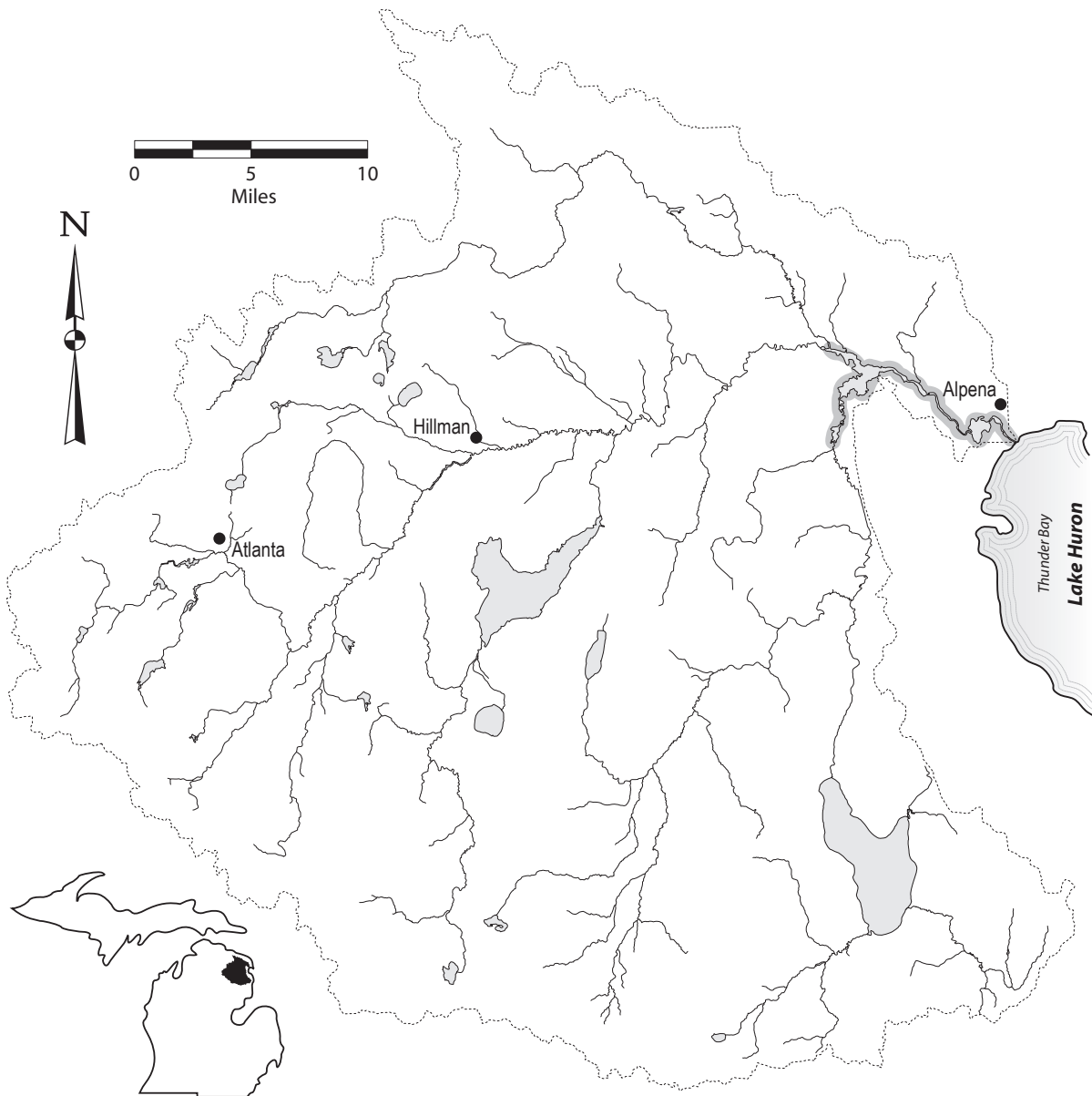


Channel catfish (*Ictalurus punctatus*)

