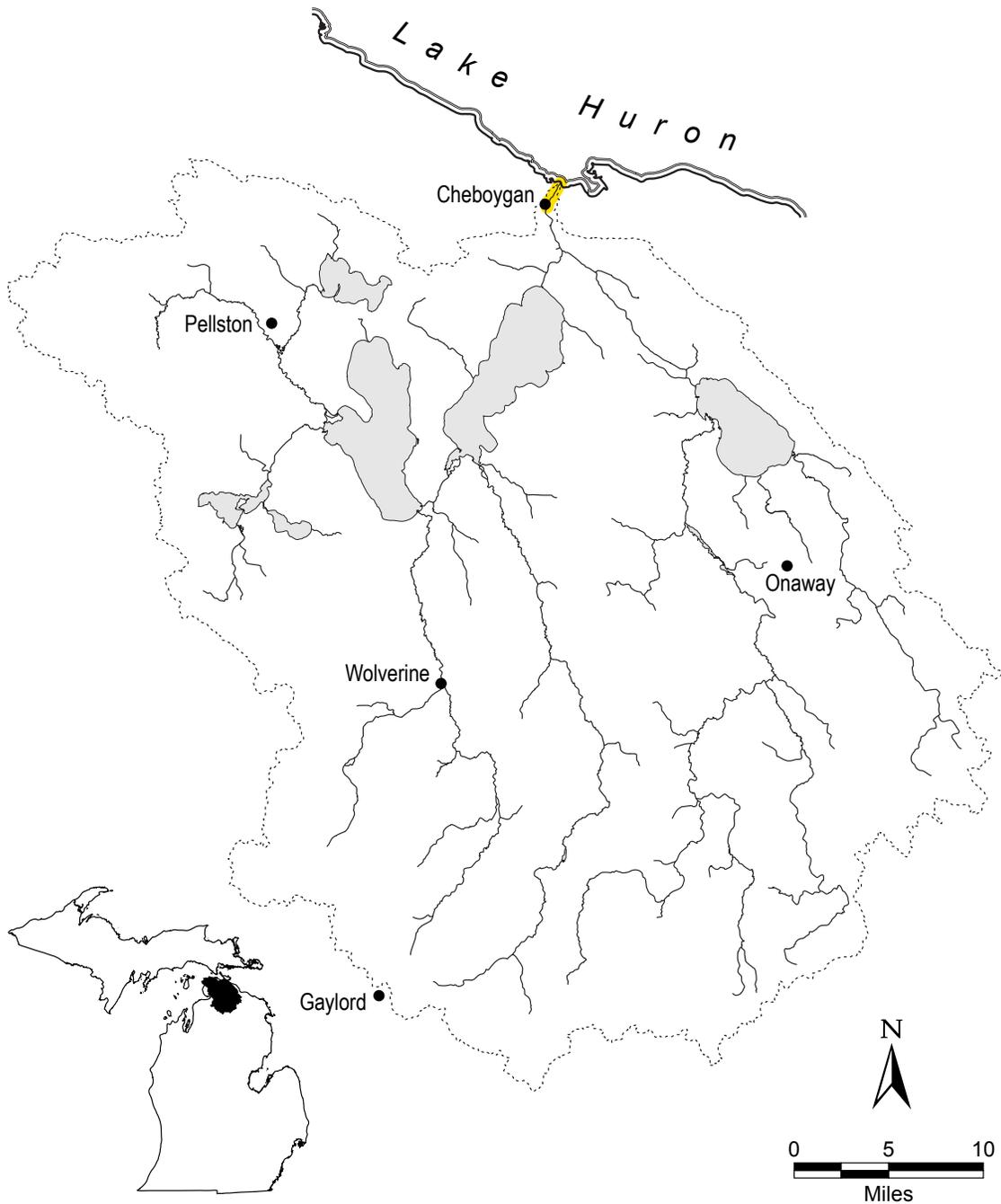
- feeding - adults: Lake Huron
- young: shallow gravel substrate in cool streams, later into pools
- spawning - gravelly substrate in cool streams



Atlantic salmon *Salmo salar*

Habitat:

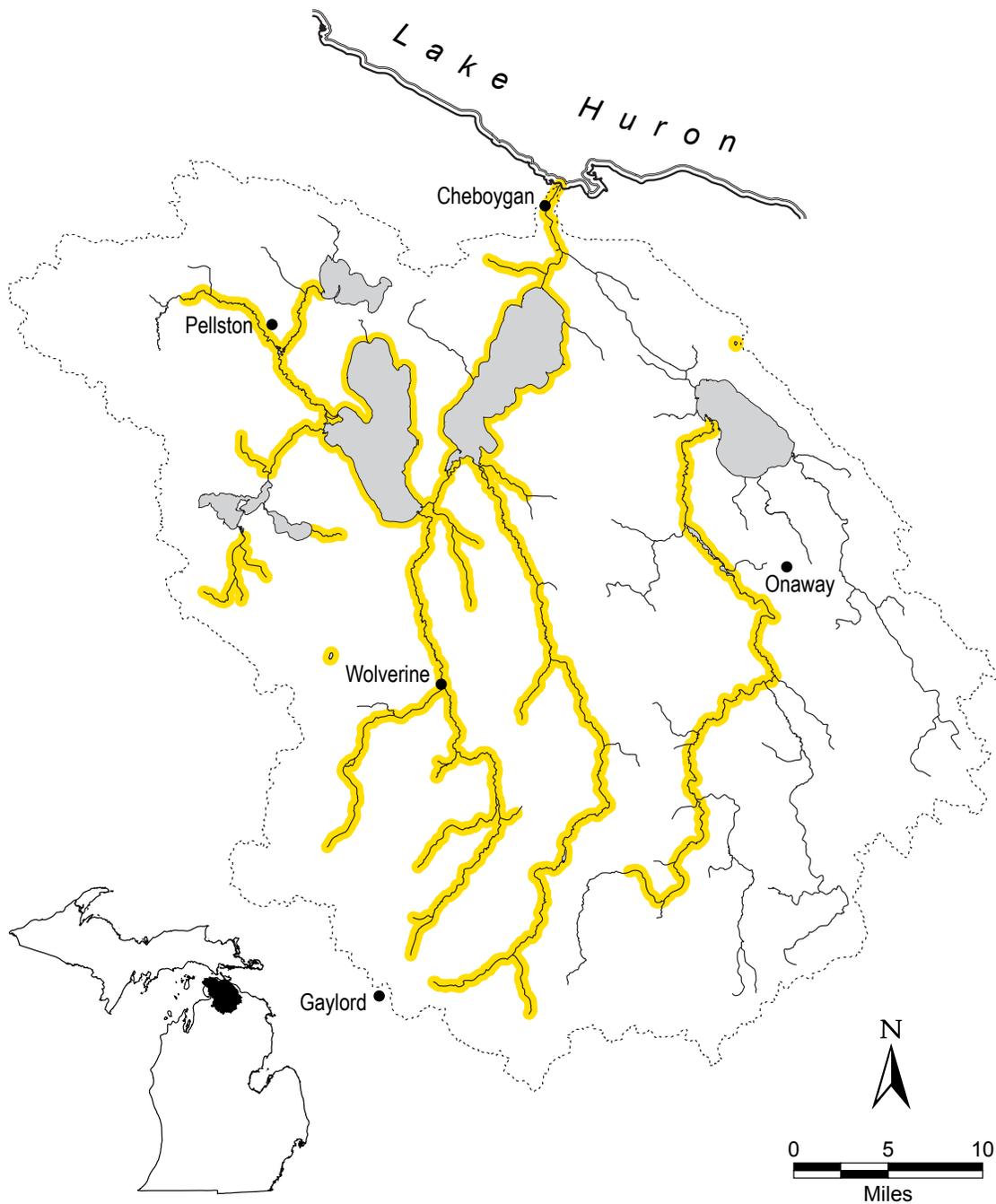
- feeding - young: gravel substrate streams
- adults: Lake Huron
- spawning - streams and rivers
- nests in gravel substrate
- swift current



Brown trout *Salmo trutta*

Habitat:

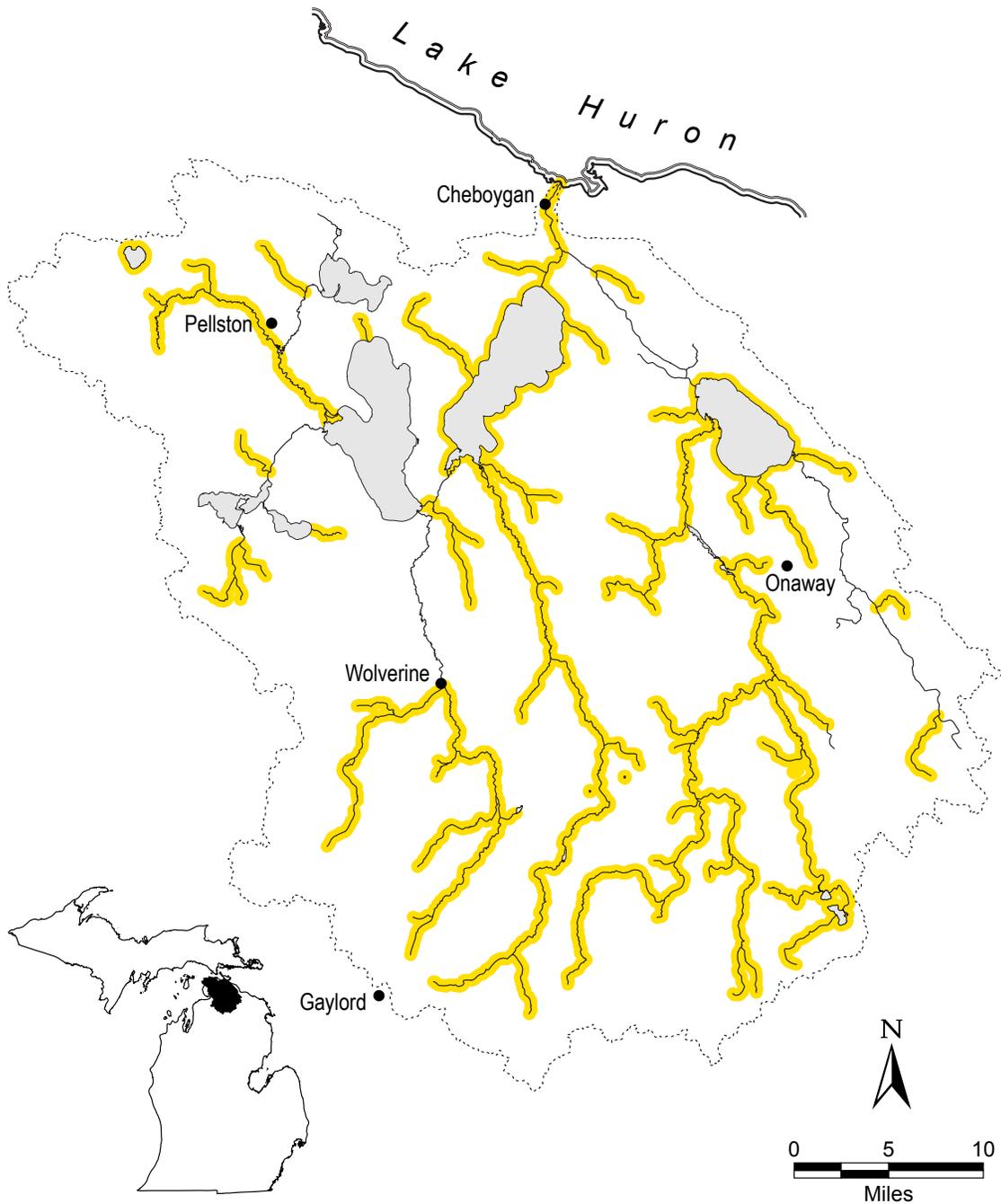
- feeding - cold, clear streams, rivers, and lakes (not >70°F)
- medium to swift current in streams
- does not tolerate silt well
- prefers few individuals and species around
- abundance of aquatic and land insects
- spawning - gravelly riffles; shallow headwater areas



Brook trout *Salvelinus fontinalis*

Habitat:

