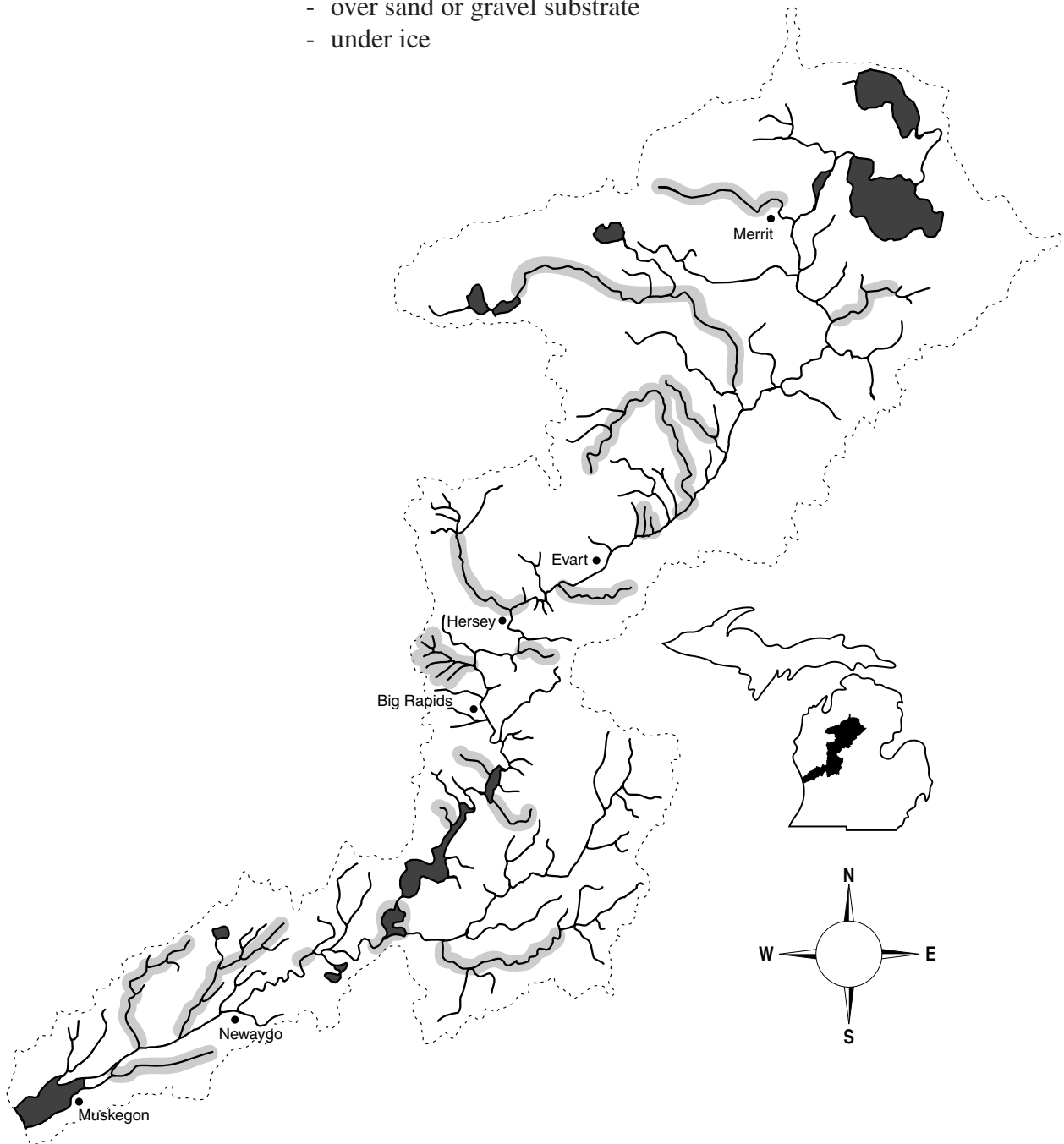


**Burbot (*Lota lota*)**

**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:**

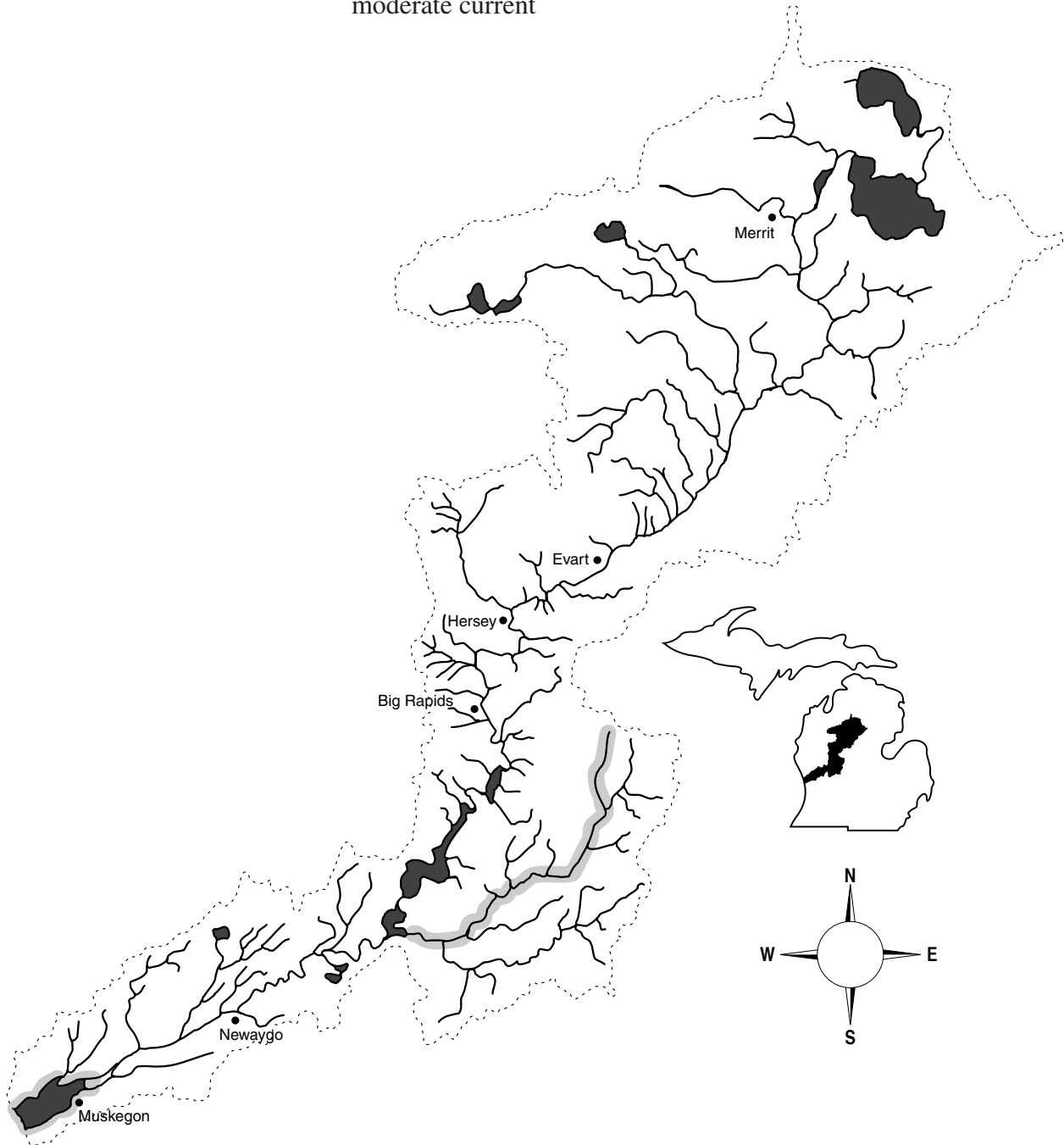
- feeding - quiet backwaters at the mouths of streams and lakes
  - substrate of sand, gravel, and a few boulders
  - also found over detritus substrate where patches of submerged aquatic vegetation are present
- spawning - quiet areas of weedy pools



**Brook silverside** (*Labidesthes sicculus*)

**Habitat:**

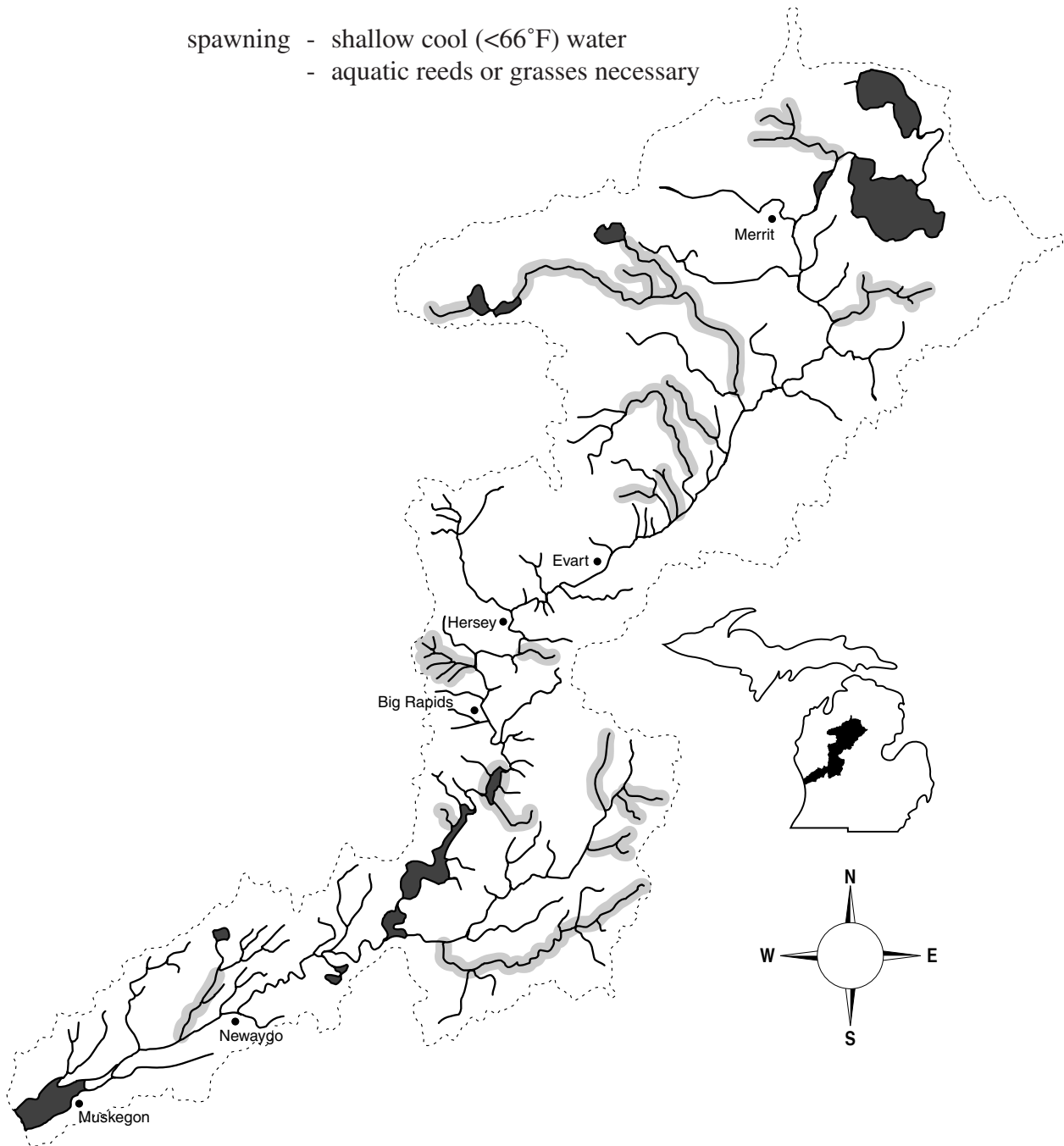
- feeding - clear, warm pools in streams and rivers; also lakes
  - does not tolerate turbidity
  - most frequently at surface
- spawning - in and around aquatic vegetation or over gravel substrate with a moderate current