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

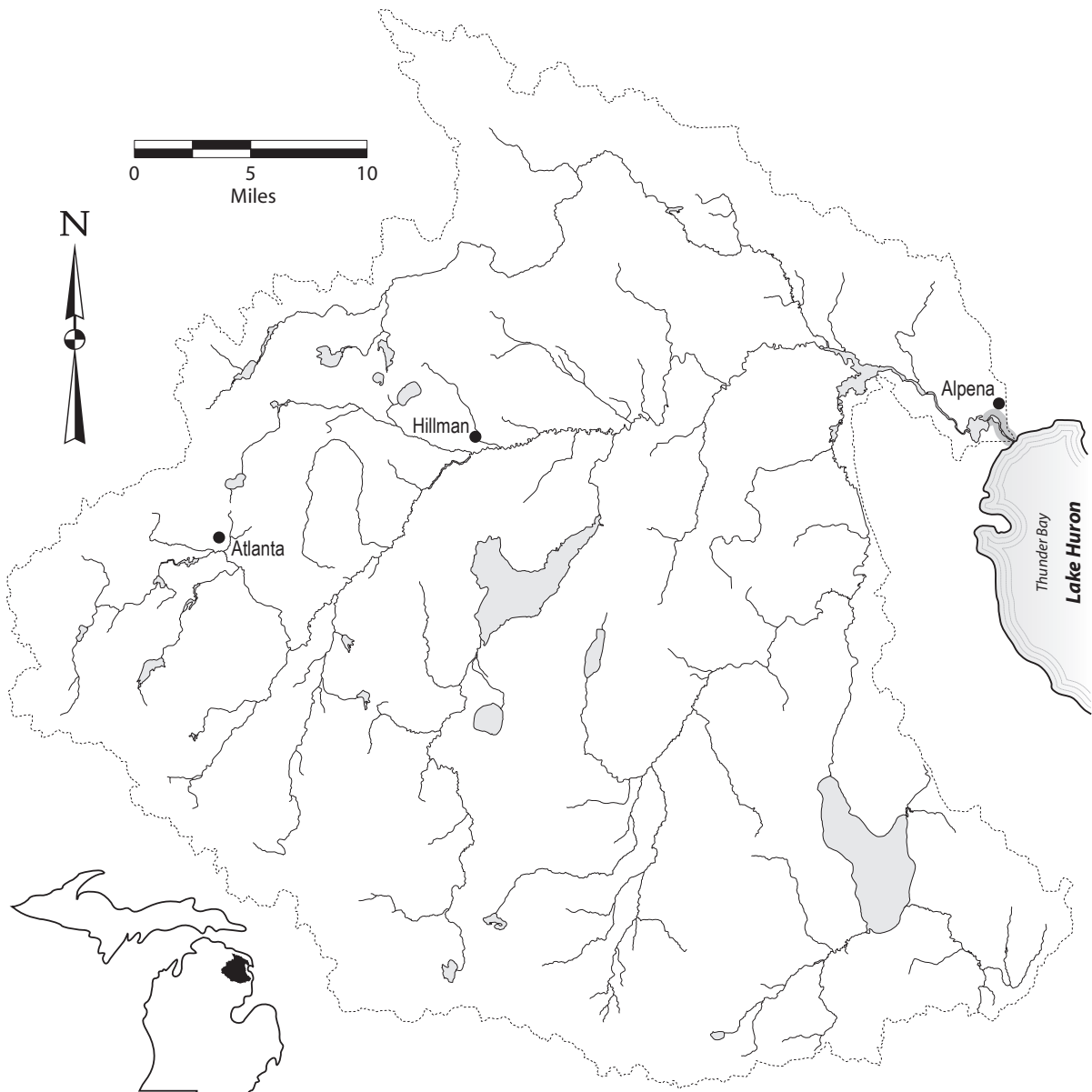


Tadpole madtom (*Noturus gyrinus*)

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 (e.g., beneath boards, logs, crayfish burrows)