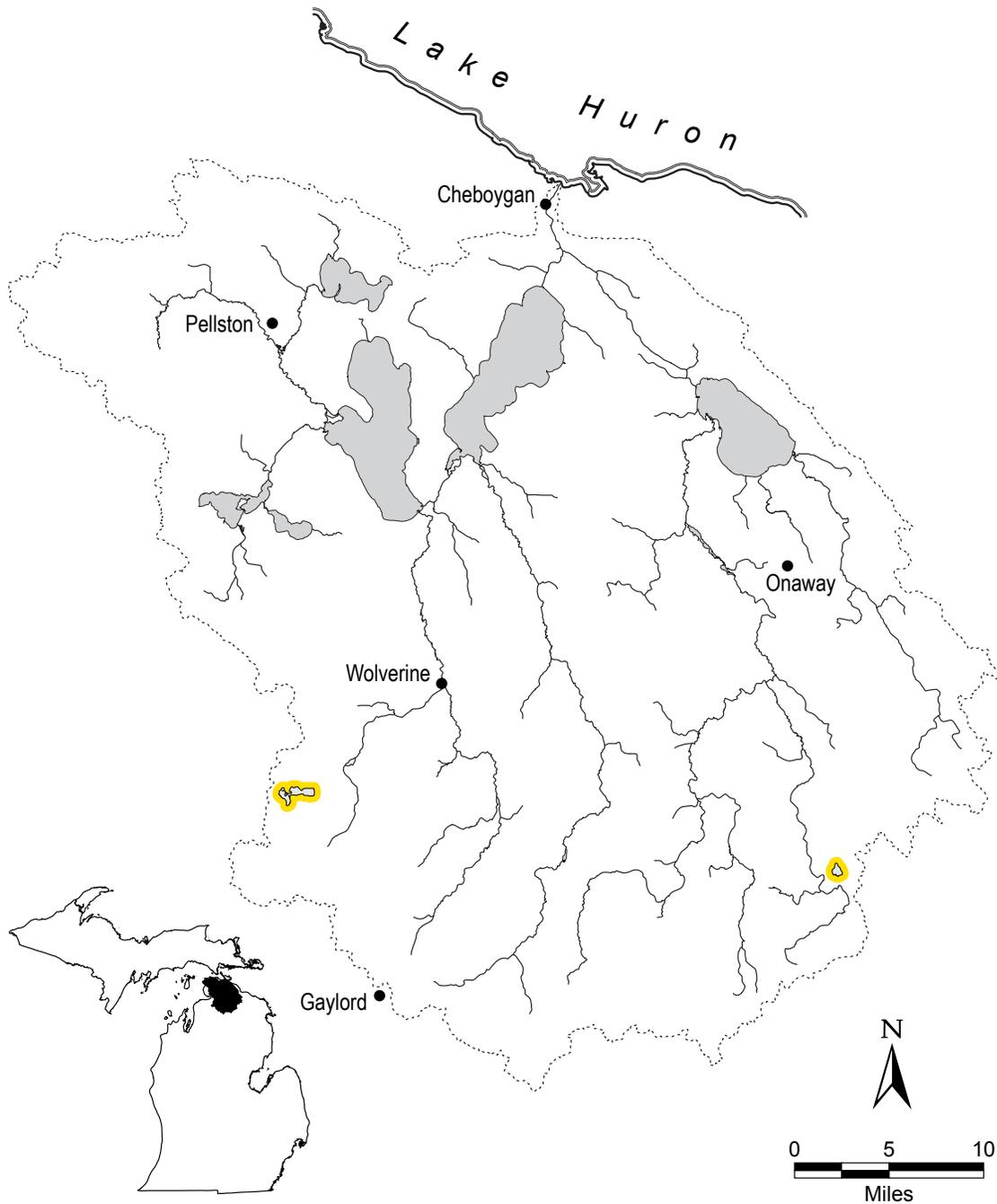
- feeding - cold, clear streams, rivers, and lakes (not >65°F)
- low current
- well oxygenated water
- spawning - gravelly riffles; shallow or headwater streams



Splake *Salvelinus fontinalis* x *Salvelinus namaycush*

Habitat:

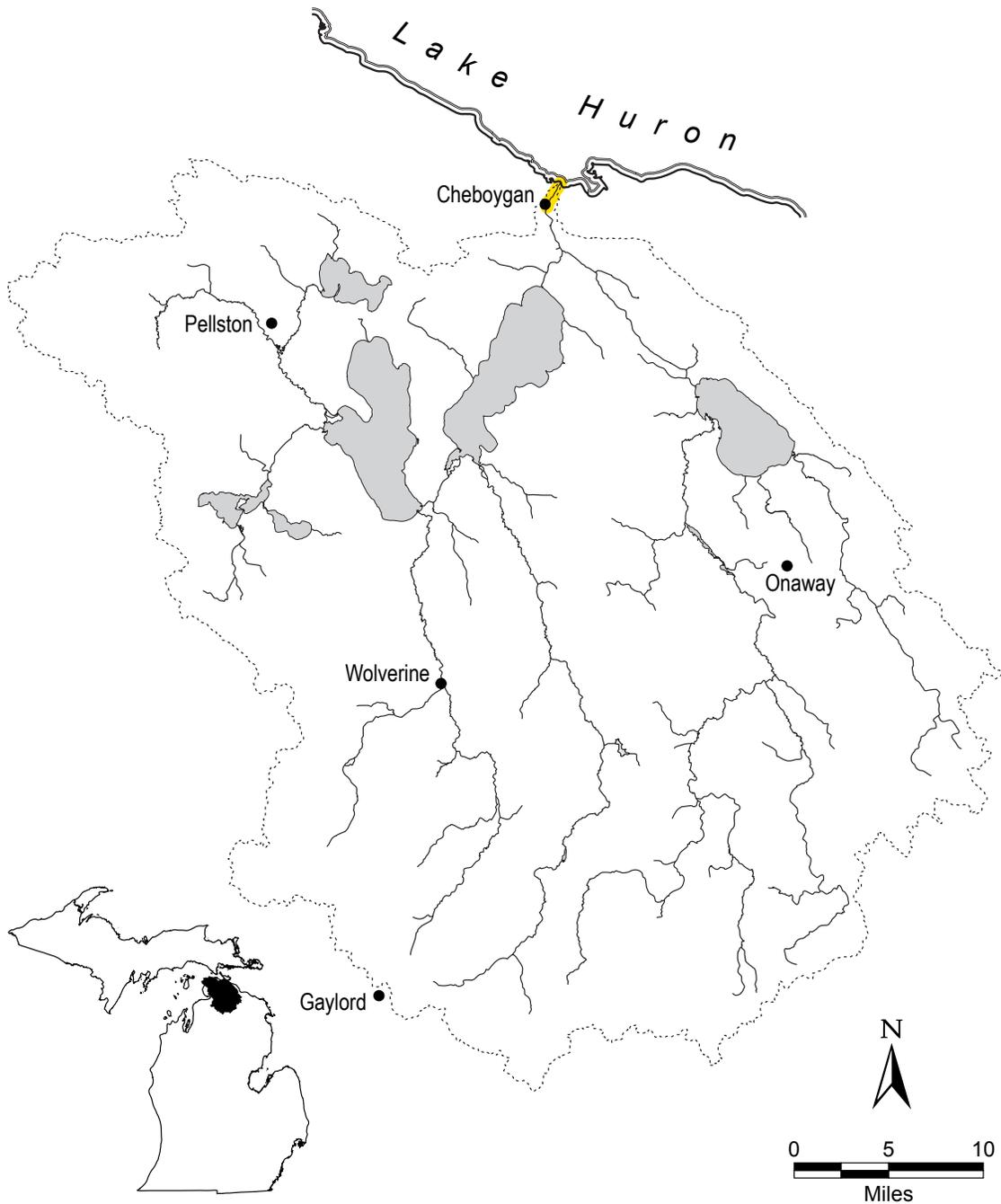
- feeding - littoral habitat
- cool water lakes; also Lake Huron
- spawning - hatchery produced cross of brook and lake trout
- offspring usually fertile, but with lower fecundity than either parent species



Lake trout *Salvelinus namaycush*

Habitat:

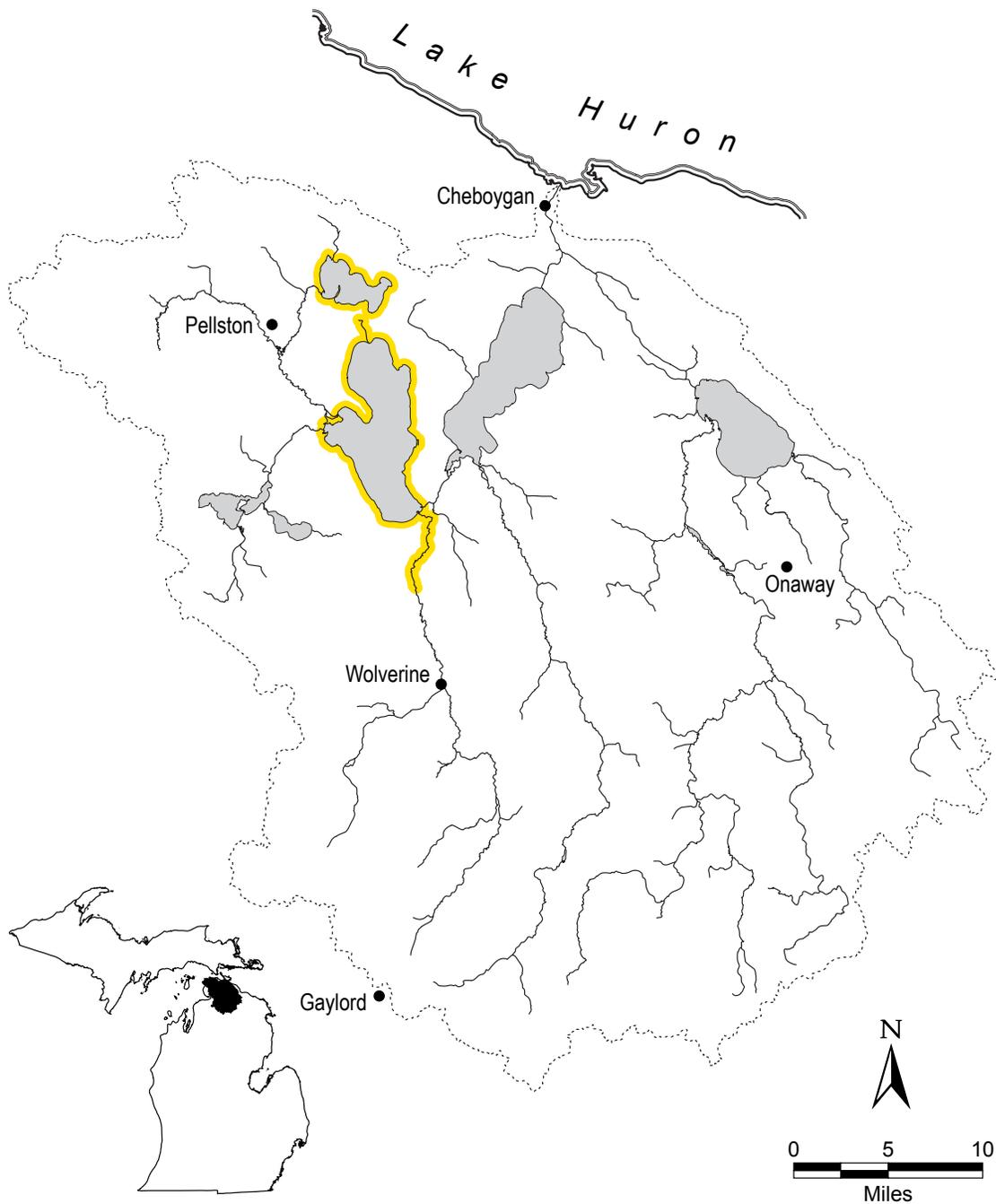
- feeding - cold lakes and rivers
- spawning - large boulder or rubble substrate
- shallow water of lakes and rivers



Trout-perch *Percopsis omiscomaycus*

Habitat:

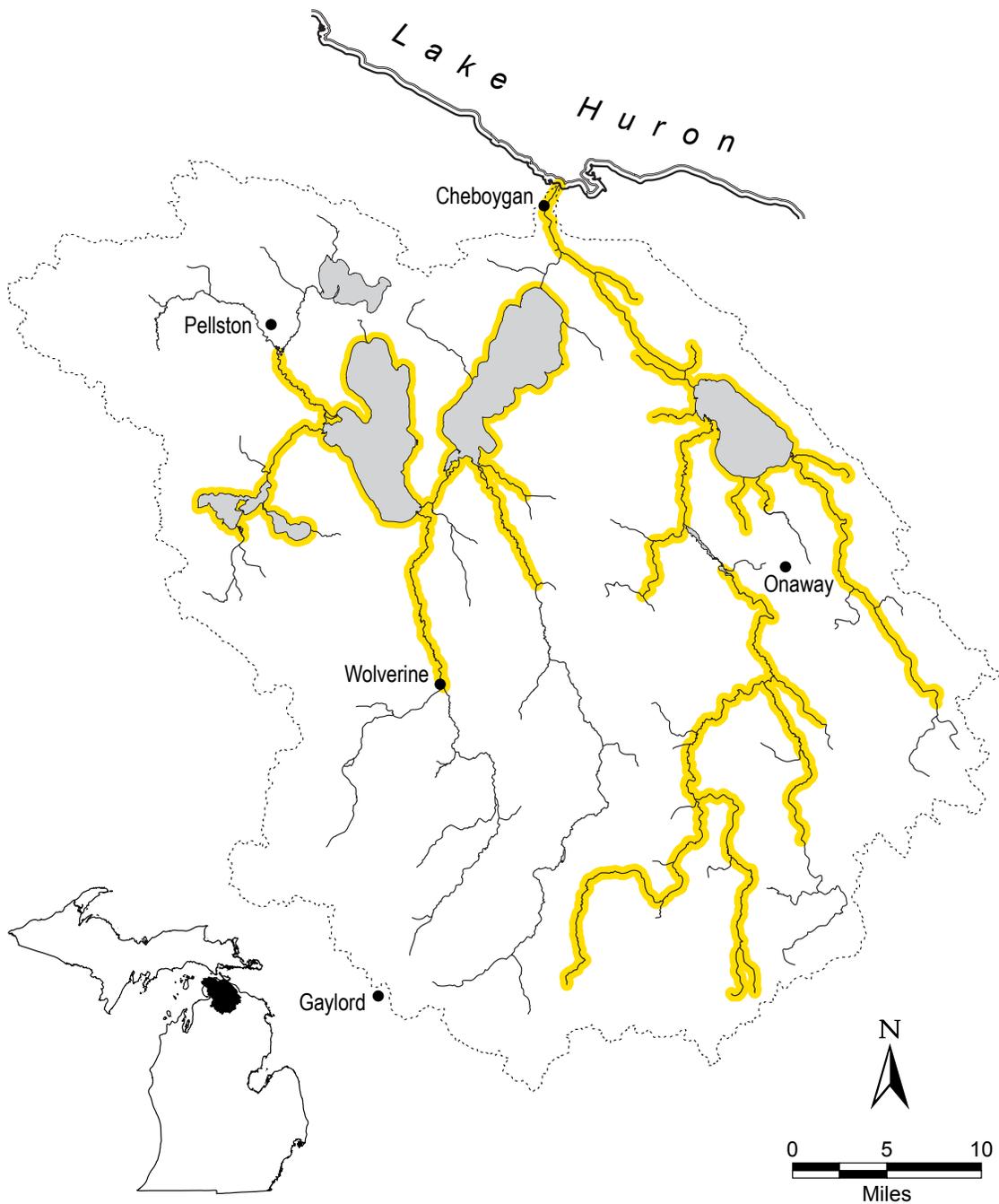
- feeding - clean sand or fine gravel substrate
- long deep pools in low gradient streams and Lake Huron
- highly intolerant of clayey silts
- avoids rooted aquatic vegetation
- spawning - over rocks in shallows
- over sand and gravel substrates in Lake Huron