**Brook stickleback (*Cluaea inconstans*)**

**Habitat:**

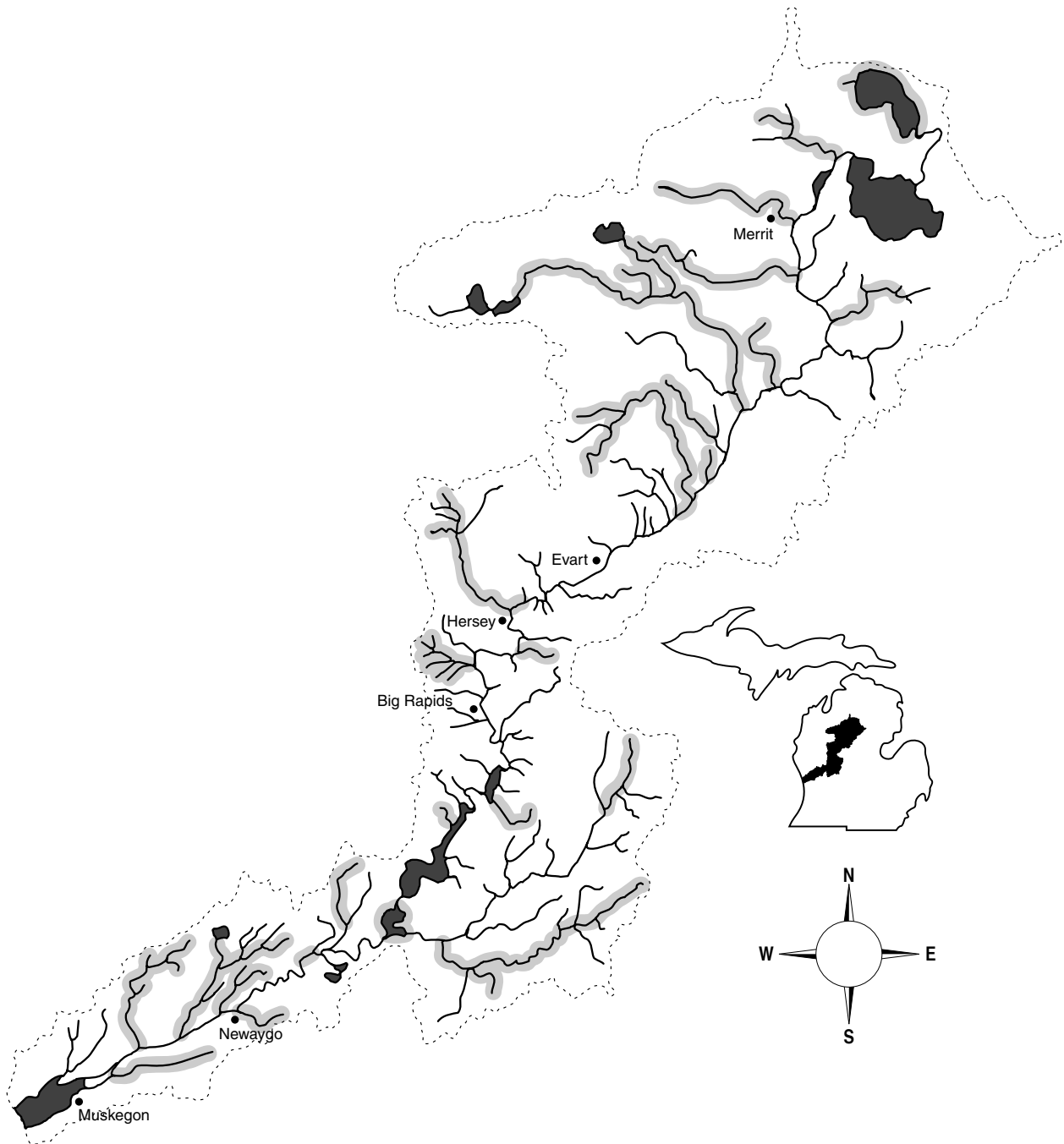
- feeding - clear, cold, densely vegetated streams, and swampy margins of lakes
- low gradient
- muck, peat, or marl substrate
- not tolerant of turbidity
  
- spawning - shallow cool (<66°F) water
- aquatic reeds or grasses necessary



**Mottled sculpin** (*Cottus bairdi*)

**Habitat:**

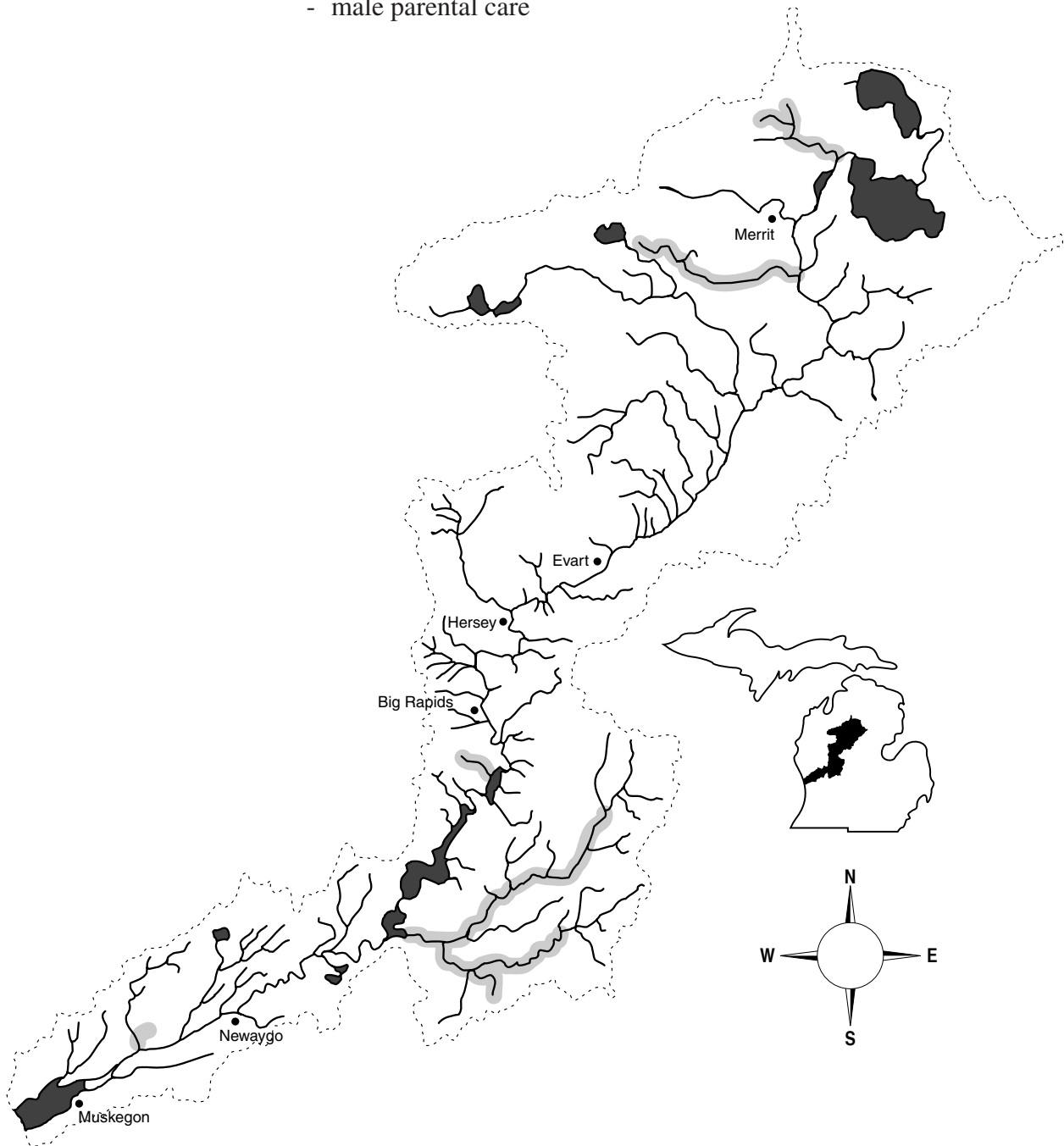
- feeding - cool to cold streams
- riffle and rock substrates preferred
- clear to slightly turbid shallow water
  