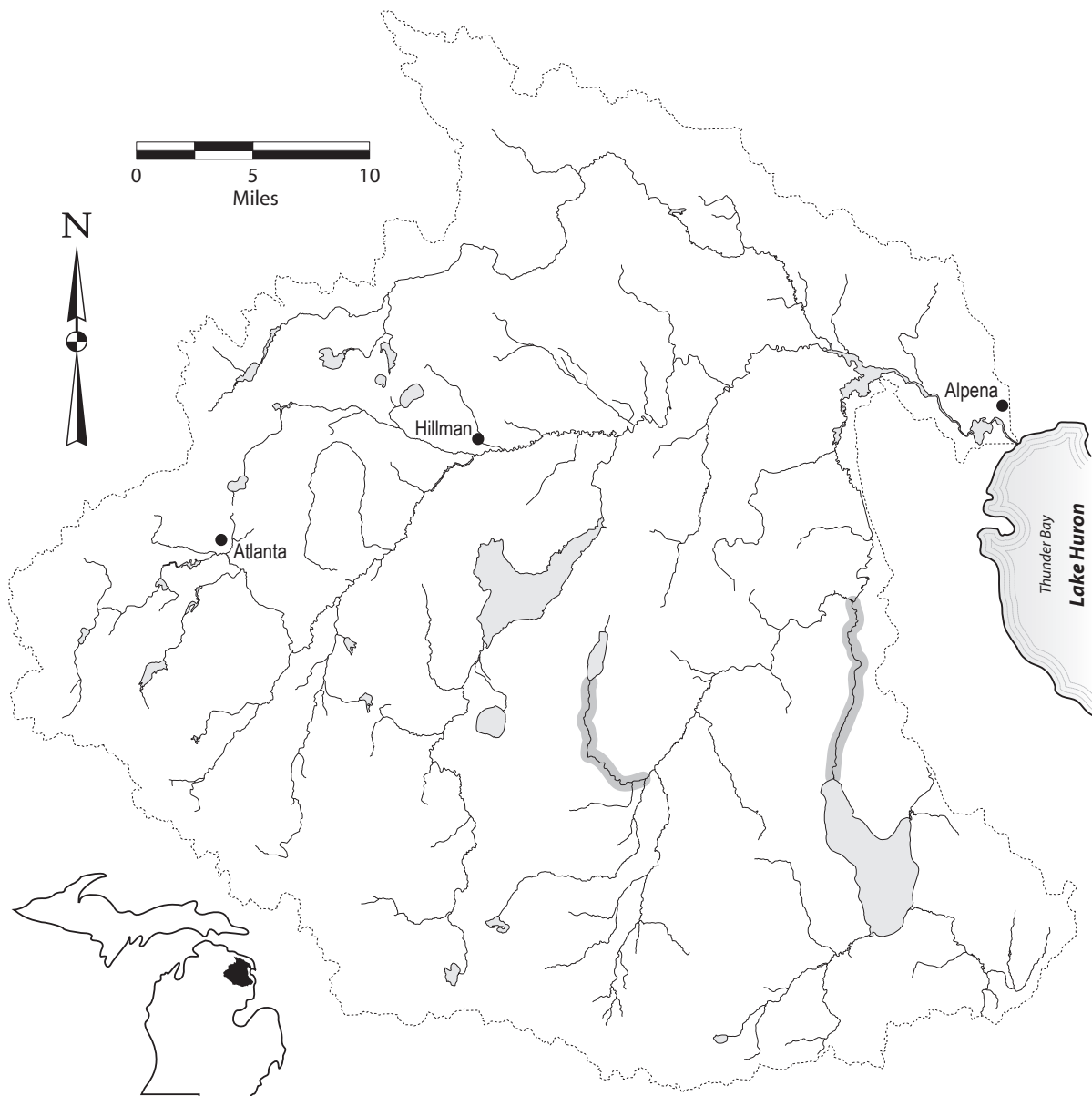


Grass pickerel (*Esox americanus vermiculatus*)