Burbot *Lota lota*

Habitat:

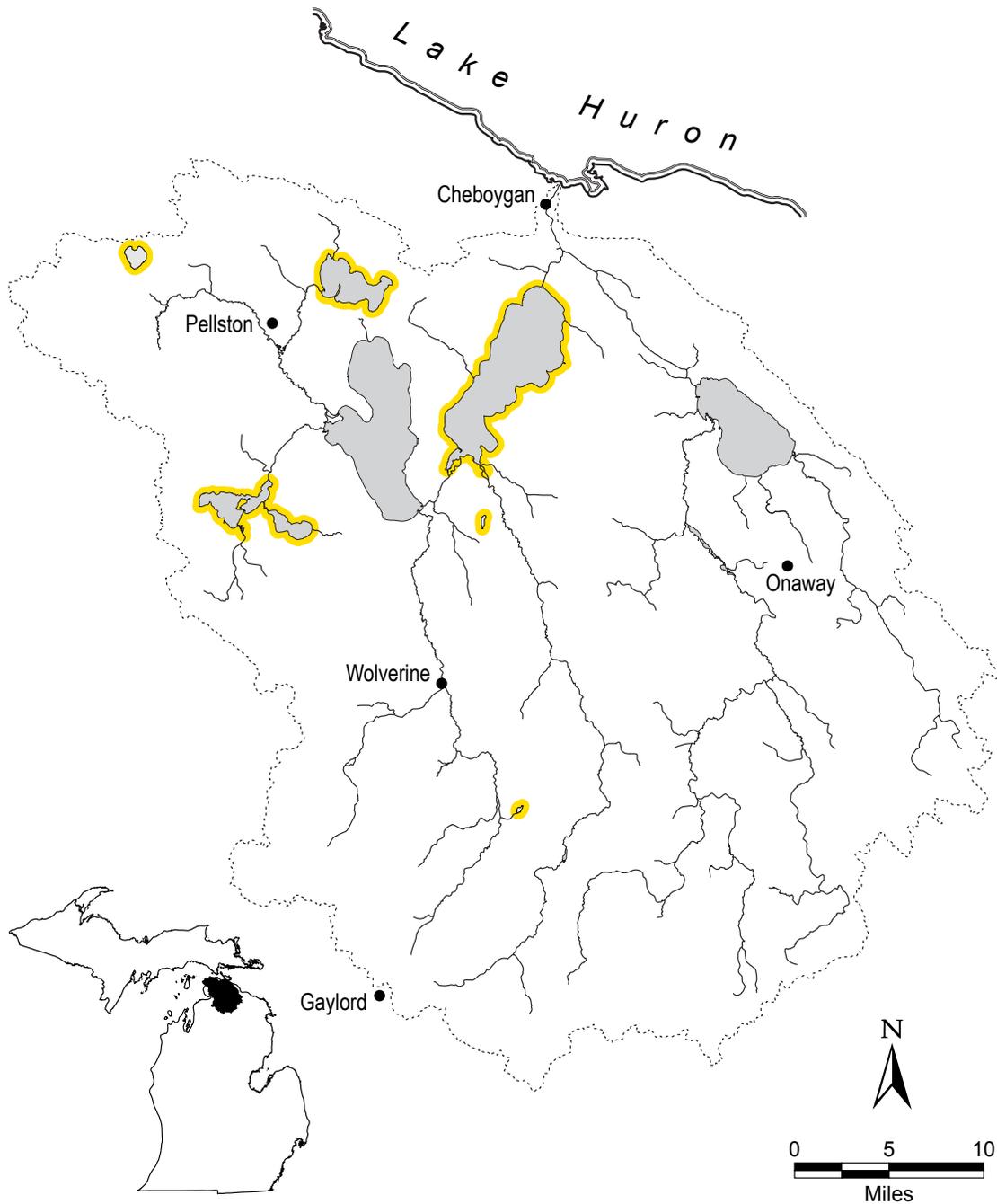
- feeding - deep cold lakes and large cool rivers
- mud, sand, rubble, boulder, silt, and gravel substrates
- spawning - in 1 to 4 feet of water in shallow bays or on shoals 5-10 feet deep usually in lakes, sometimes rivers
- over sand or gravel substrate
- under ice



Western banded killifish *Fundulus diaphanus menona*

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



Brook stickleback *Culaea inconstans*

Habitat:

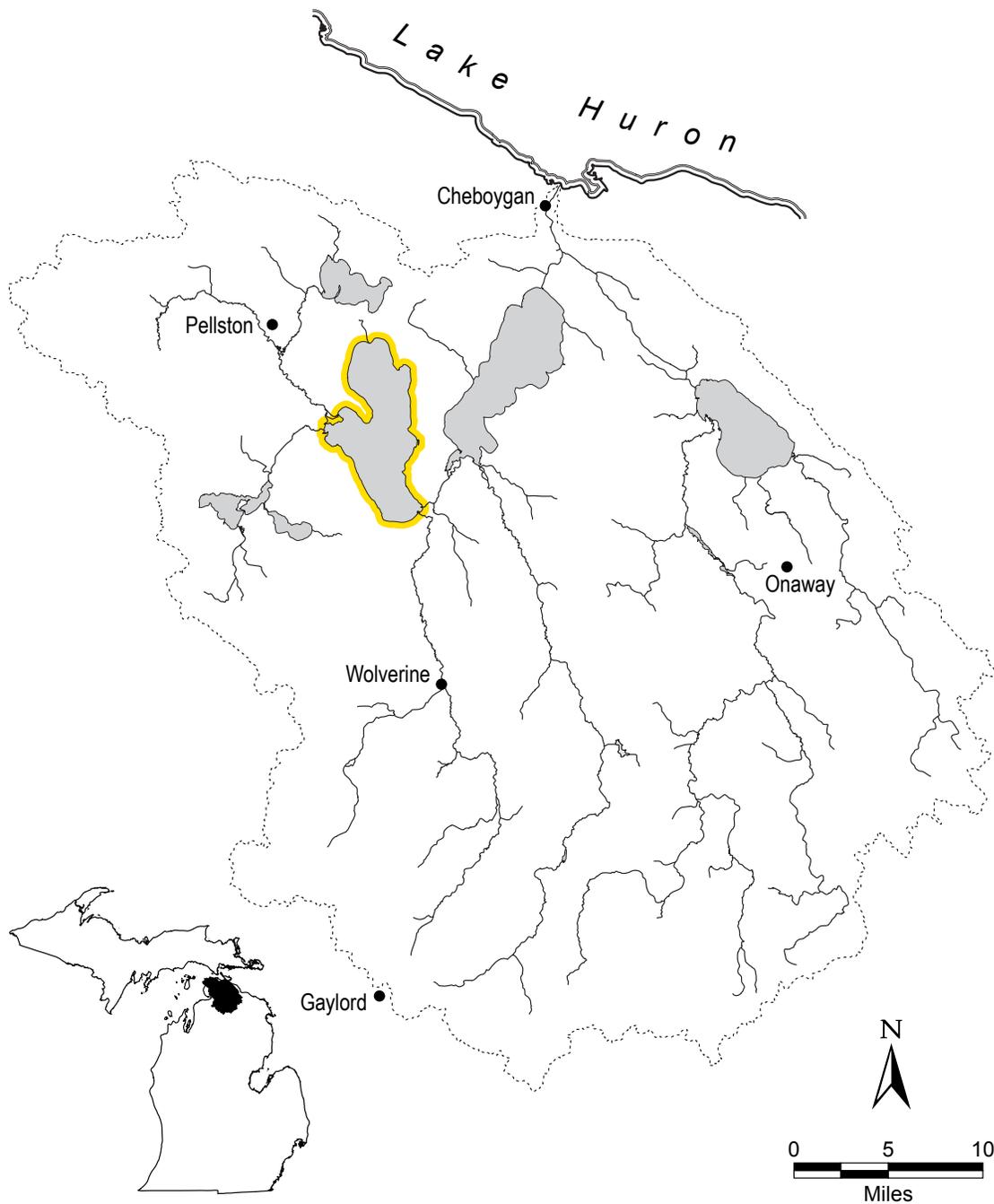
- feeding - clear, cold, densely vegetated streams, and swampy margins of lakes
- low gradient
- muck, peat, or marl substrate
- not tolerant of turbidity
- spawning - shallow cool (<66°F) water
- aquatic reeds or grasses necessary



Ninespine stickleback *Pungitius pungitius*

Habitat:

- feeding - open water of lakes; also Lake Huron
- cool quiet waters
- spawning - builds nests among aquatic vegetation in creeks and streams



Mottled sculpin *Cottus bairdii*

Habitat:

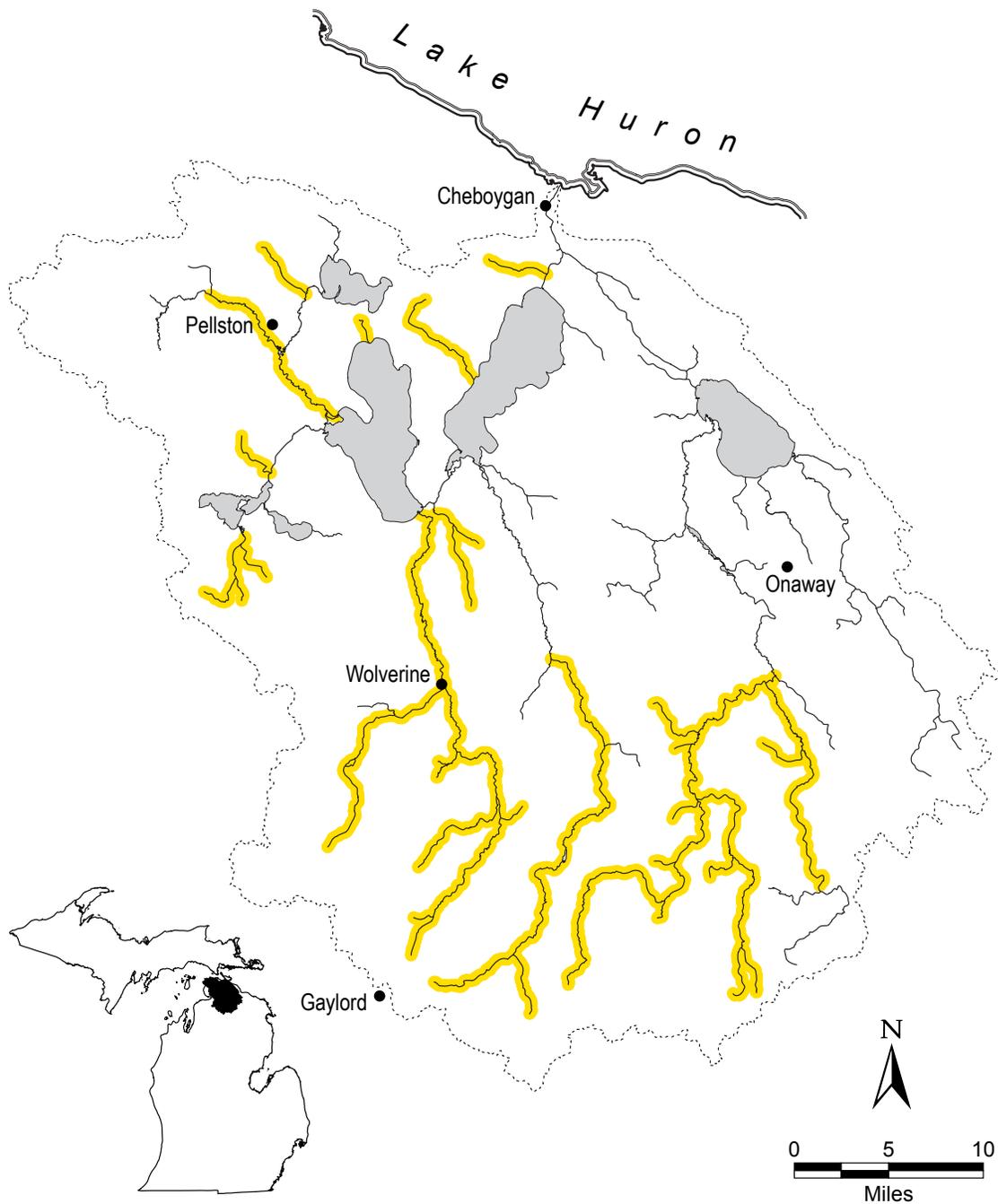
- feeding - cool to cold streams
- riffle and rock substrates preferred
- clear to slightly turbid shallow water
- spawning - nests under logs or rock



Slimy sculpin *Cottus cognatus*

Habitat:

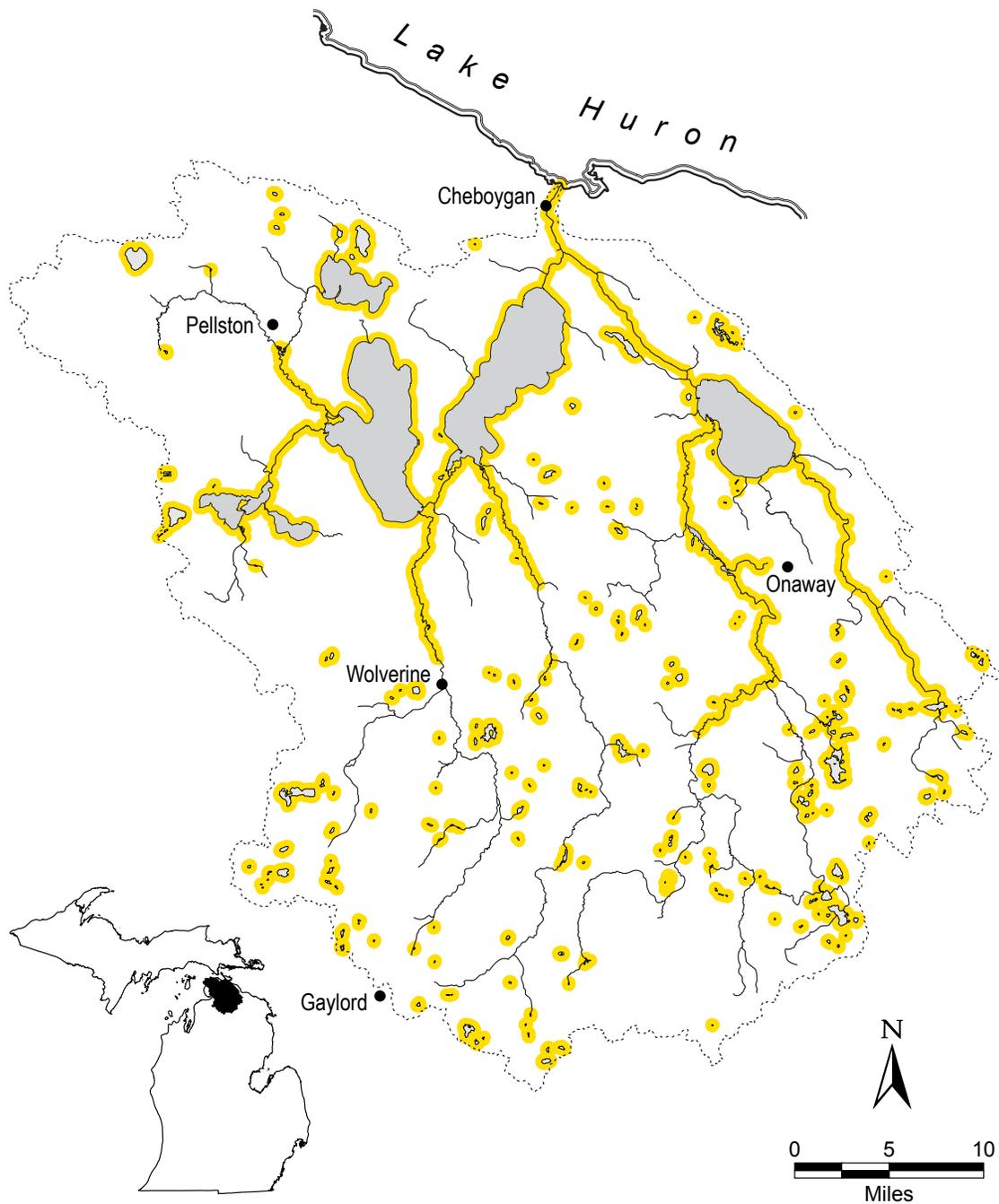
- feeding - cool lakes, impoundments, rivers, and streams
- gravel or rock substrate
- spawning - nest in shallow areas of lakes
- gravel substrate or rock ledge
- male parental care



Rock bass *Ambloplites rupestris*

Habitat:

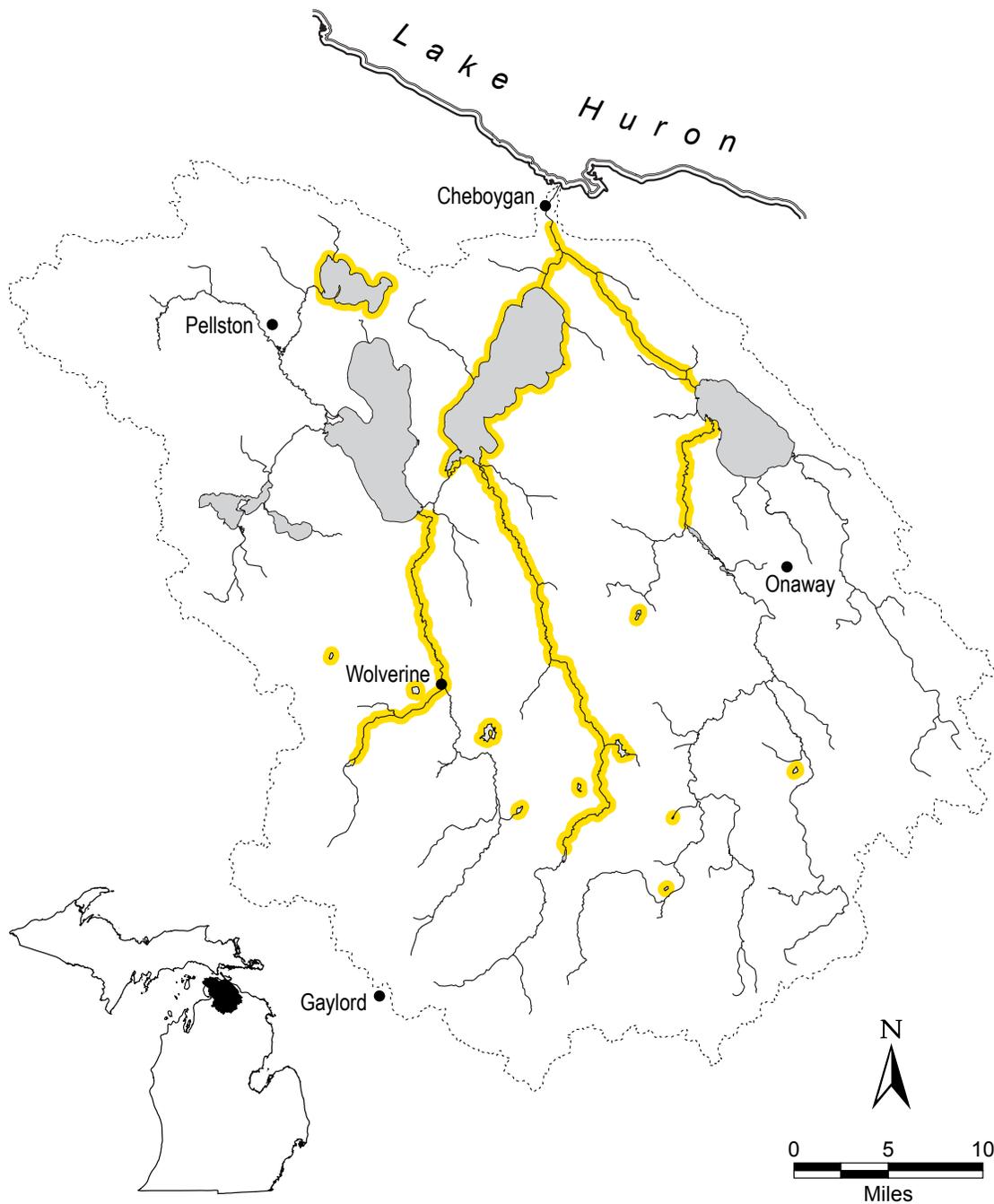
- feeding - clear, cool streams, rivers, and lakes
- rocky to sand substrate
- woody or vegetative cover
- spawning - sand or gravel nests
- shallow water
- winter refuge - deep water



Green sunfish *Lepomis cyanellus*

Habitat:

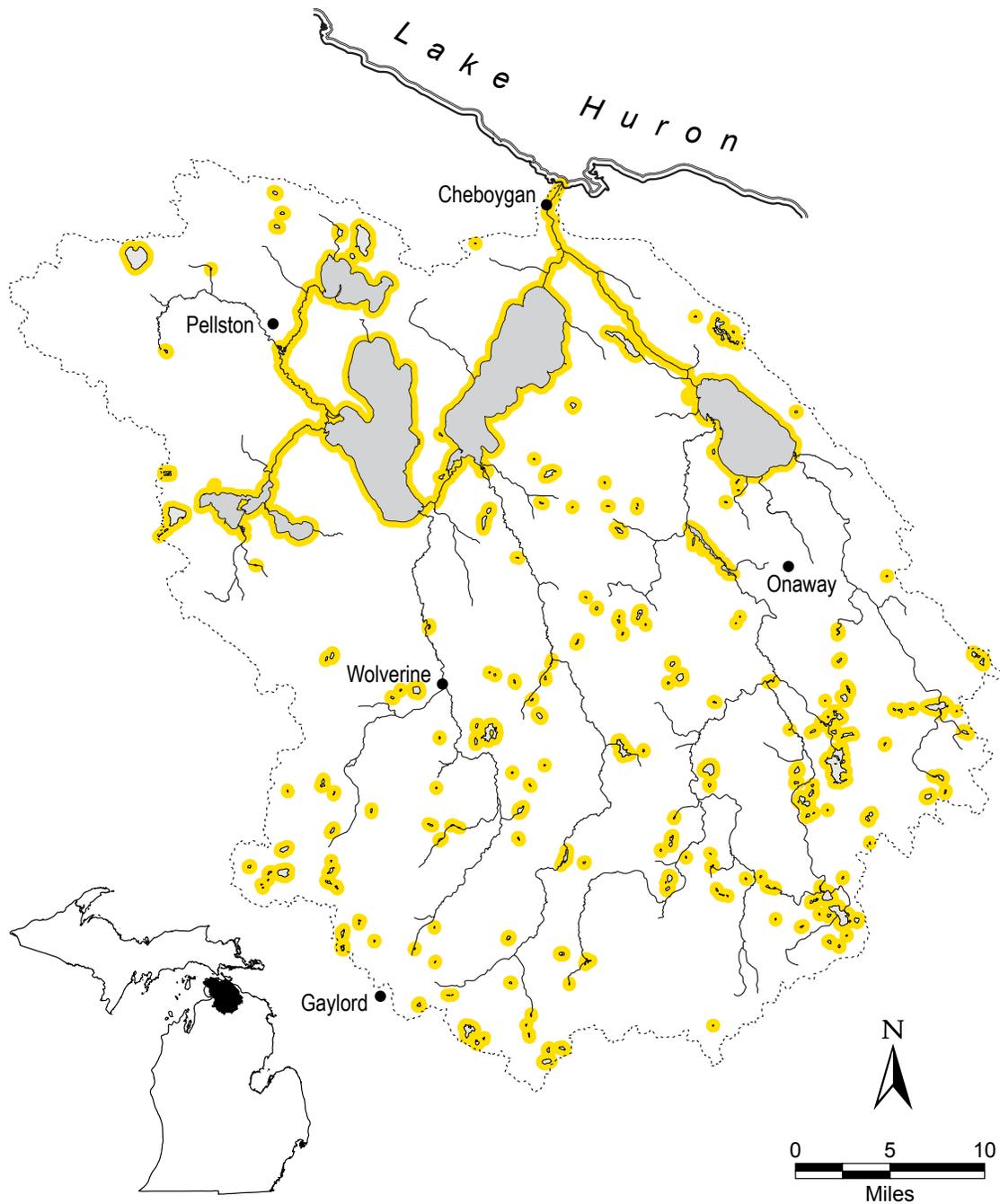
- feeding - impoundments and lakes, and low-current streams and rivers
- no substrate preference
- spawning - nests in shallow areas sheltered by rocks, logs, or aquatic vegetation



Pumpkinseed *Lepomis gibbosus*

Habitat:

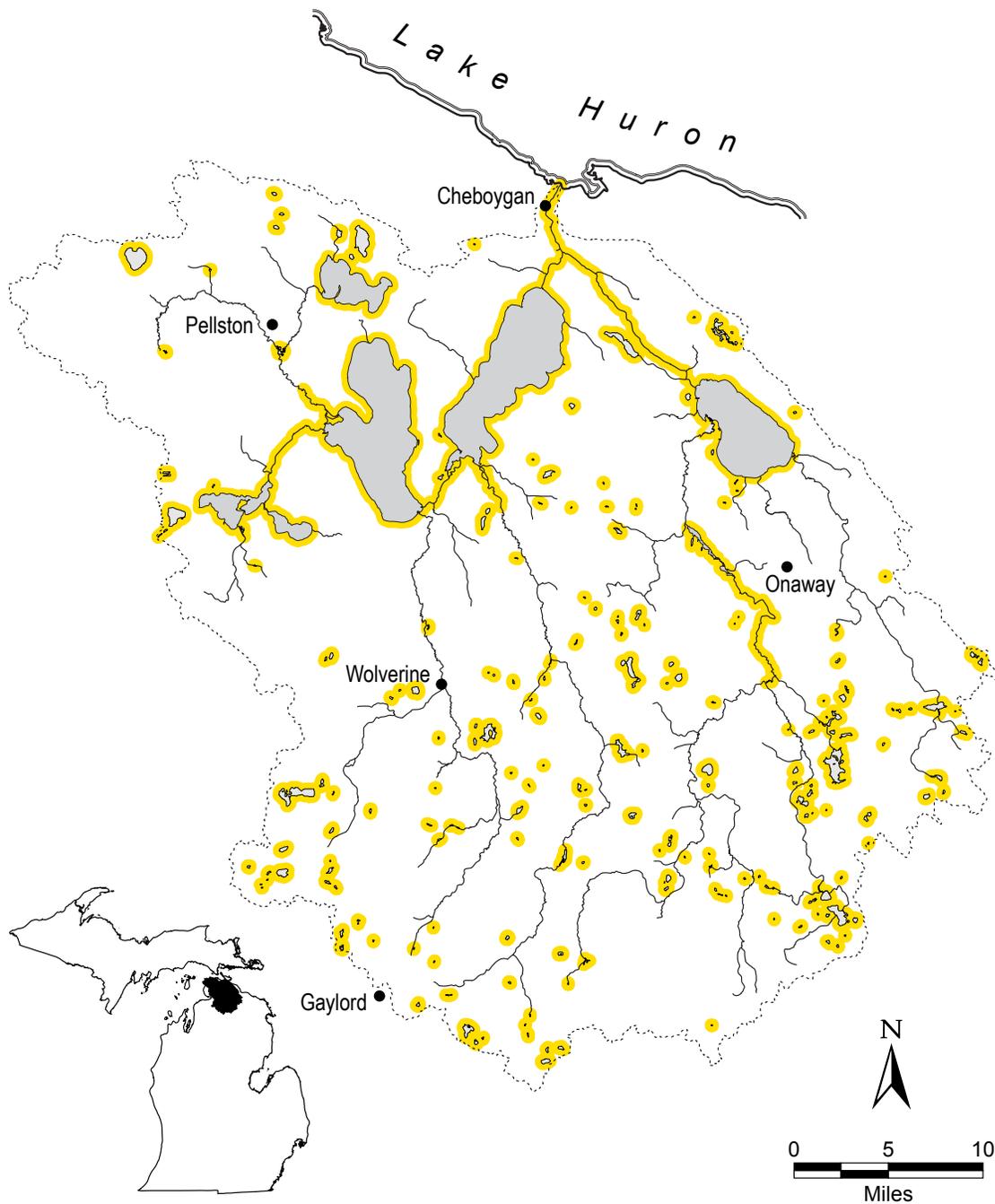
- feeding - non-flowing clear water in streams and rivers; also lakes and impoundments
- muck or sand partly covered with organic debris substrate
- dense beds of submerged aquatic vegetation
- spawning - nest in sand, gravel, or rock substrate
- in shallow water near submerged vegetation