- spawning - nests under logs or rock



**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

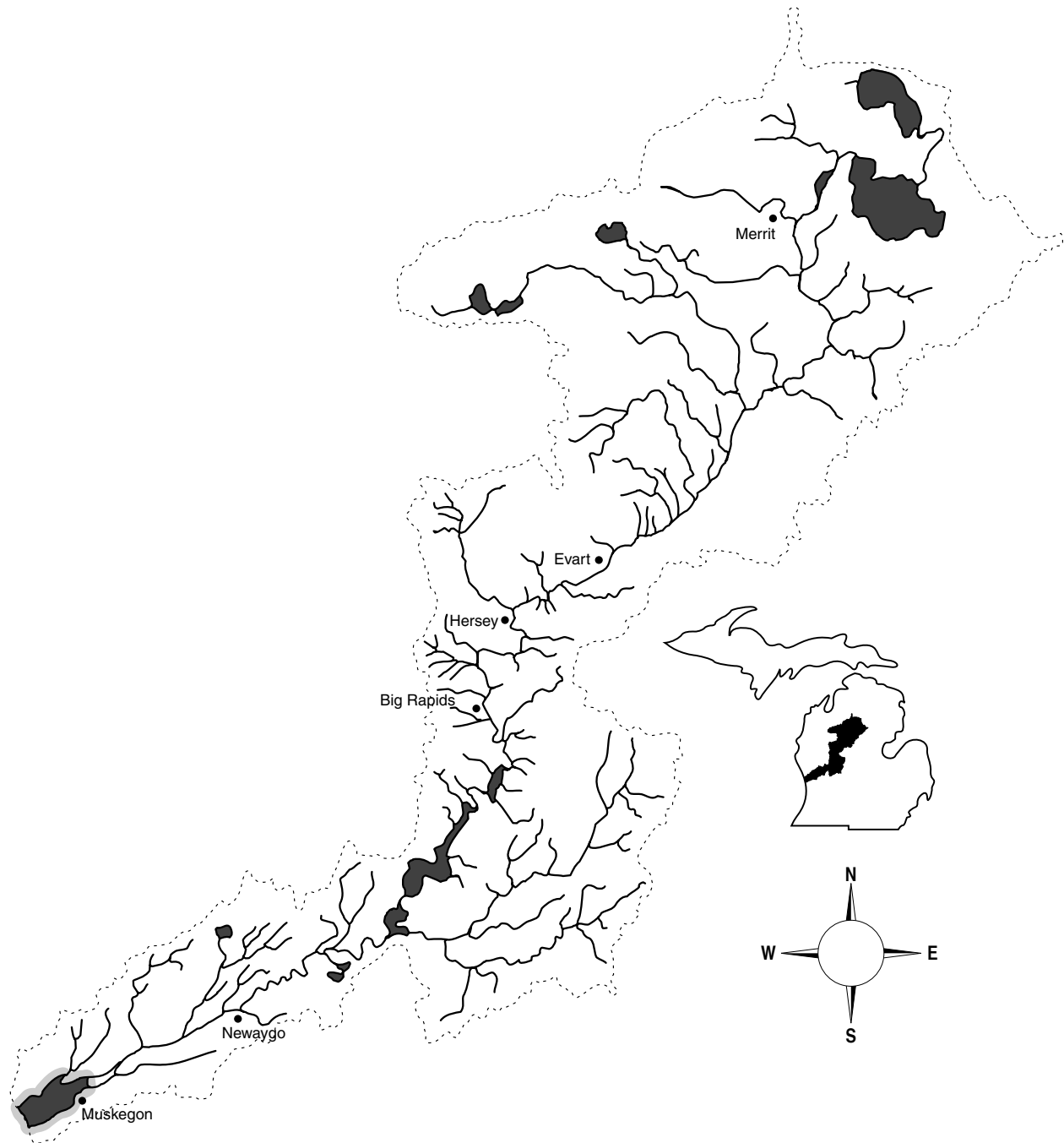


**White perch** (*Morone americana*)

**Habitat:**

feeding - clear, warm water of low-gradient streams, lakes, and impoundments

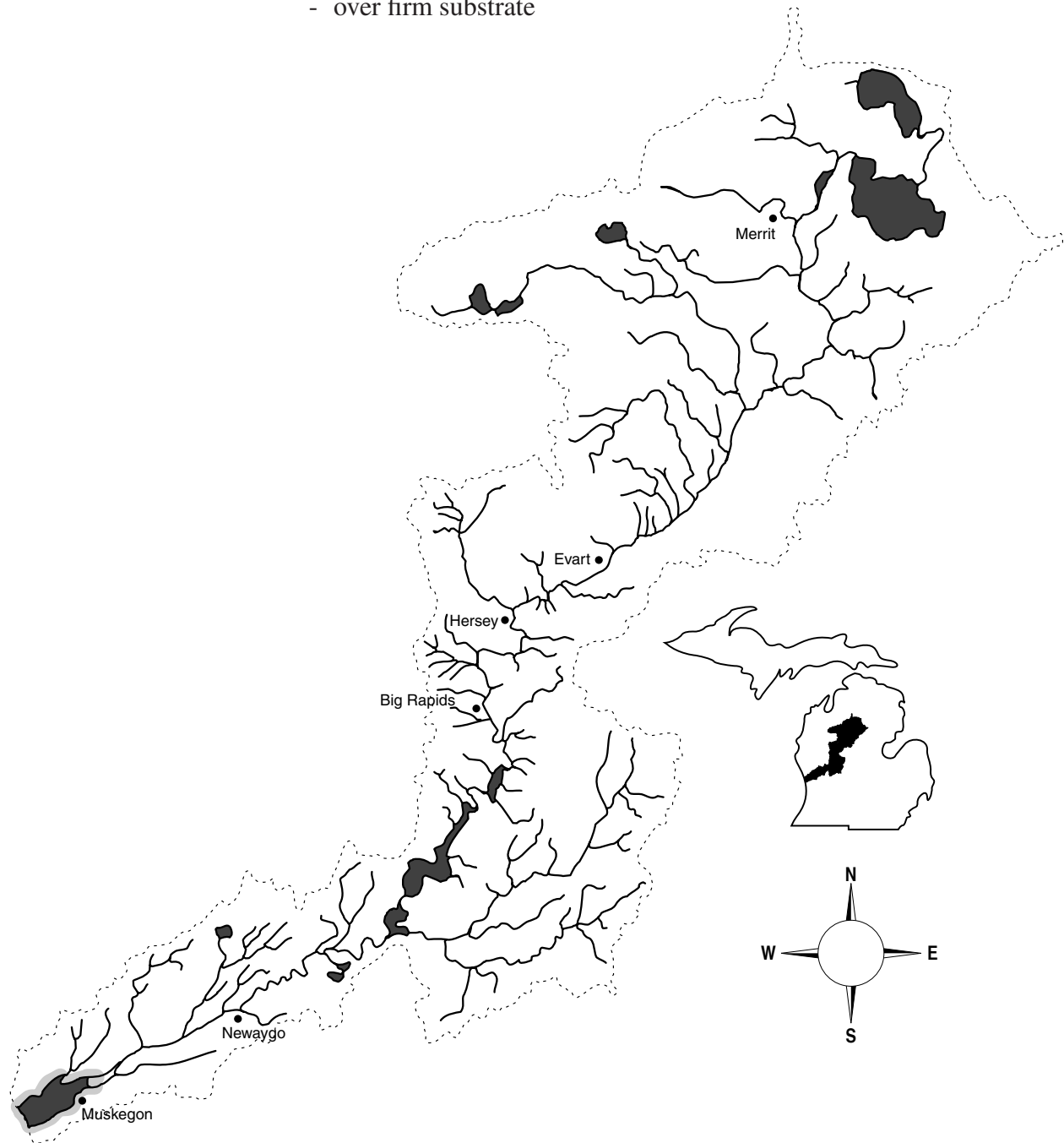
spawning - shallow water over firm substrate



**White bass** (*Morone chrysops*)

**Habitat:**

- feeding - large lakes, impoundments, and Lake Michigan
- clear water of 30 feet or less depth
- firm substrate
  