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

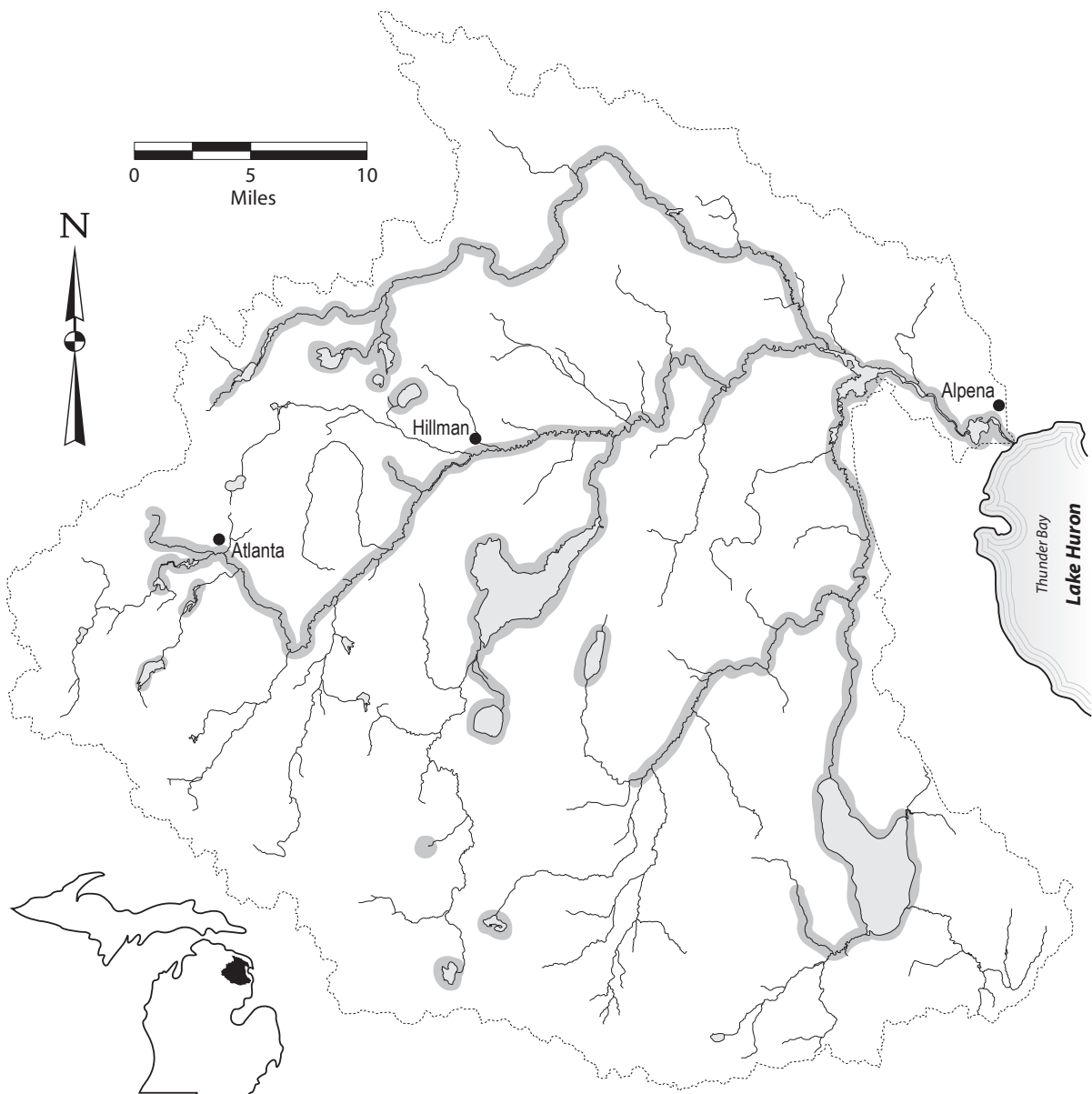


Northern pike (*Esox lucius*)

Habitat:

- feeding - cool to moderately warm streams, rivers, lakes, and impoundments
- vegetation in slow to moderate current