Bluegill *Lepomis macrochirus*

Habitat:

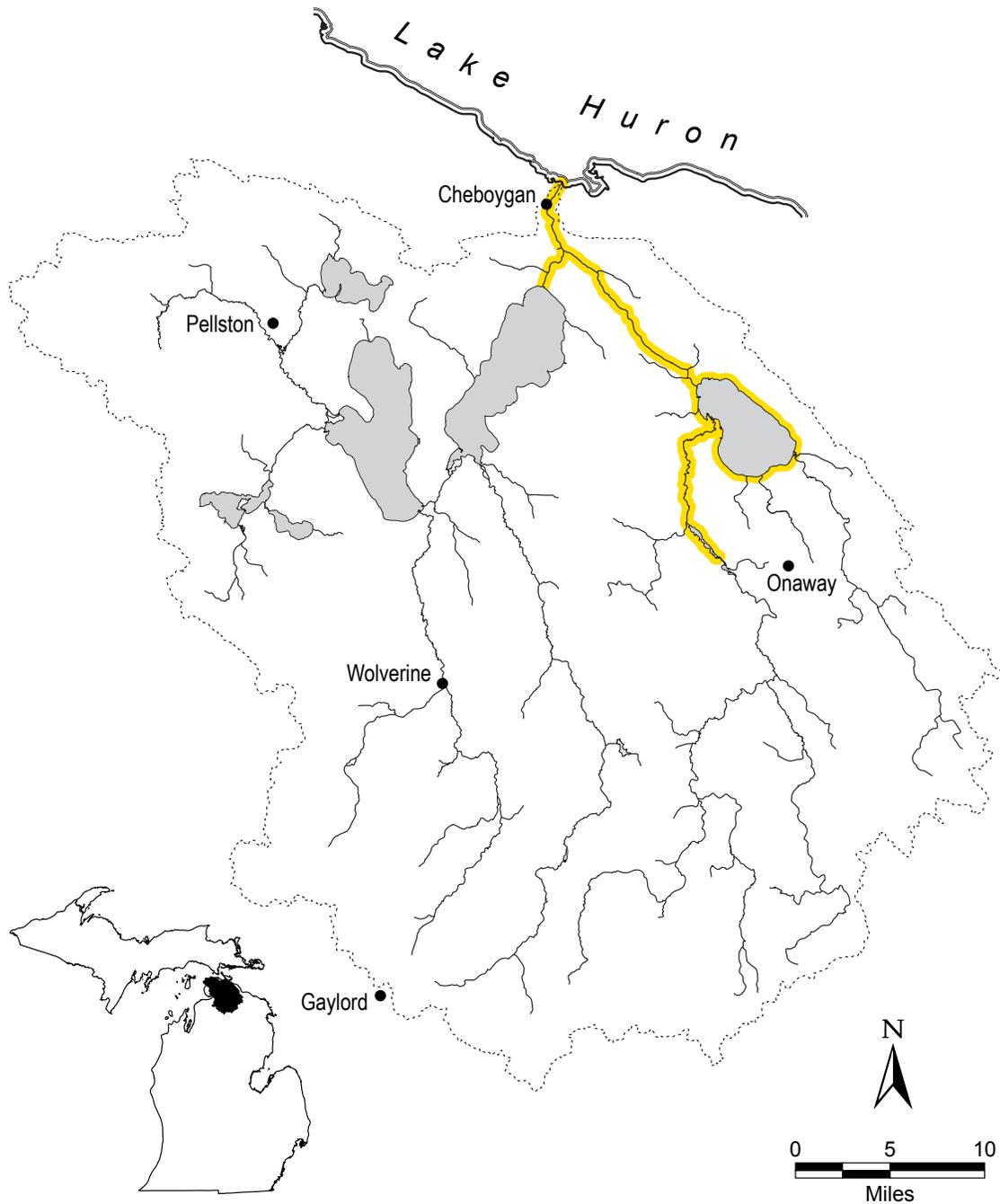
- feeding - non-flowing clear streams and rivers; also lakes and impoundments
- sand, gravel, or muck containing organic debris substrate
- scattered beds of aquatic vegetation
- cannot tolerate low oxygen or continuous high turbidity and siltation
- spawning - nests in firm substrate of gravel, sand, or mud
- winter refuge - deep water



Northern longear sunfish *Lepomis peltastes*

Habitat:

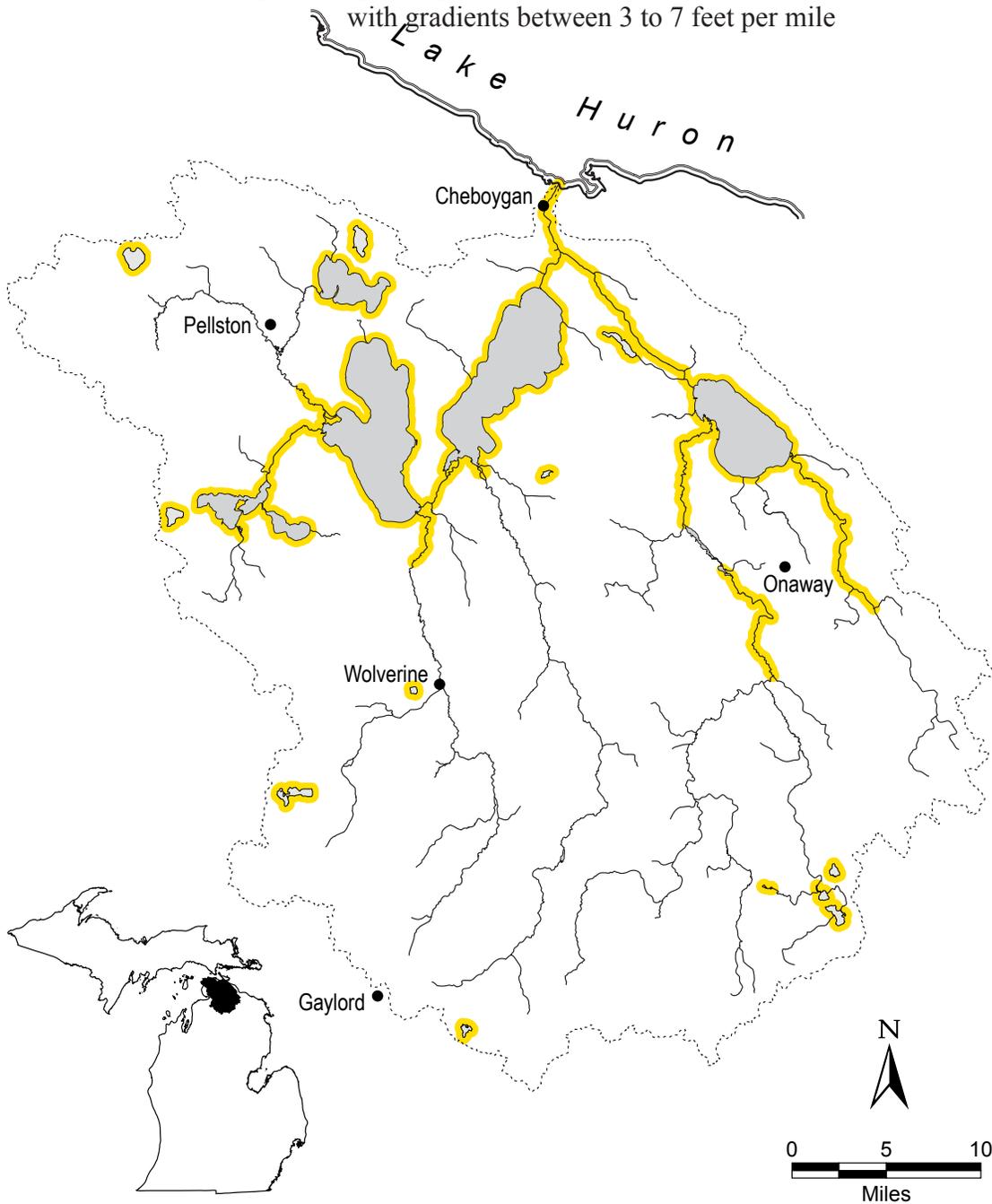
- feeding - clear moderate-sized shallow streams with moderate vegetation
- rocky substrates
- little to no current
- spawning - nests in gravel, sand, or hard rock substrate



Smallmouth bass *Micropterus dolomieu*

Habitat:

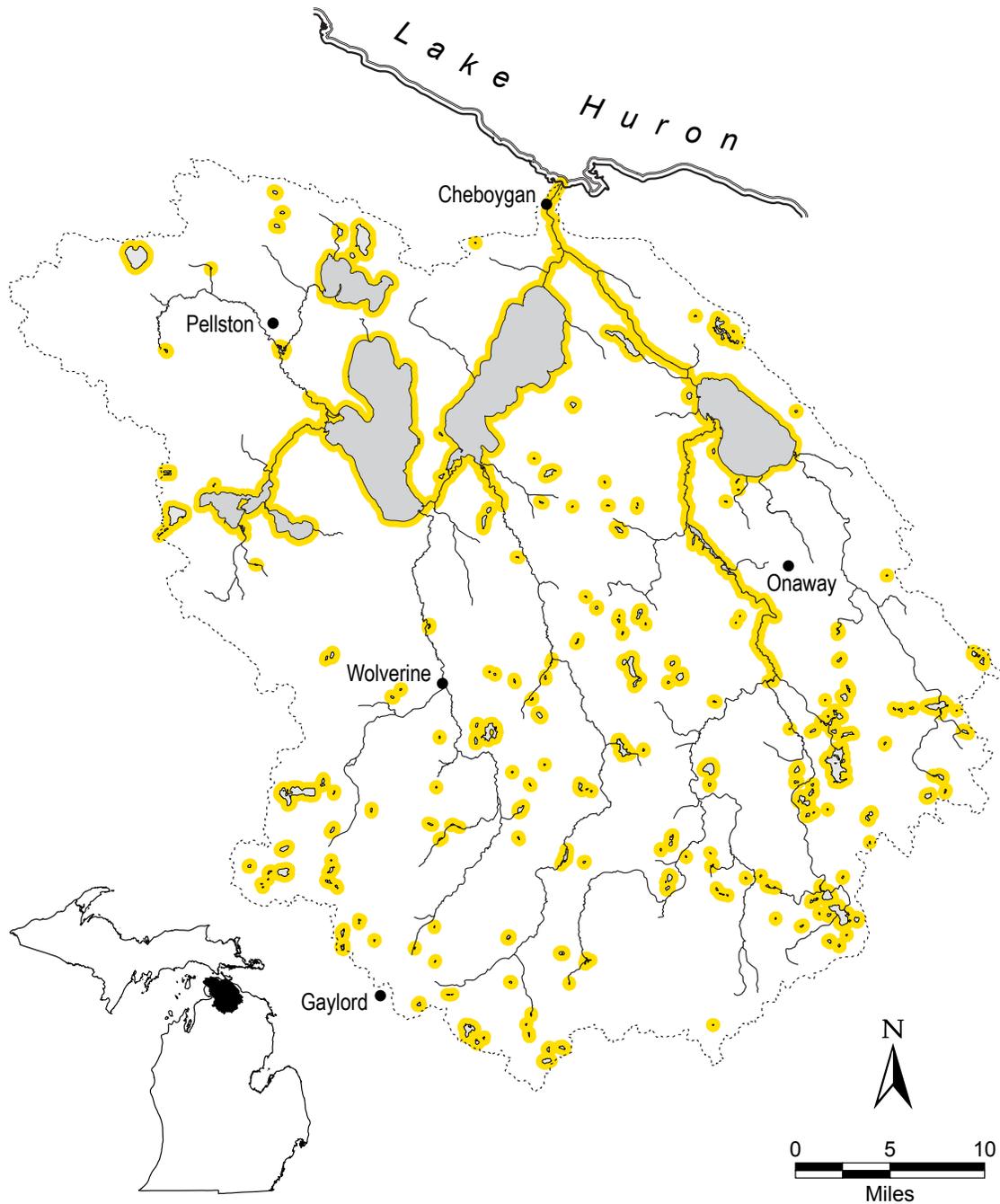
- feeding - clear, cool, deep lakes and rivers
- streams where 40% consists of riffles over clean gravel, boulder, or bedrock substrate
- in pools with a current and >4 feet of depth
- gradients between 4 and 25 feet per mile
- spawning - nest in sandy, gravel, or rocky substrate
- gradients 7 to 25 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:

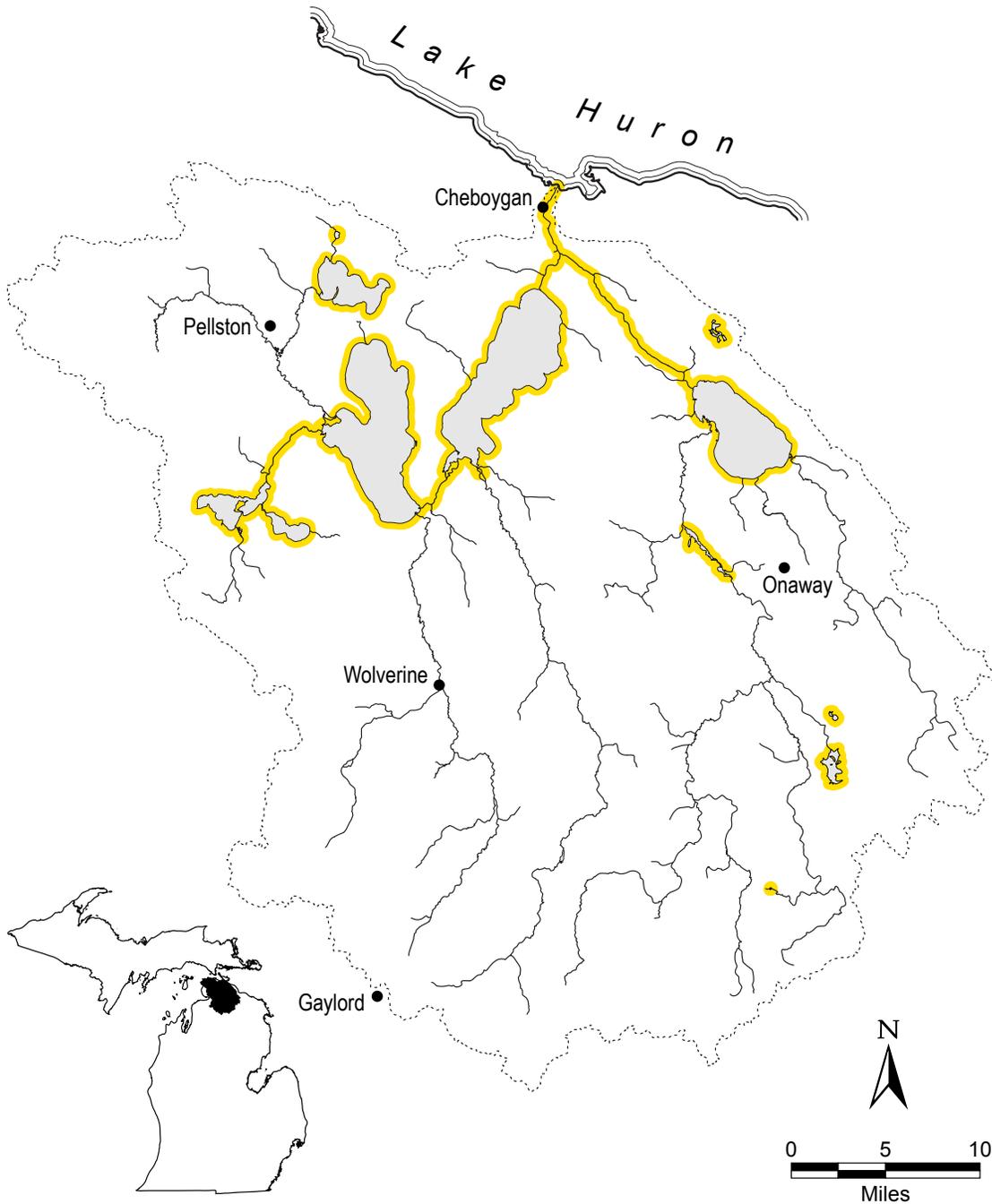
- feeding - non-flowing clear waters - lakes, impoundments, and pools of streams
- abundant aquatic vegetation
- soft muck, organic debris, gravel, sand, and hard non-flocculent clay substrates
- spawning - nest in gravelly sand to marl and soft mud substrates
- emergent vegetation
- quiet shallow bays; no current



Black crappie *Pomoxis nigromaculatus*

Habitat:

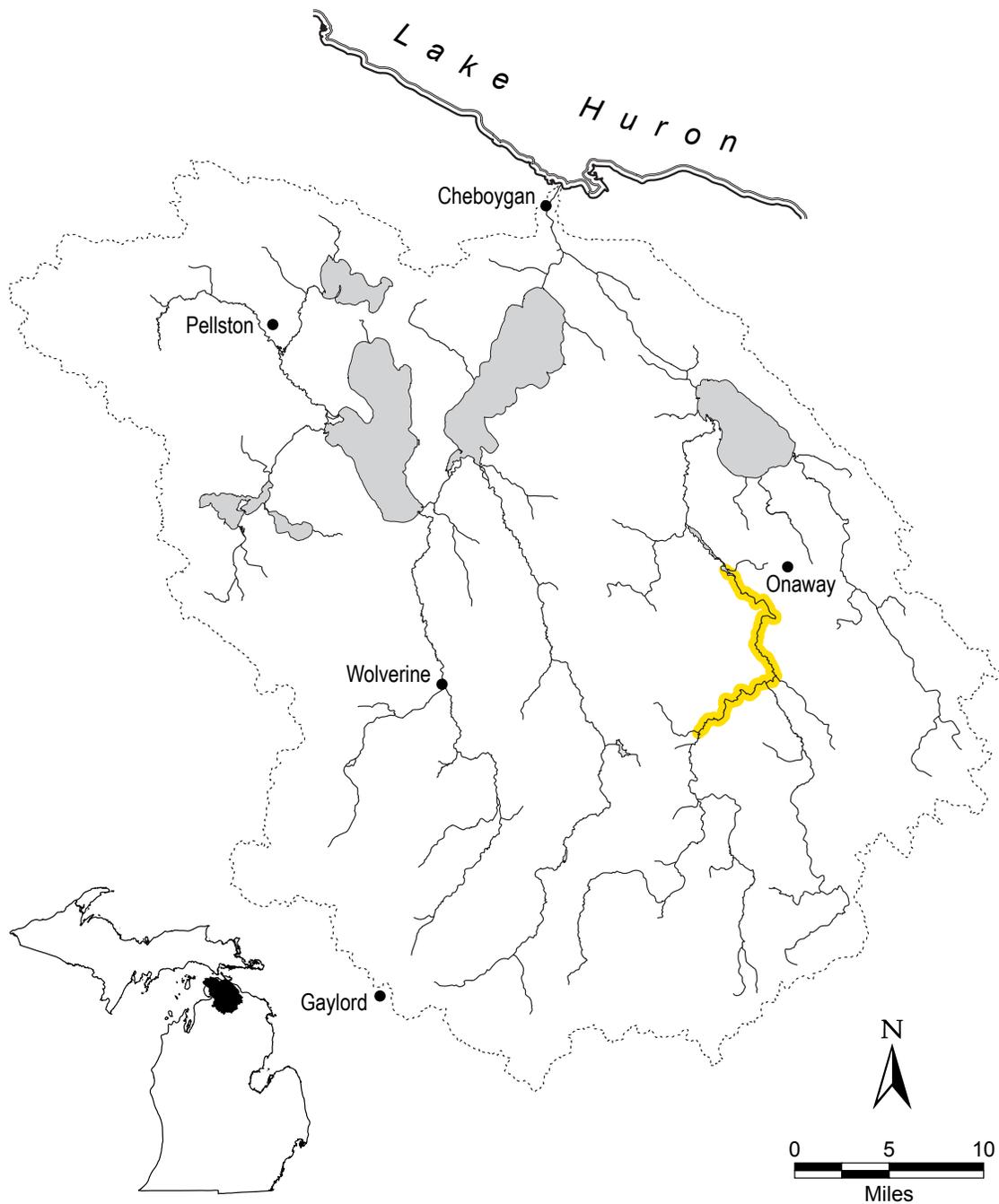
- feeding - larger clear non-silty low-gradient rivers; also in lakes and impoundments
 - clean hard sand or muck substrate
 - associated with submerged aquatic vegetation
 - does not tolerate silt or turbidity well
- spawning - nests in gravel, sand, or mud substrate
 - some vegetation must be present
 - sometimes nests under banks



Rainbow darter *Etheostoma caeruleum*

Habitat:

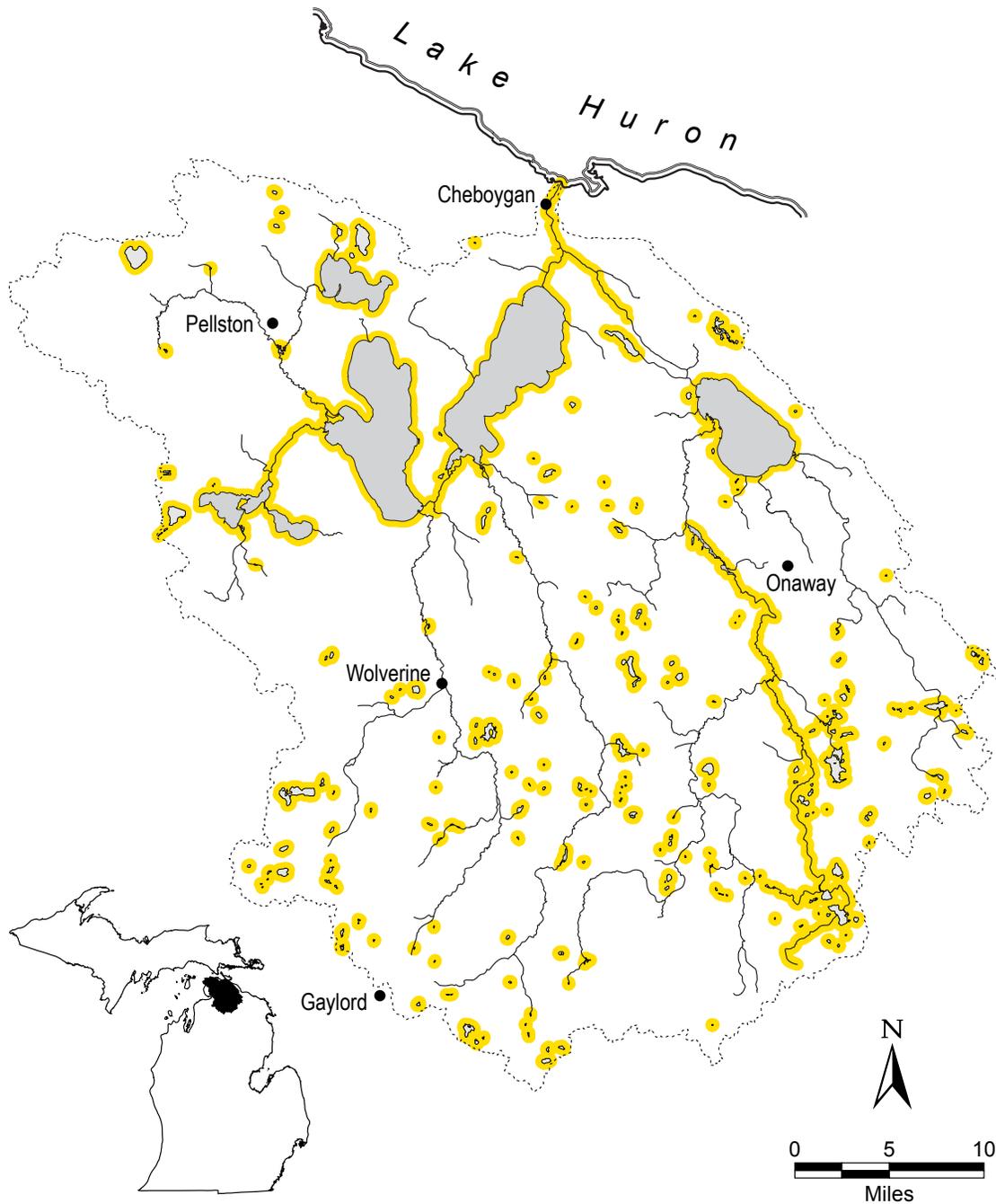
- feeding - gravelly high gradient riffles
- clear, moderate to large streams
- in shallows (average 1 foot)
- spawning - gravel or rubble riffles



Iowa darter *Etheostoma exile*

Habitat:

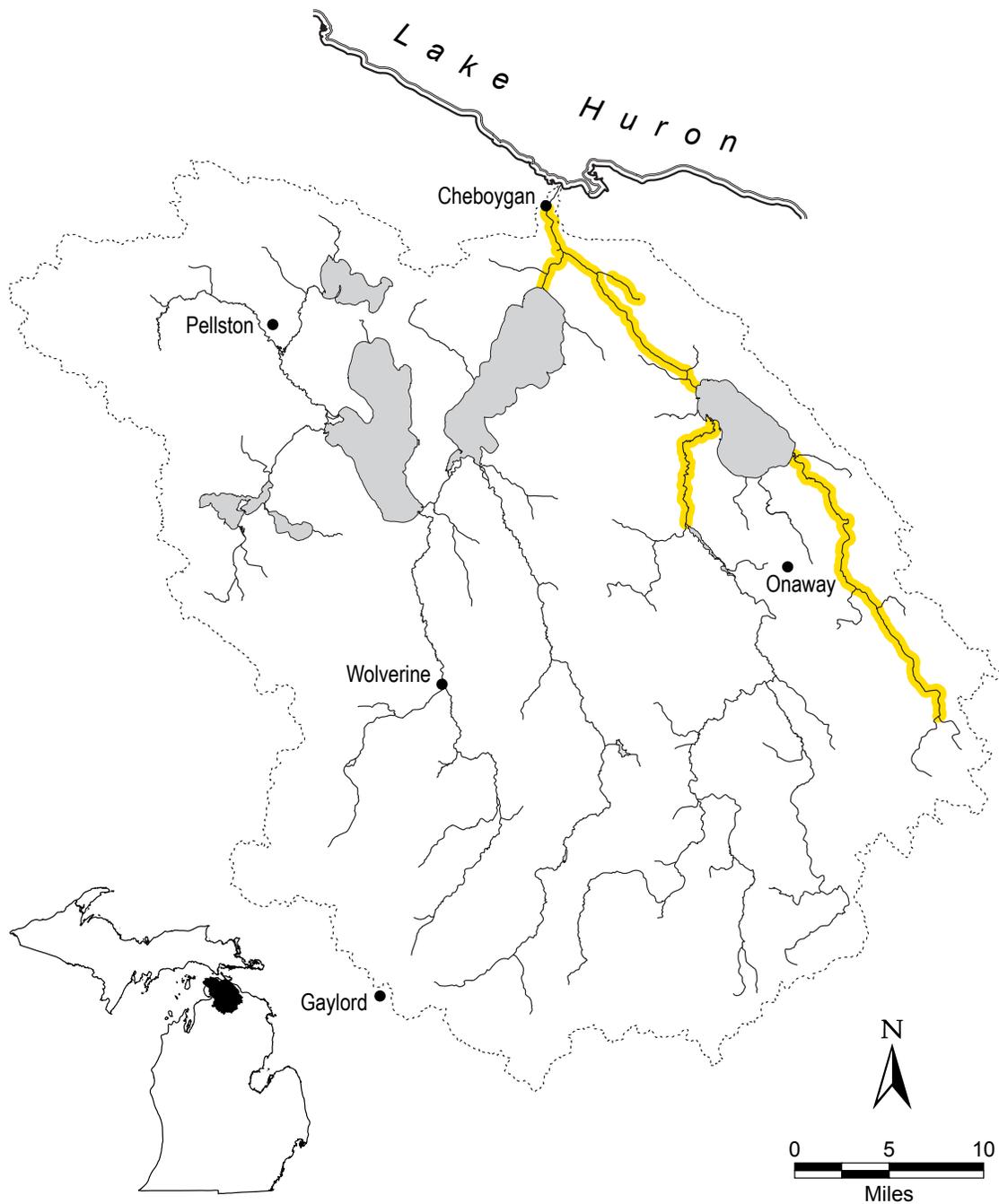
- feeding - clear, slow moving streams and lakes
- sandy to muddy substrates
- intolerant of turbid water
- lives in rooted aquatic vegetation
- spawning - in pond-like extensions of streams on organic matter or roots
- in shallows



Least darter *Etheostoma microperca*

Habitat:

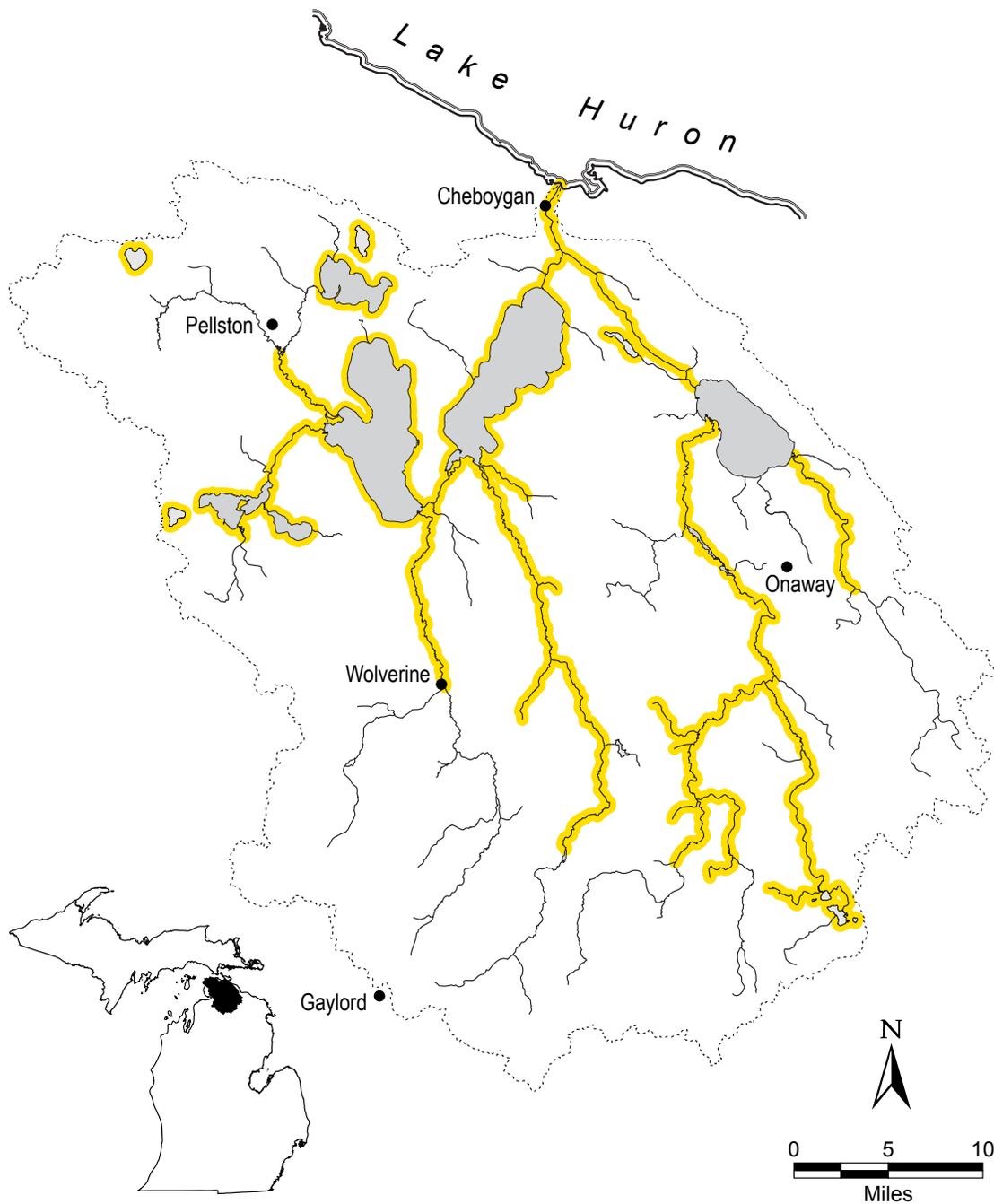
- feeding - moderate to warm temperature
- clear quiet low-gradient vegetated streams (wetlands, floodplains)
- soft substrate
- spawning - spawning occurs on stems of plants
- male guards a territory in a vegetated area



Johnny darter *Etheostoma nigrum*

Habitat:

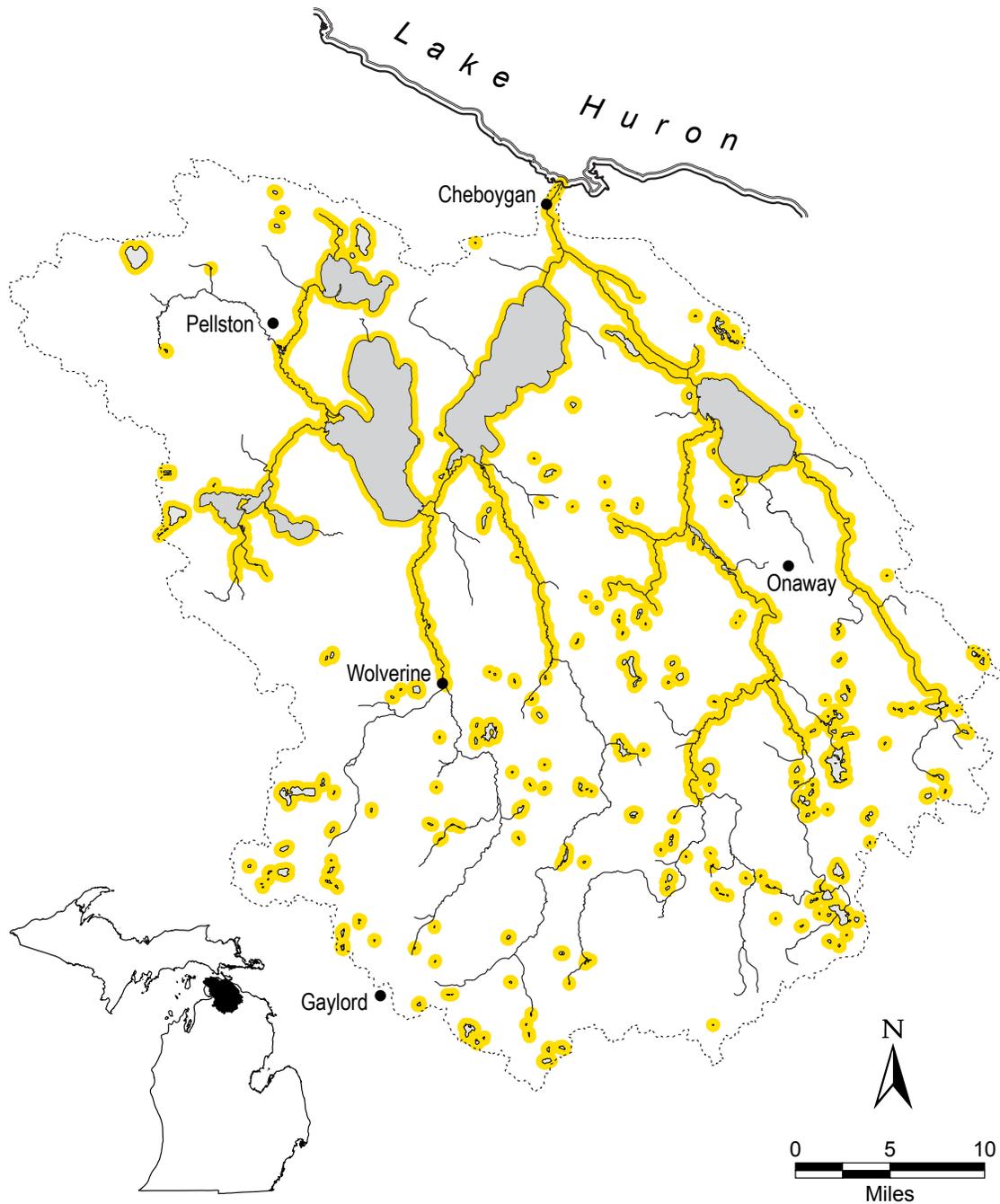
- feeding - sand and silt substrate
- little to moderate current
- shallow areas of streams, rivers, lakes, and impoundments
- tolerant of many organic and inorganic pollutants and turbidity
- spawning - underneath rocks
- in stream pools or protected shallows of lakes



Yellow perch *Perca flavescens*

Habitat:

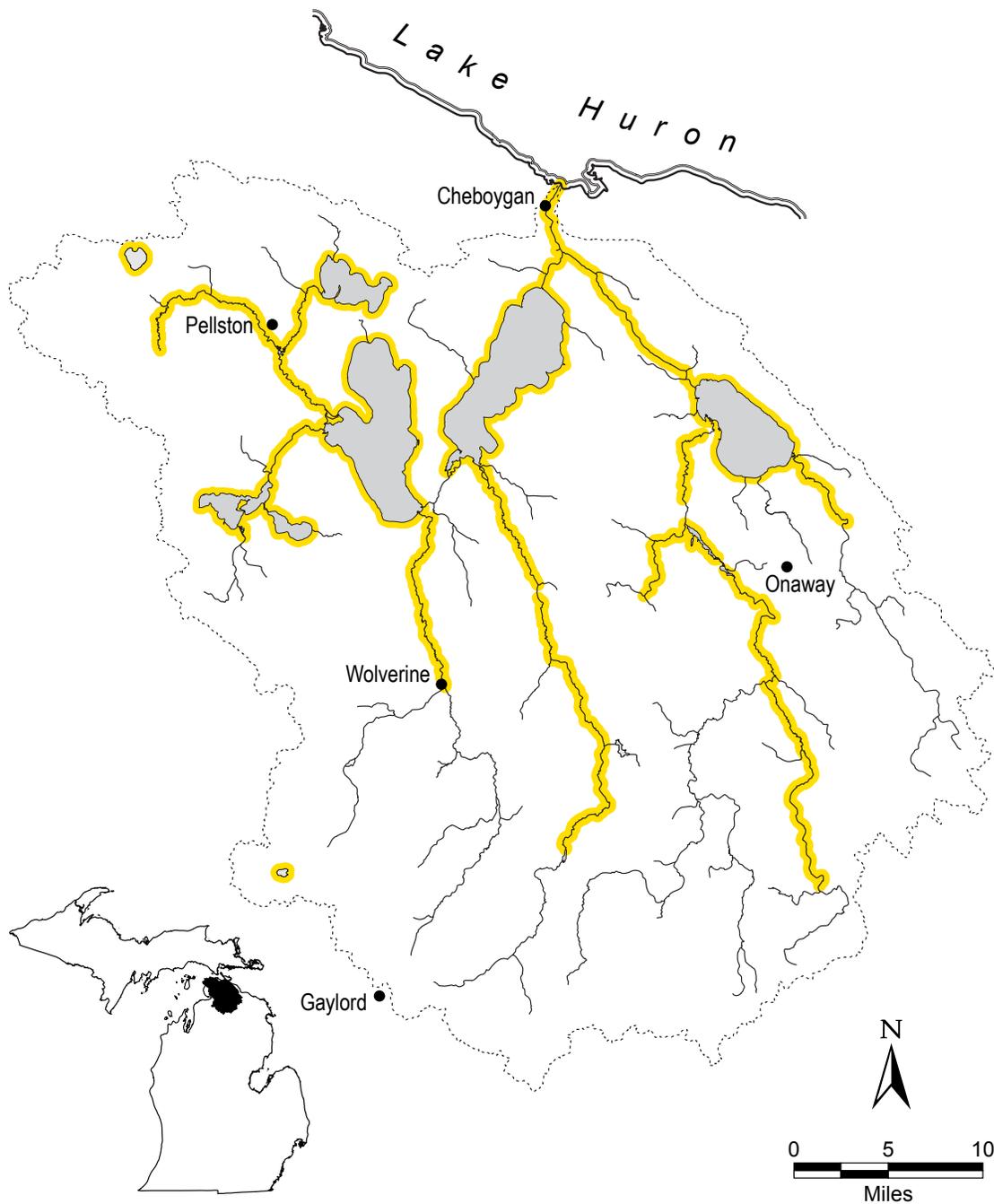
- feeding - clear lakes and impoundments; also Lake Huron
- low gradient rivers
- abundance of rooted aquatics
- muck, organic debris, sand, or gravel substrate
- does not tolerate turbidity and siltation
- spawning - shallows of lakes, tributaries of streams
- occurs over rooted vegetation, submerged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