- spawning - tributary streams or shallow water of lakes
- over firm substrate

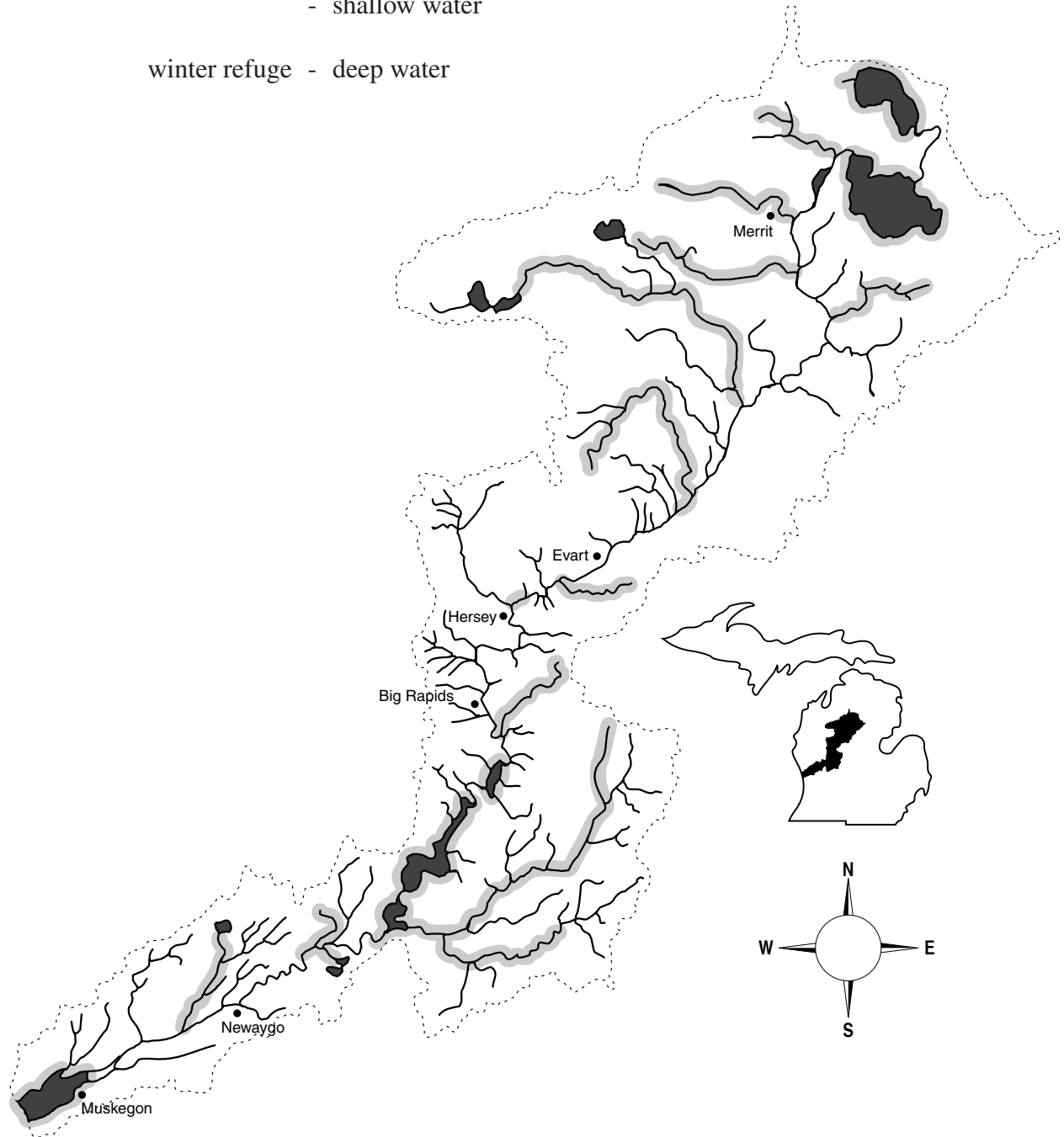




**Rock bass (*Ambloplites rupestris*)**

**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:**

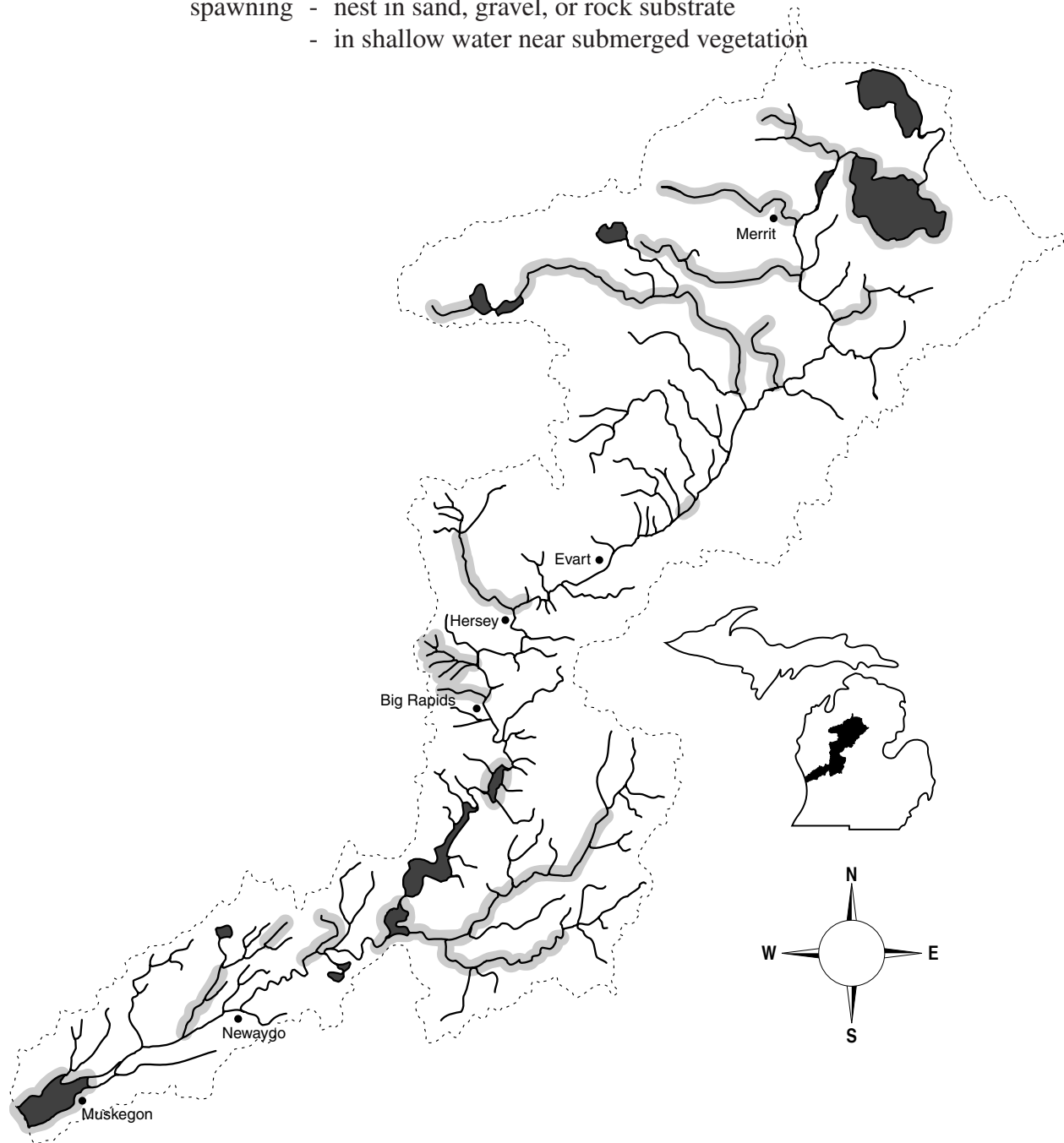
- feeding - impoundments and lakes, and low-current streams and rivers
- no substrate preference
  
- spawning - nests in shallow areas sheltered by rocks, logs, or aquatic vegetation



**Pumpkinseed sunfish (*Lepomis gibbosus*)**

**Habitat:**

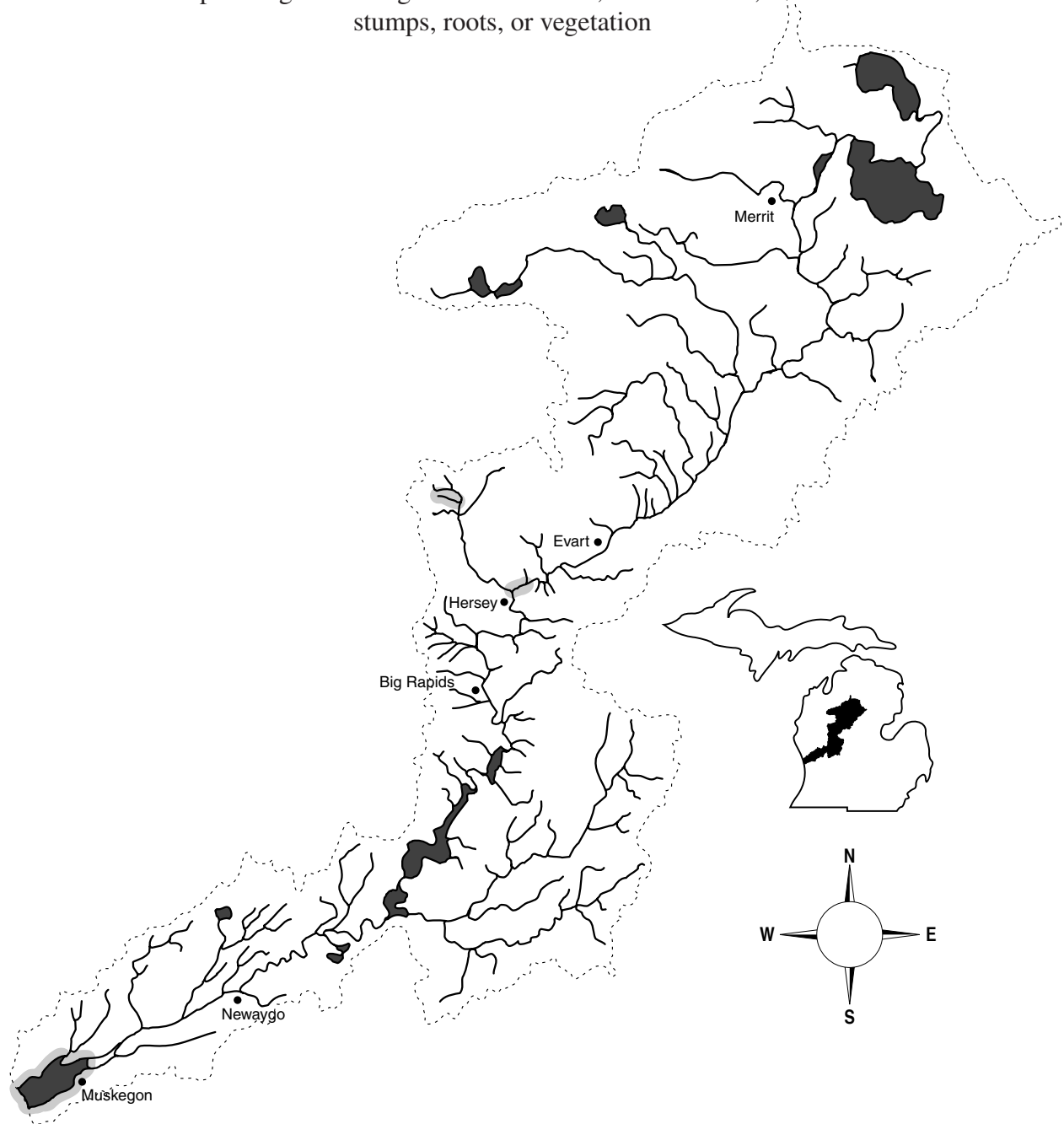
- feeding - non-flowing clear water in streams and rivers; also lakes and impoundments
- muck or sand partly covered with organic debris substrate
- dense beds of submerged aquatic vegetation
  
- spawning - nest in sand, gravel, or rock substrate
- in shallow water near submerged vegetation