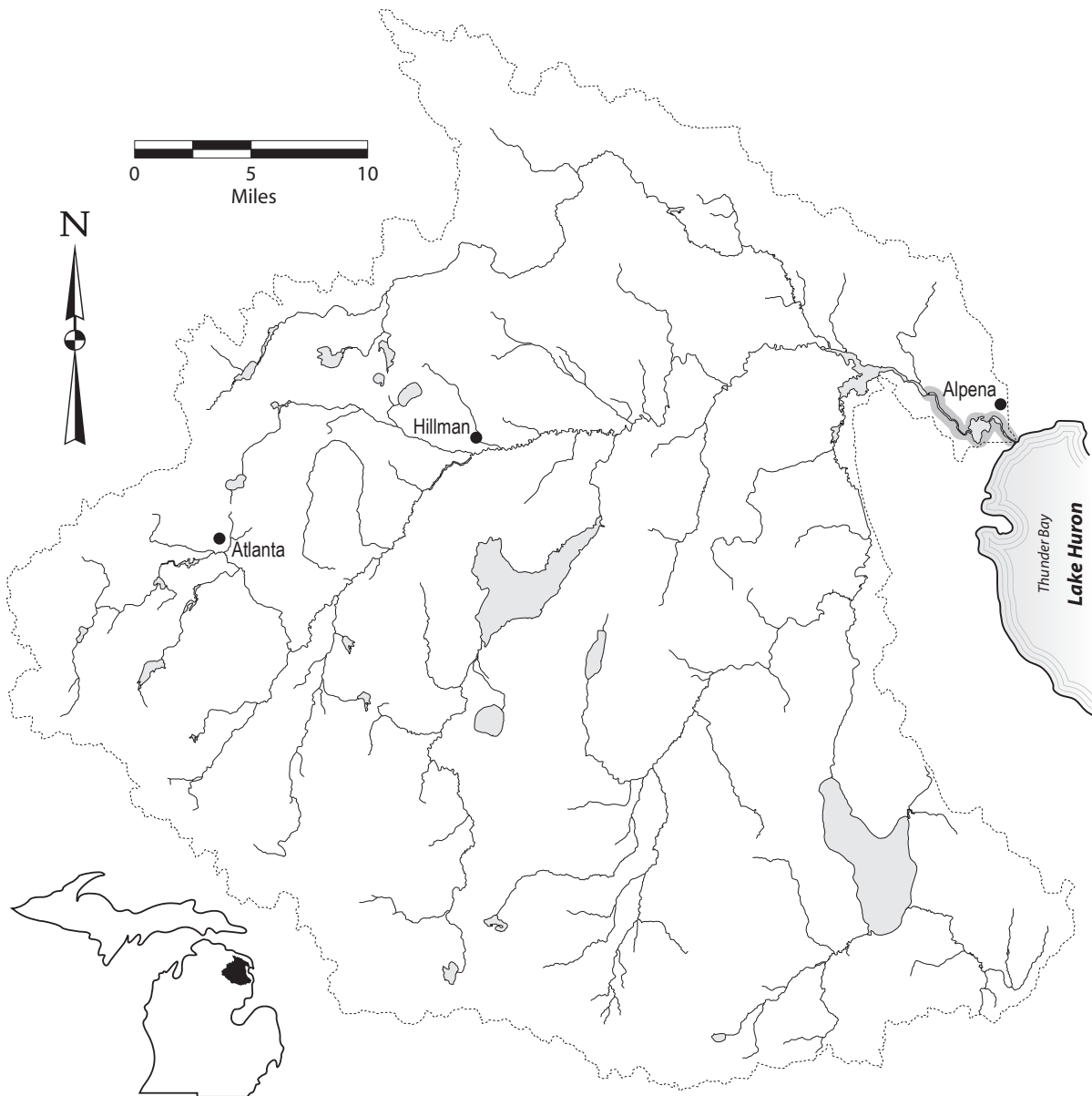
- spawning - submerged vegetation with slow current in shallow water