Northern logperch *Percina caprodes semifasciata*

Habitat:

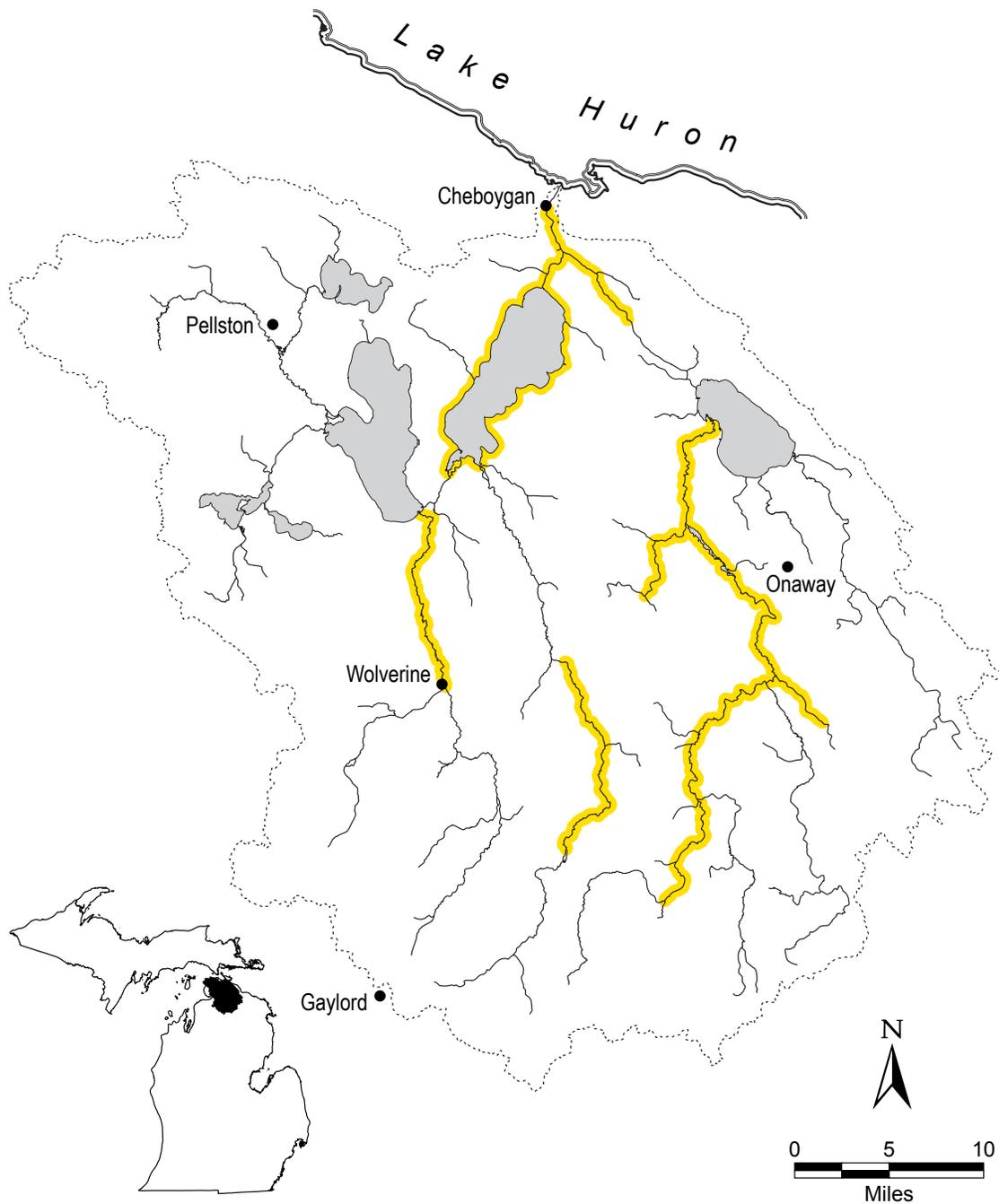
- feeding - gravel riffles, deeper slower sections of rivers
- medium size streams; also lakes, impoundments, and Lake Huron
- sand, gravel, or rock substrate
- avoids turbidity and silt
- spawning - riffles or sandy in-shore shallows



Blackside darter *Percina maculata*

Habitat:

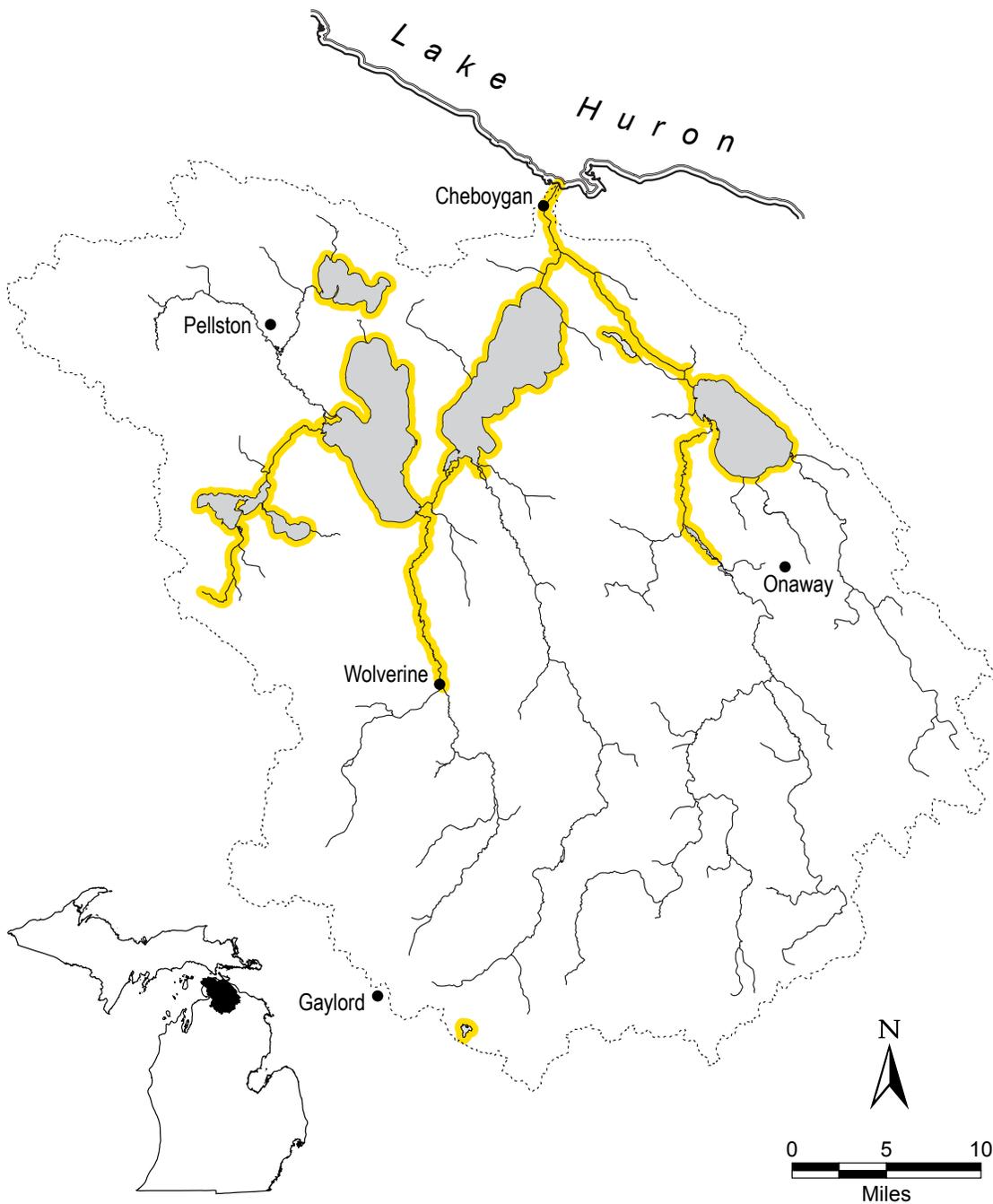
- feeding - small to medium streams
- low to medium gradient
- gravel and sand substrate
- tolerate some turbidity
- spawning - gravel and sand substrate



Walleye *Sander vitreus*

Habitat:

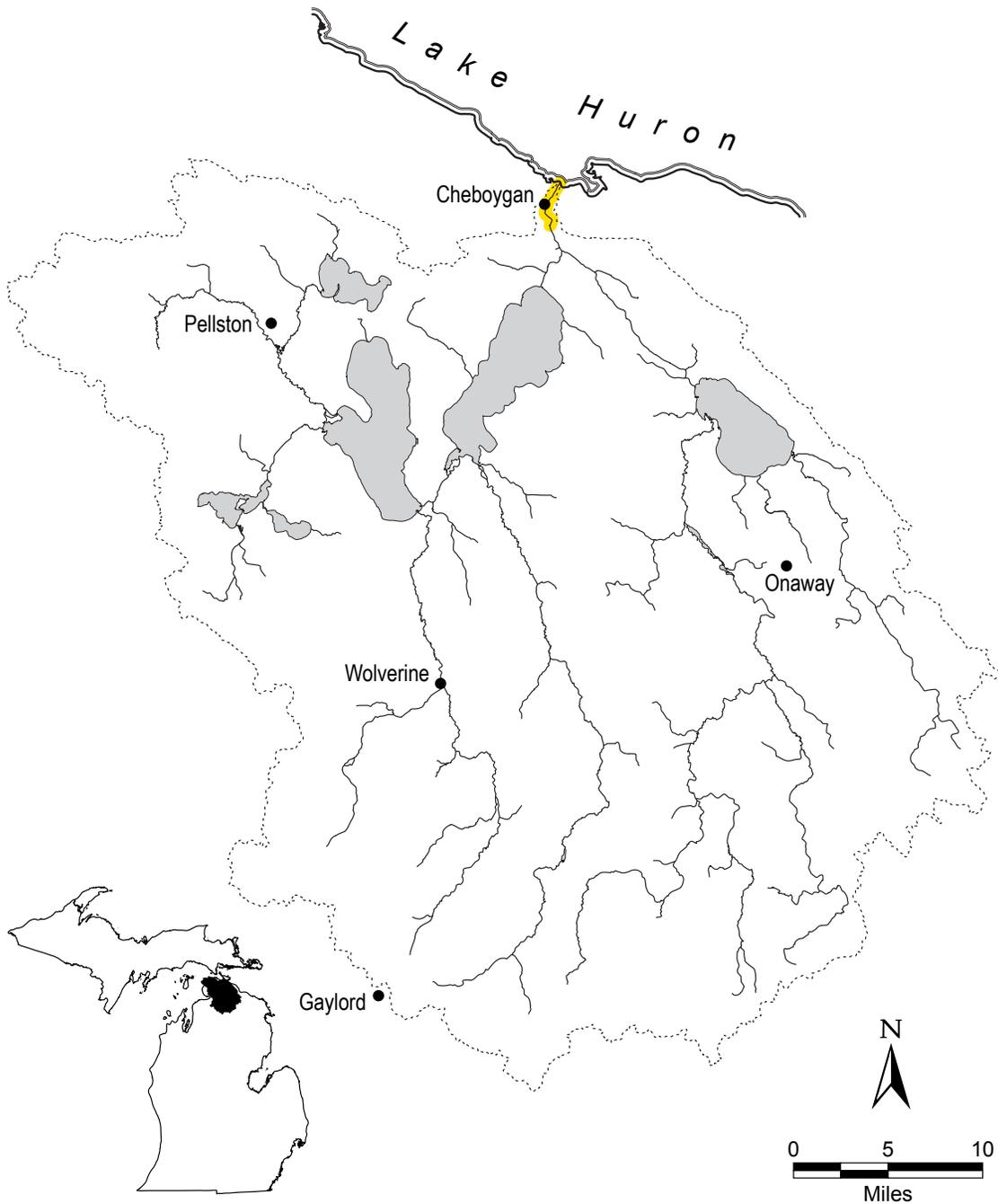
- feeding - larger, deeper streams and in large, shallow, turbid lakes and impoundments; also Lake Huron
- gravel, bedrock, and firm substrates preferred
- does not tolerate a lot of turbidity or low oxygen
- spawning - rocky substrates in high gradient water in rivers
- boulder to coarse gravel shoals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



Freshwater drum *Aplodinotus grunniens*

Habitat:

- feeding - deeper pools of rivers and Lake Huron
- 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



Round goby *Neogobius melanostomus* - non-native species

Habitat:

- feeding - rock, cobble, riprap, and vegetate areas of rivers and lakes
- young found over sand substrate
- spawning - rocky substrate with large interstitial spaces
- winter refuge - rocky substrate with large interstitial spaces
- deep water