**Warmouth (*Lepomis gulosus*)**

**Habitat:**

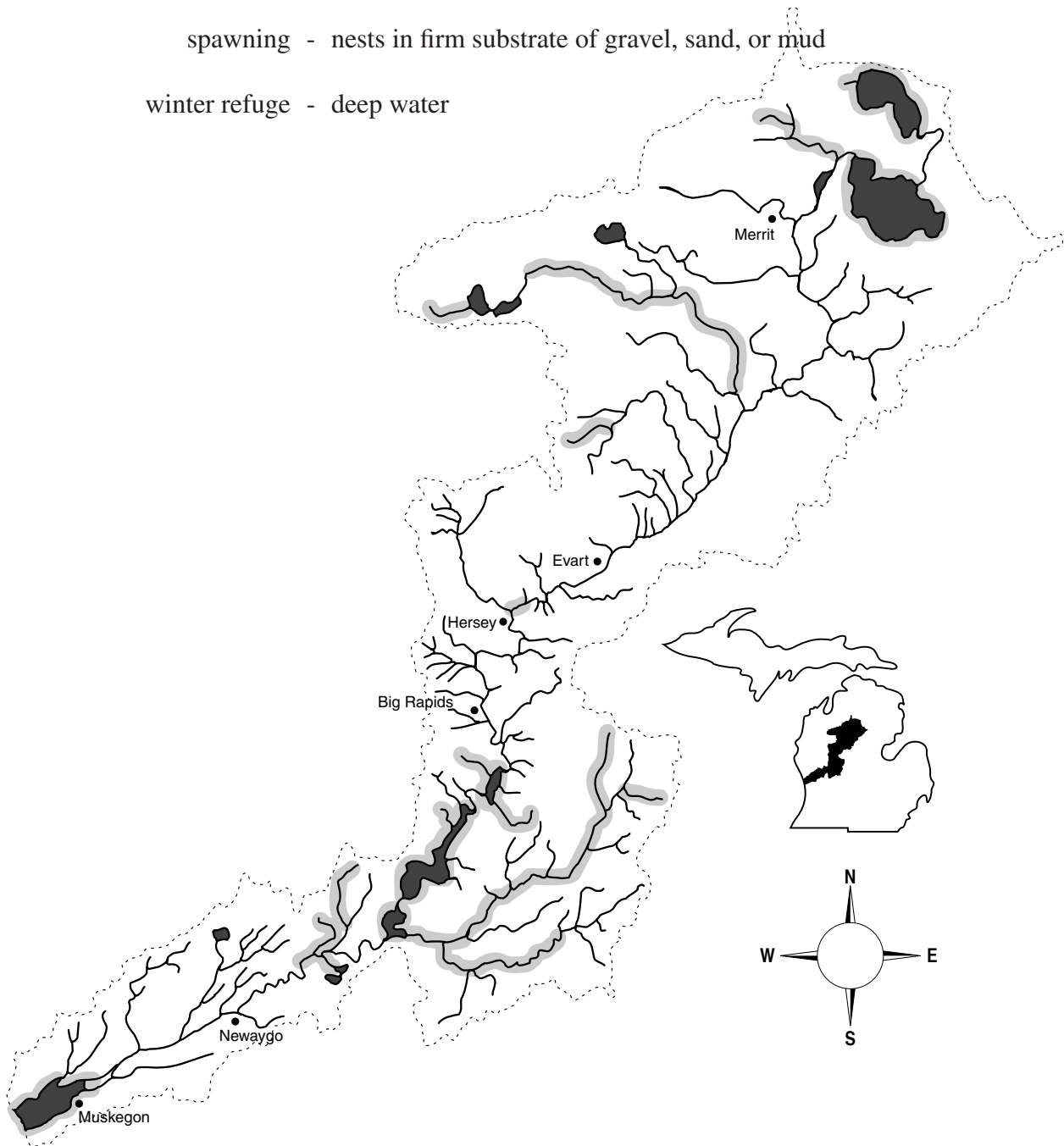
- feeding - clear lakes and impoundments and very low-gradient streams
- abundant aquatic vegetation
- silt-free water
- mucky substrate often covered with organic debris
  
- spawning - nesting sites in loose silt, sand with silt, or rubble over silt near stumps, roots, or vegetation



**Bluegill (*Lepomis macrochirus*)**

**Habitat:**

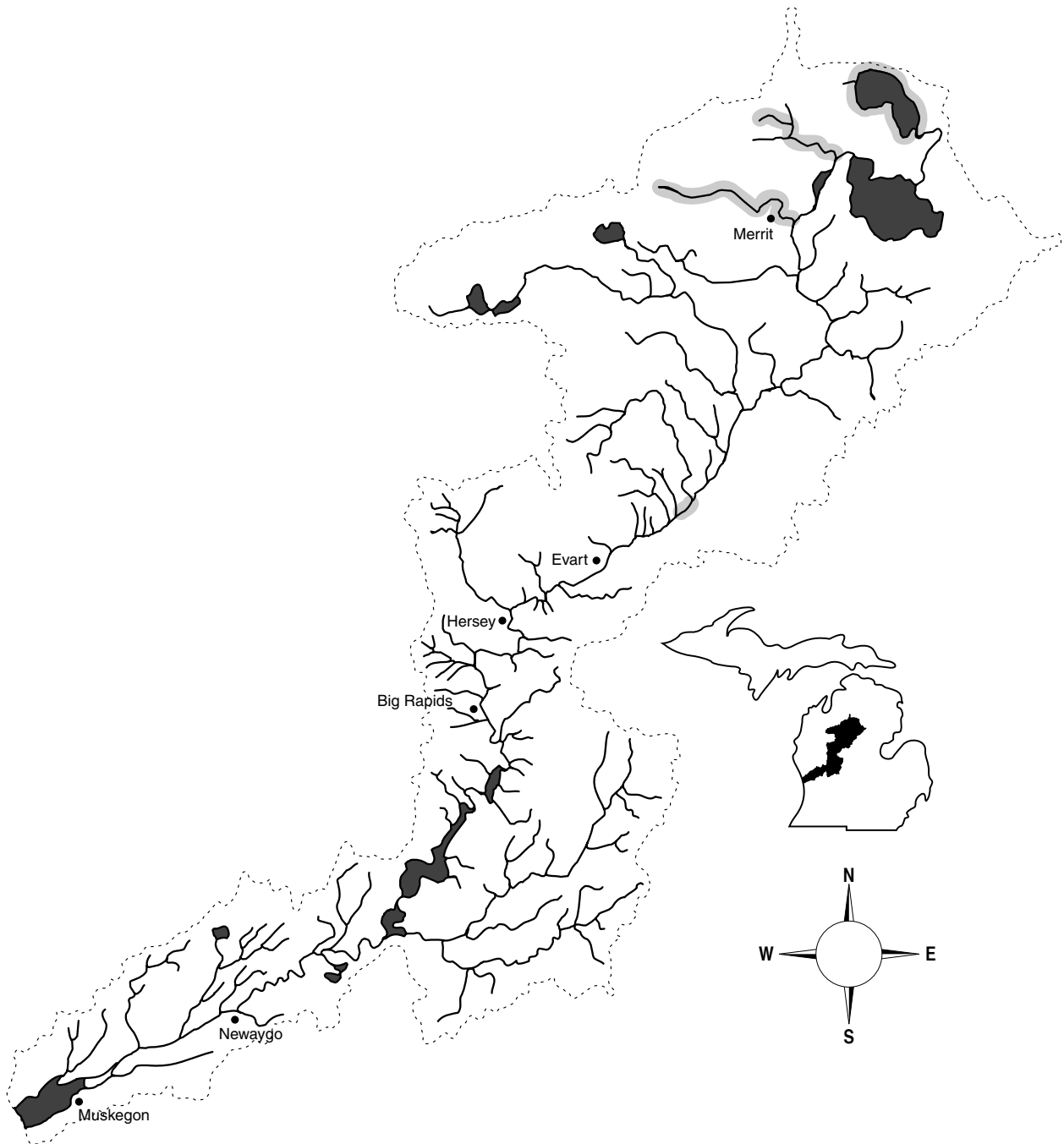
- feeding - non-flowing clear streams and rivers; also lakes and impoundments
- sand, gravel, or muck containing organic debris substrate
- scattered beds of aquatic vegetation
- cannot tolerate low oxygen or continuous high turbidity and siltation
  
- spawning - nests in firm substrate of gravel, sand,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



**Longear sunfish (*Lepomis megalotis*)**

**Habitat:**

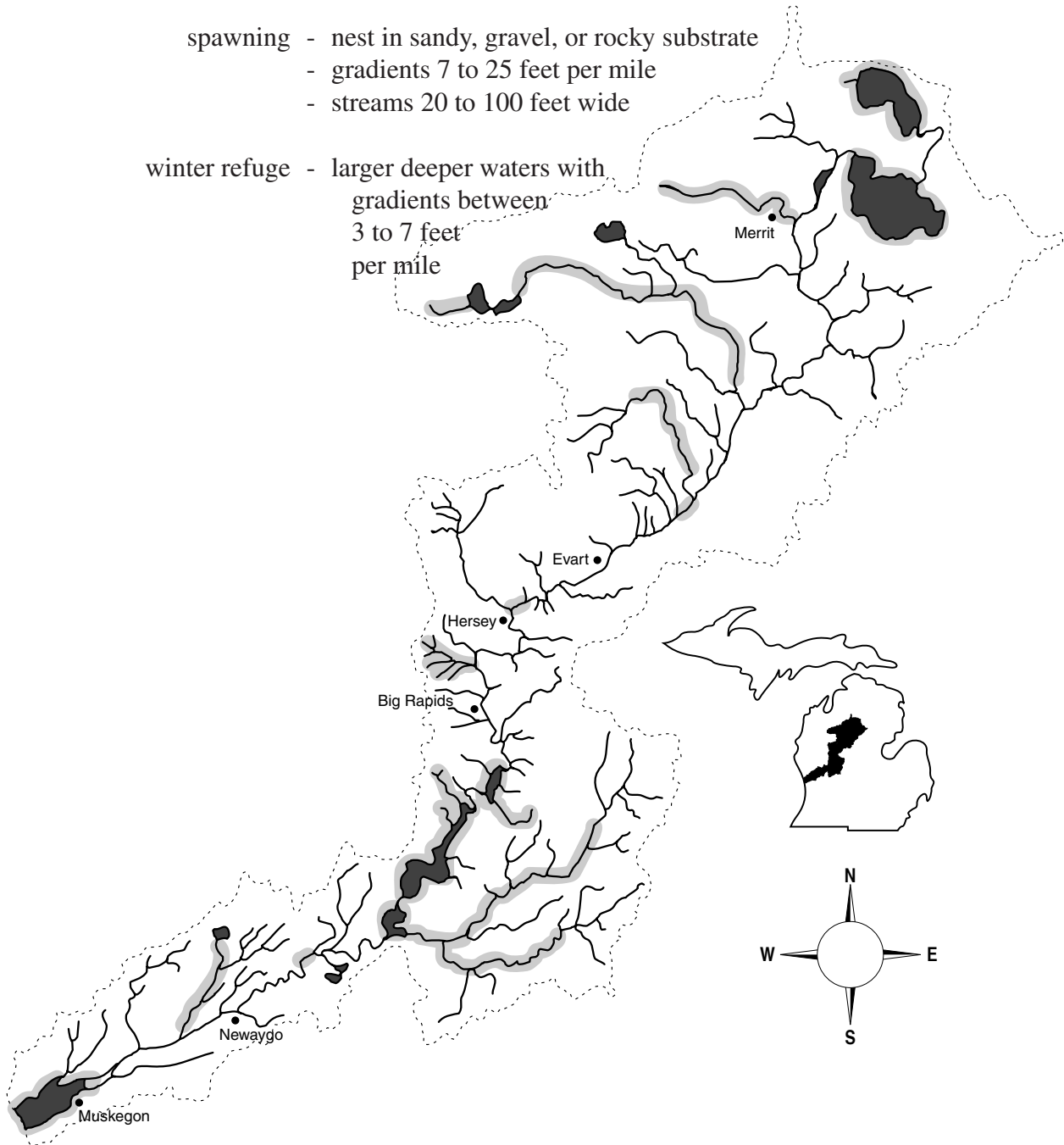
- feeding - clear moderate-sized shallow streams with moderate vegetation
- rocky substrates
- little to no current
  