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

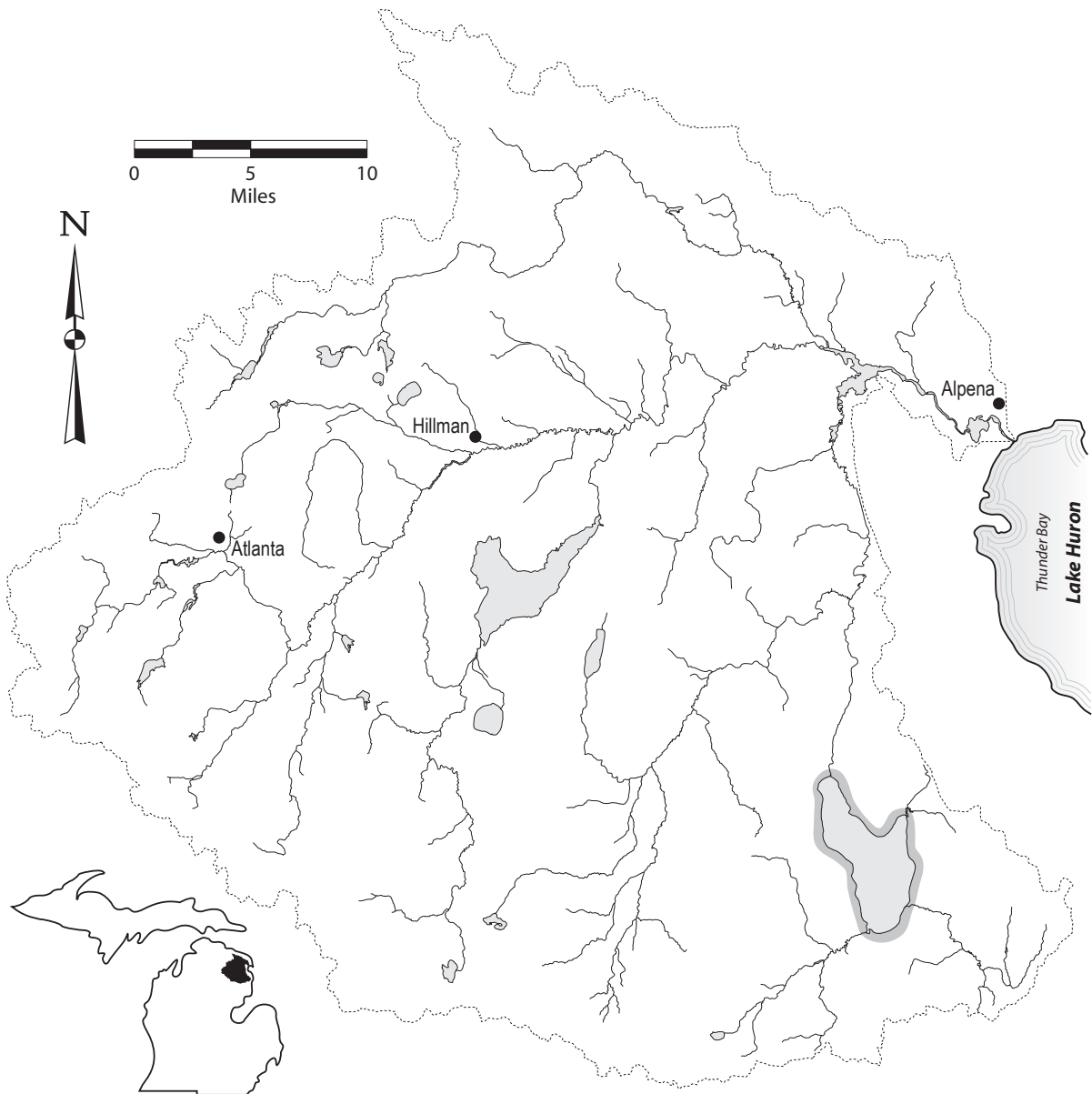


Tiger muskellunge (*Esox masquinongy* x *E. lucius*)

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

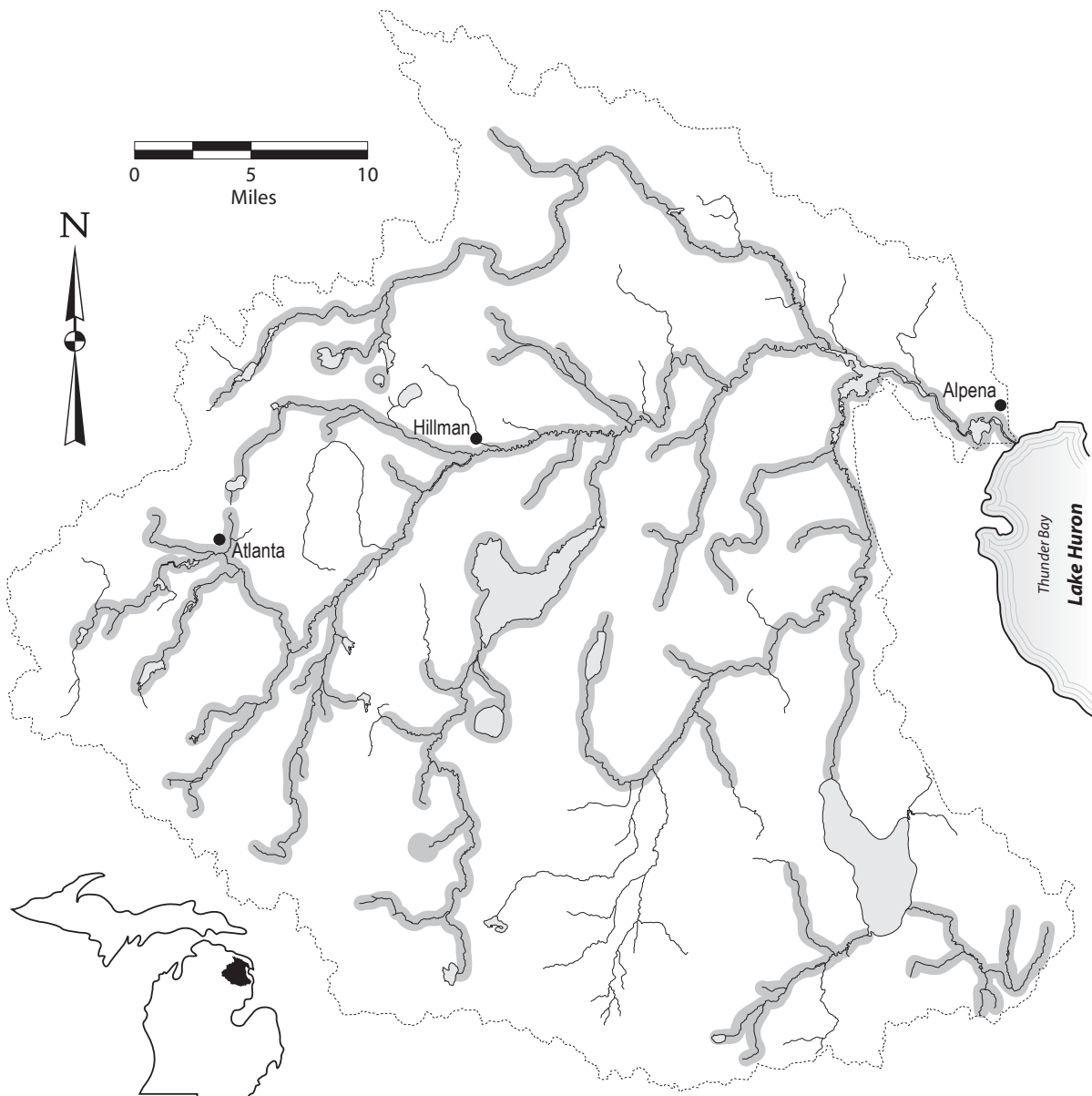


Central mudminnow (*Umbra limi*)

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



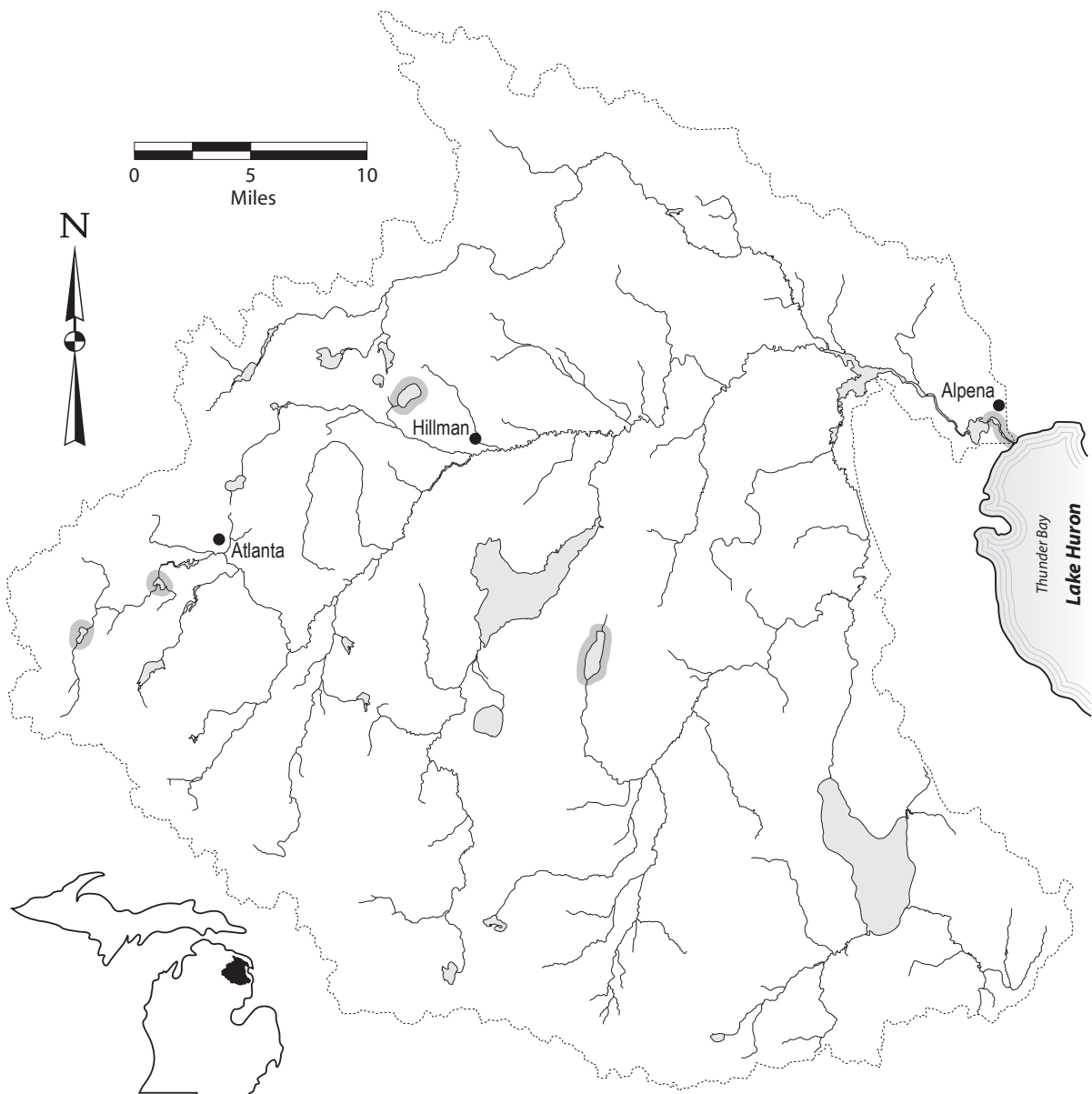
Rainbow smelt (*Osmerus mordax*)