- spawning - nests in gravel, sand, or hard rock substrate



**Smallmouth bass (*Micropterus dolomieu*)**

**Habitat:**

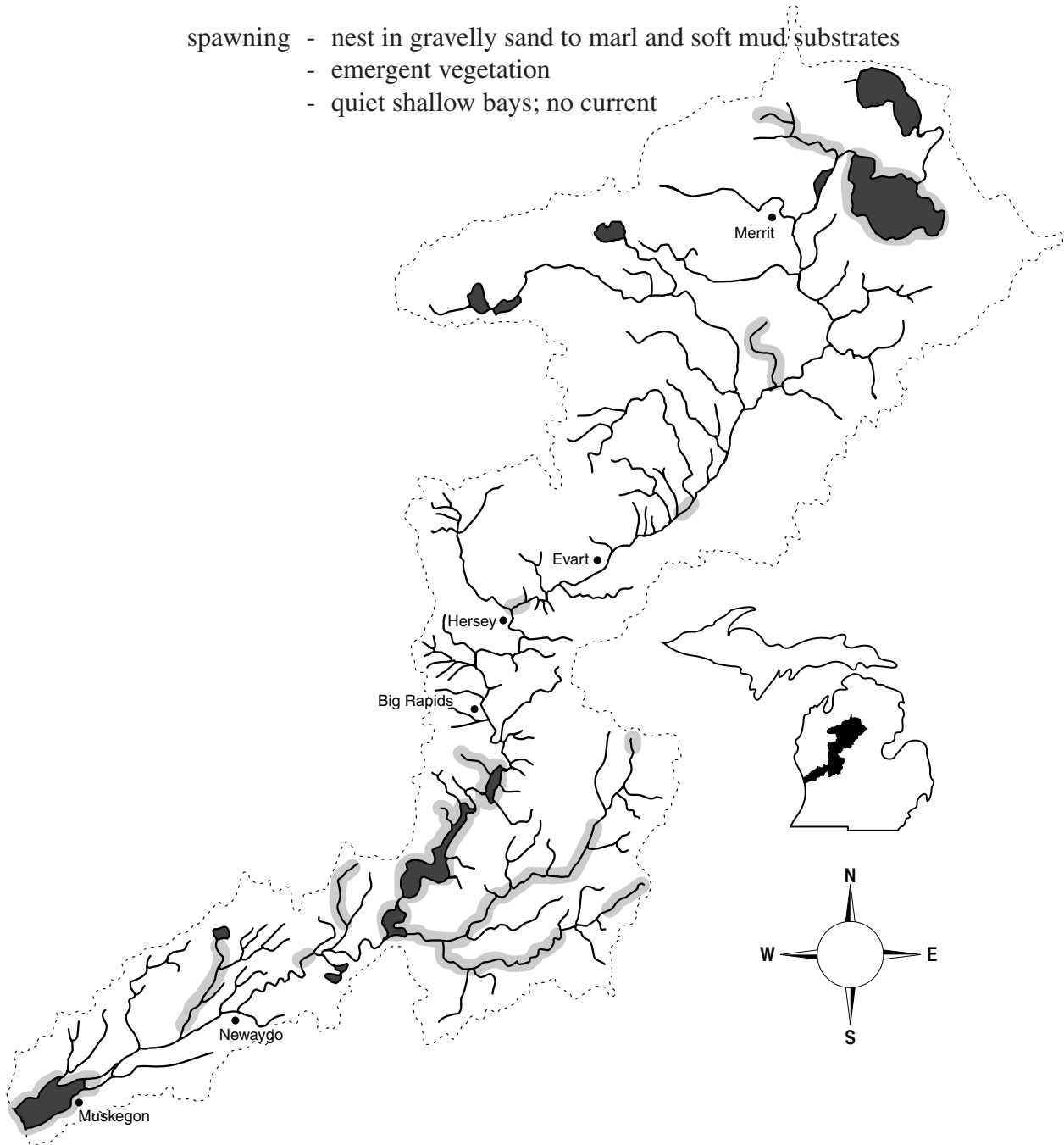
- feeding
  - clear, cool, deep lakes and rivers
  - streams where 40% consists of riffles over clean gravel, boulder, or bedrock substrate
  - in pools with a current and >4 feet of depth
  - gradients between 4 and 25 feet per mile
  
- spawning
  - nest in sandy, gravel, or rocky substrate
  - gradients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

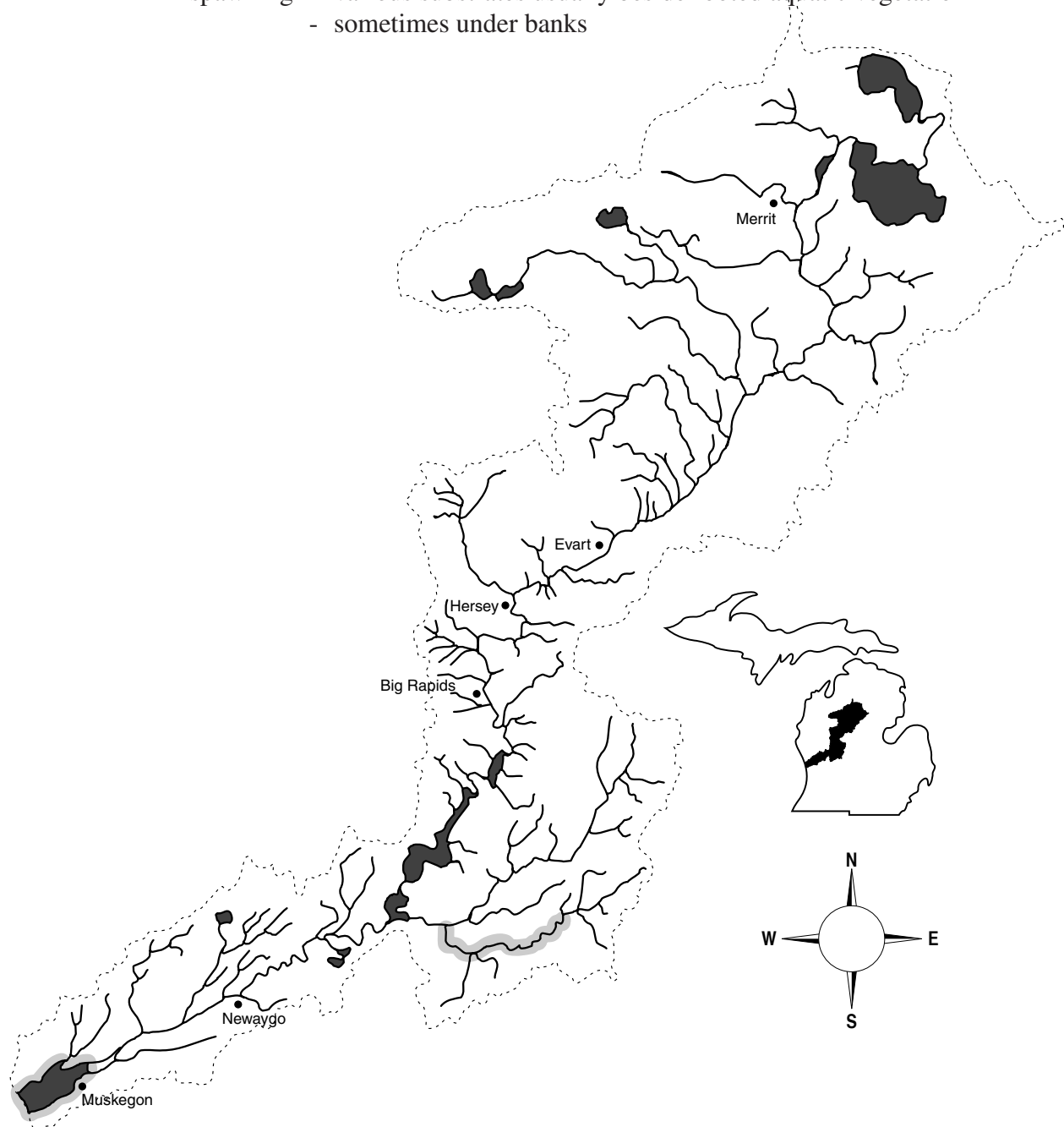




**White crappie** (*Pomoxis annularis*)

**Habitat:**

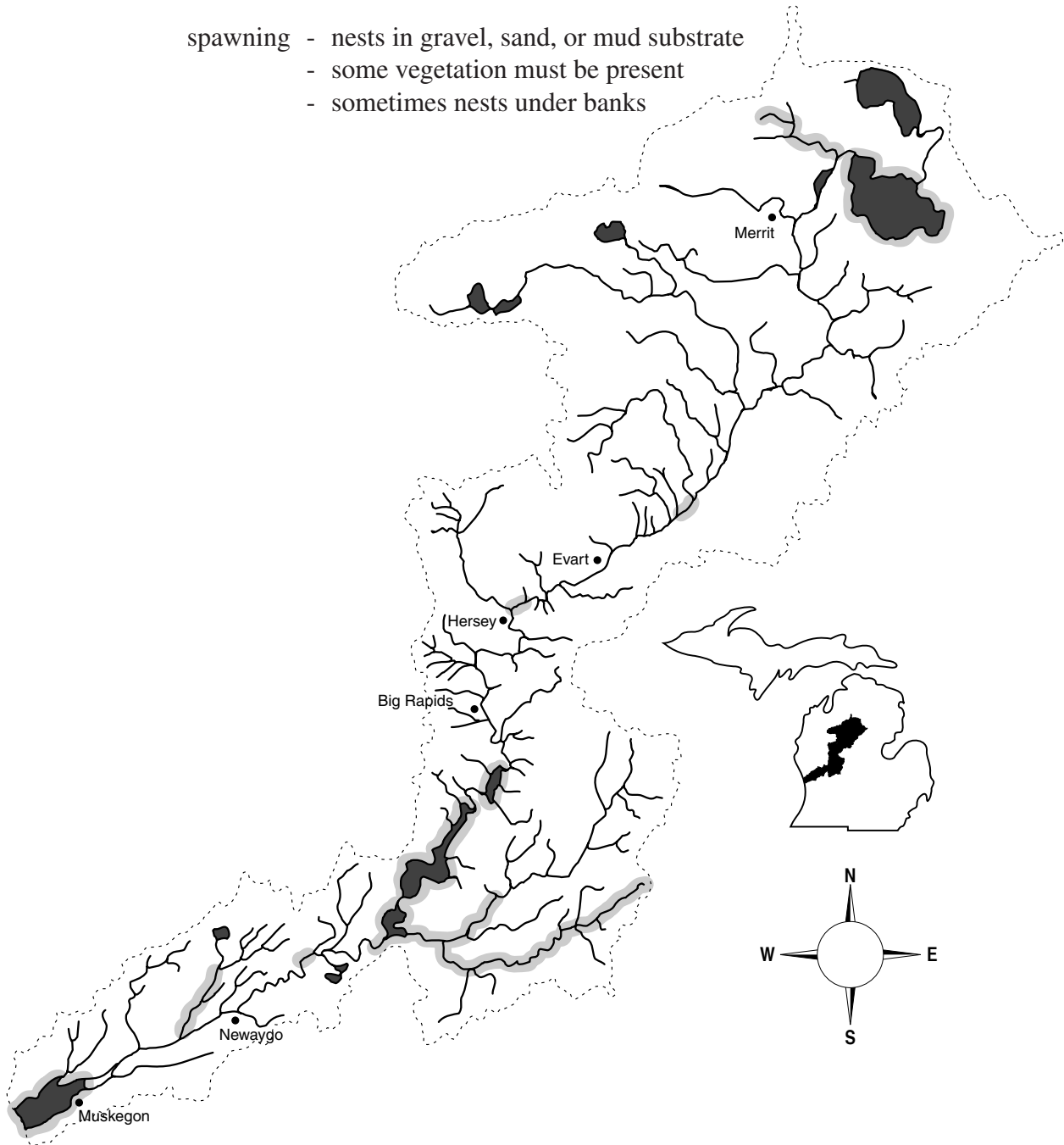
- feeding
  - lakes and impoundments >5 acres
  - sluggish pools of moderate to large low-gradient rivers
  - no substrate preference
  - can tolerate severe turbidity and rapid siltation
  
- spawning
  - various substrates usually beside rooted aquatic vegetation
  - sometimes under banks



**Black crappie** (*Pomoxis nigromaculatus*)

**Habitat:**

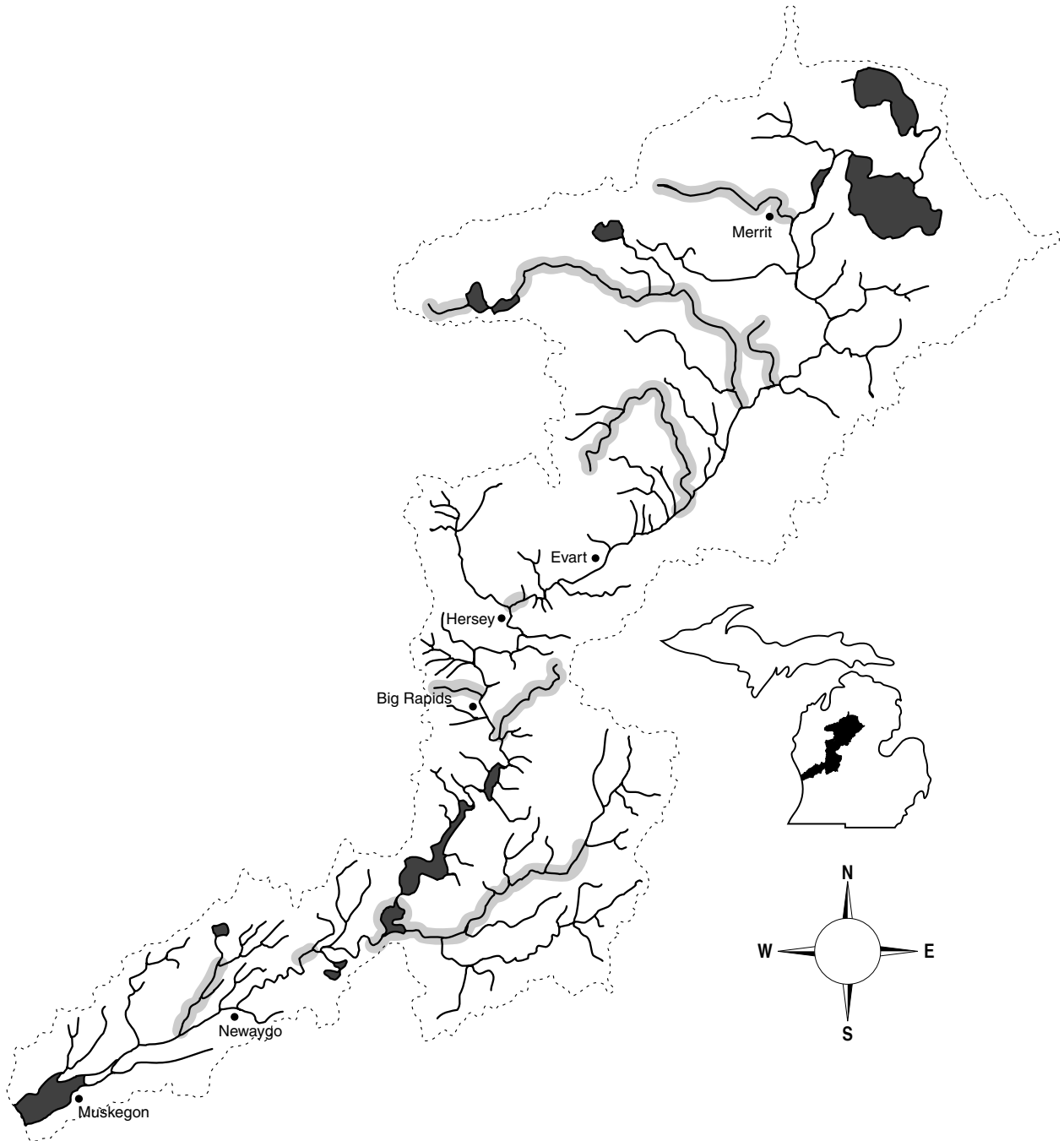
- feeding - larger clear non-silty low-gradient rivers; also in lakes and impoundments
- clean hard sand or muck substrate
- associated with submerged aquatic vegetation
- does not tolerate silt or turbidity well
  
- spawning - nests in gravel, sand, or mud substrate
- some vegetation must be present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



**Rainbow darter (*Etheostoma caeruleum*)**

**Habitat:**

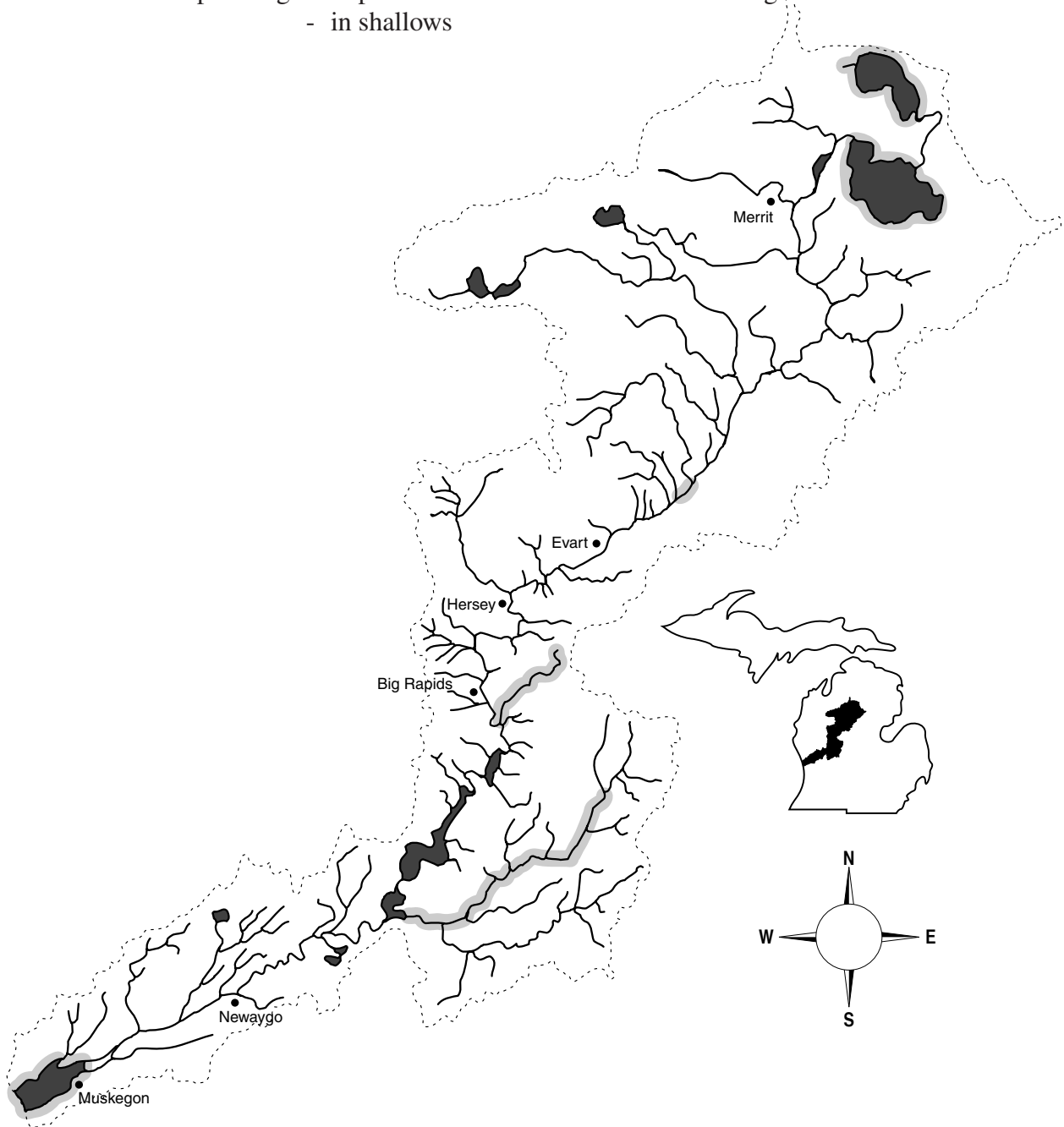
- feeding - gravelly high gradient riffles
- clear, moderate to large streams
- in shallows (average 1 foot)
  