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

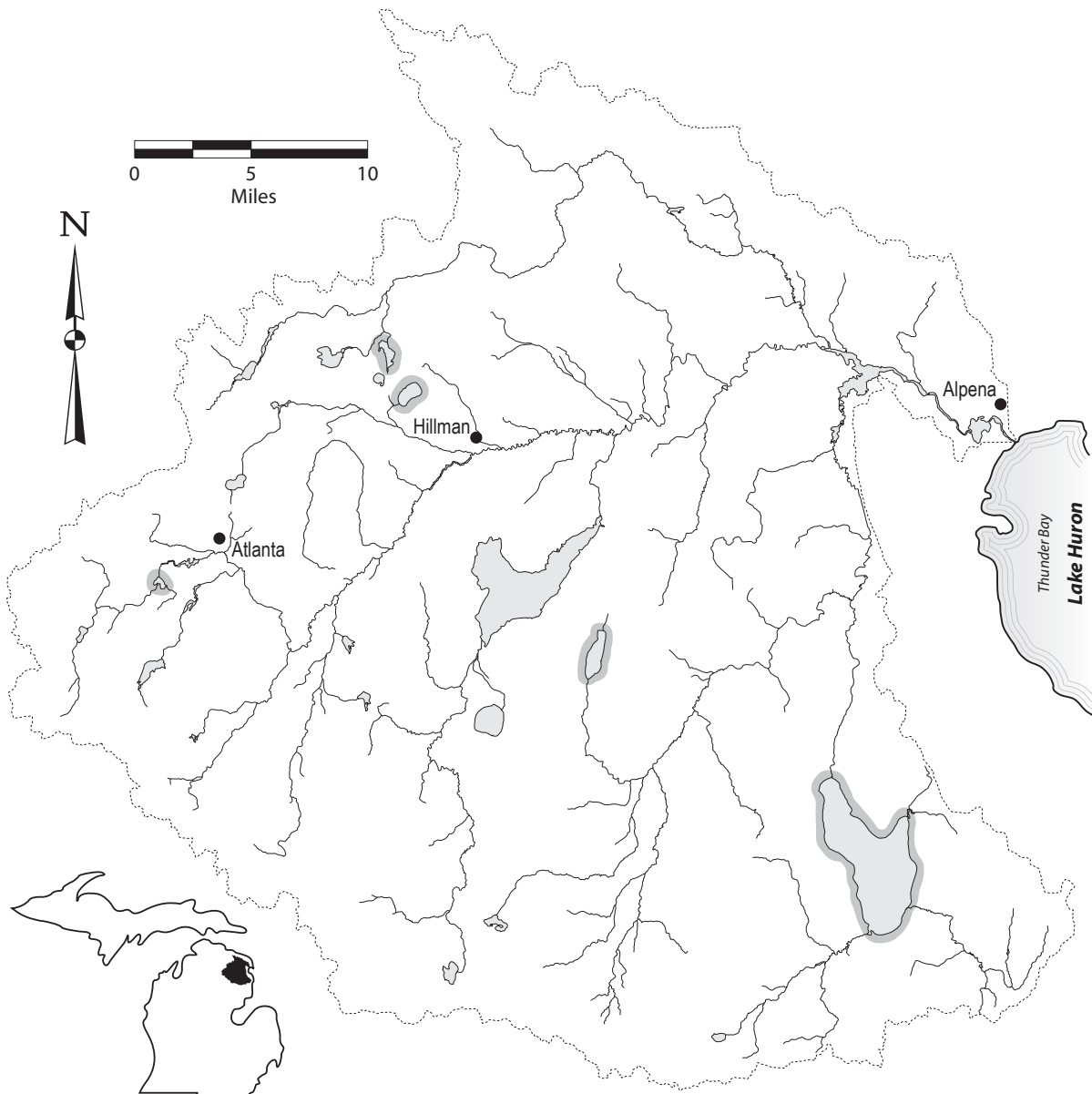
Habitat:

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