- spawning - gravel or rubble riffles



**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:**

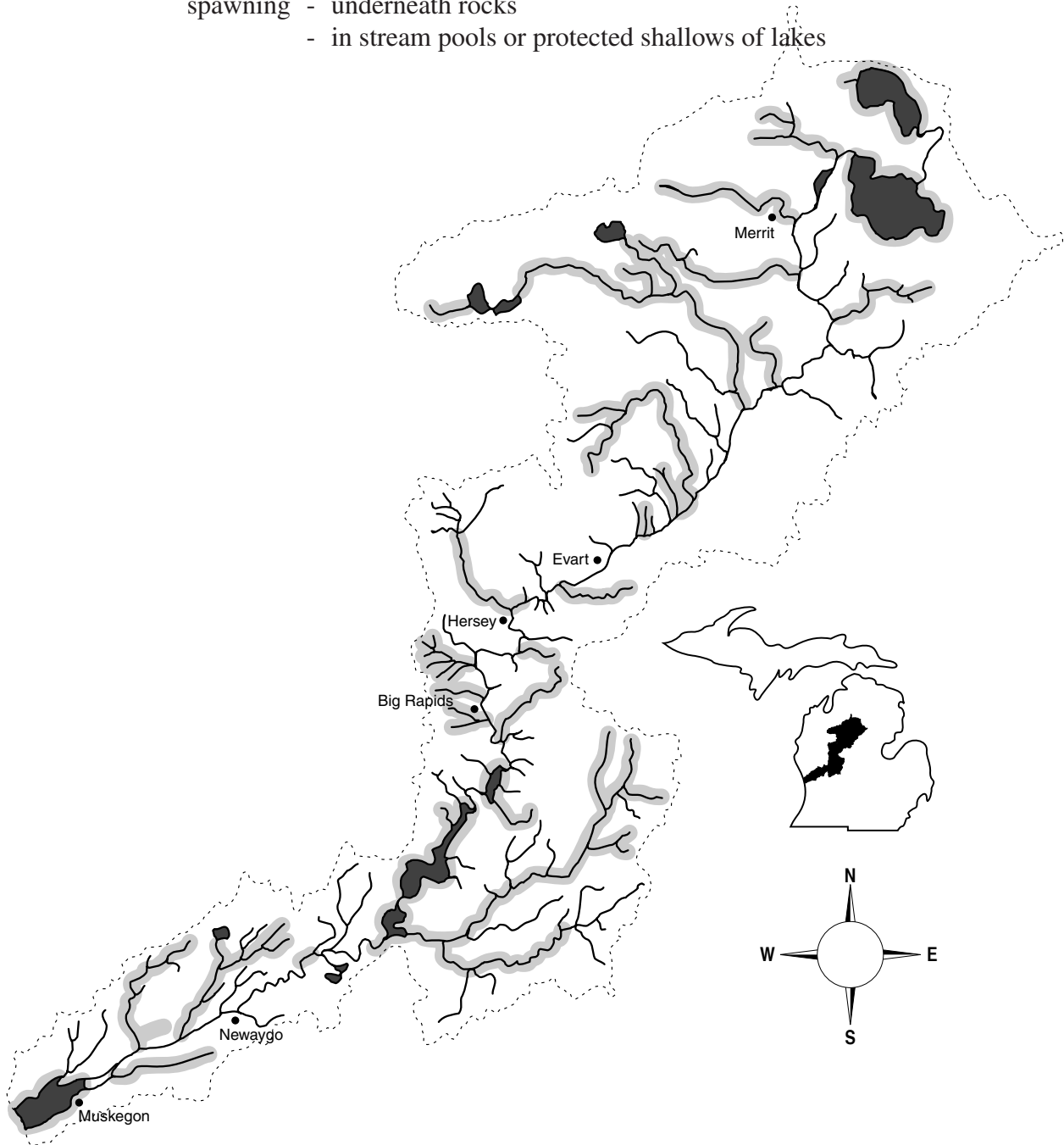
- feeding - moderate to warm temperature
- clear quiet low-gradient vegetated streams (wetlands, floodplains)
- soft substrate
  
- spawning - spawning occurs on stems of plants
- male guards a territory in a vegetated area.



**Johnny darter** (*Etheostoma nigrum*)

**Habitat:**

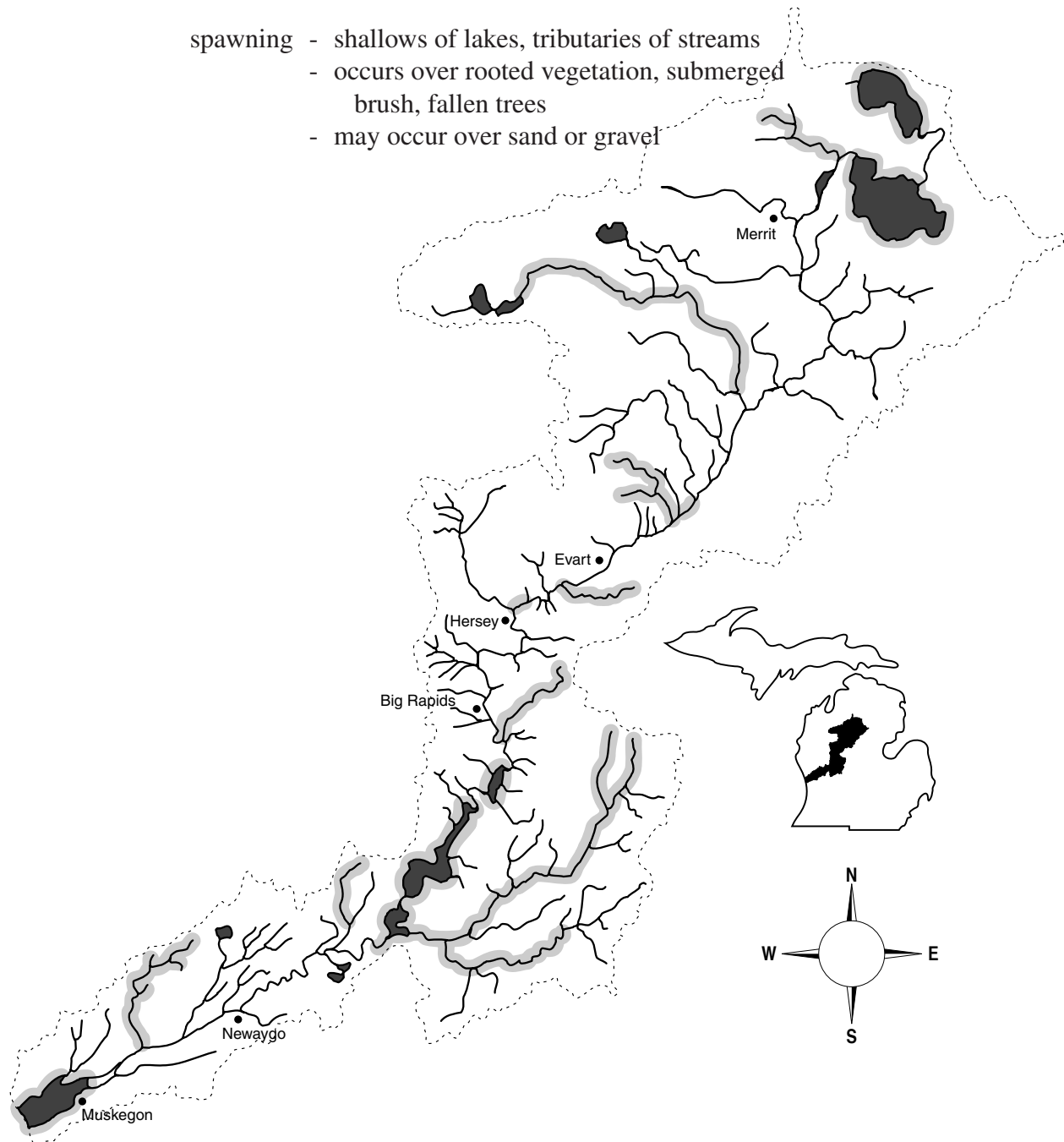
- feeding - sand and silt substrate
  - little to moderate current
  - shallow areas of streams, rivers, lakes, and impoundments
  - tolerant of many organic and inorganic pollutants and turbidity
- 
- spawning - underneath rocks
  - in stream pools or protected shallows of lakes



**Yellow perch (*Perca flavescens*)**

**Habitat:**

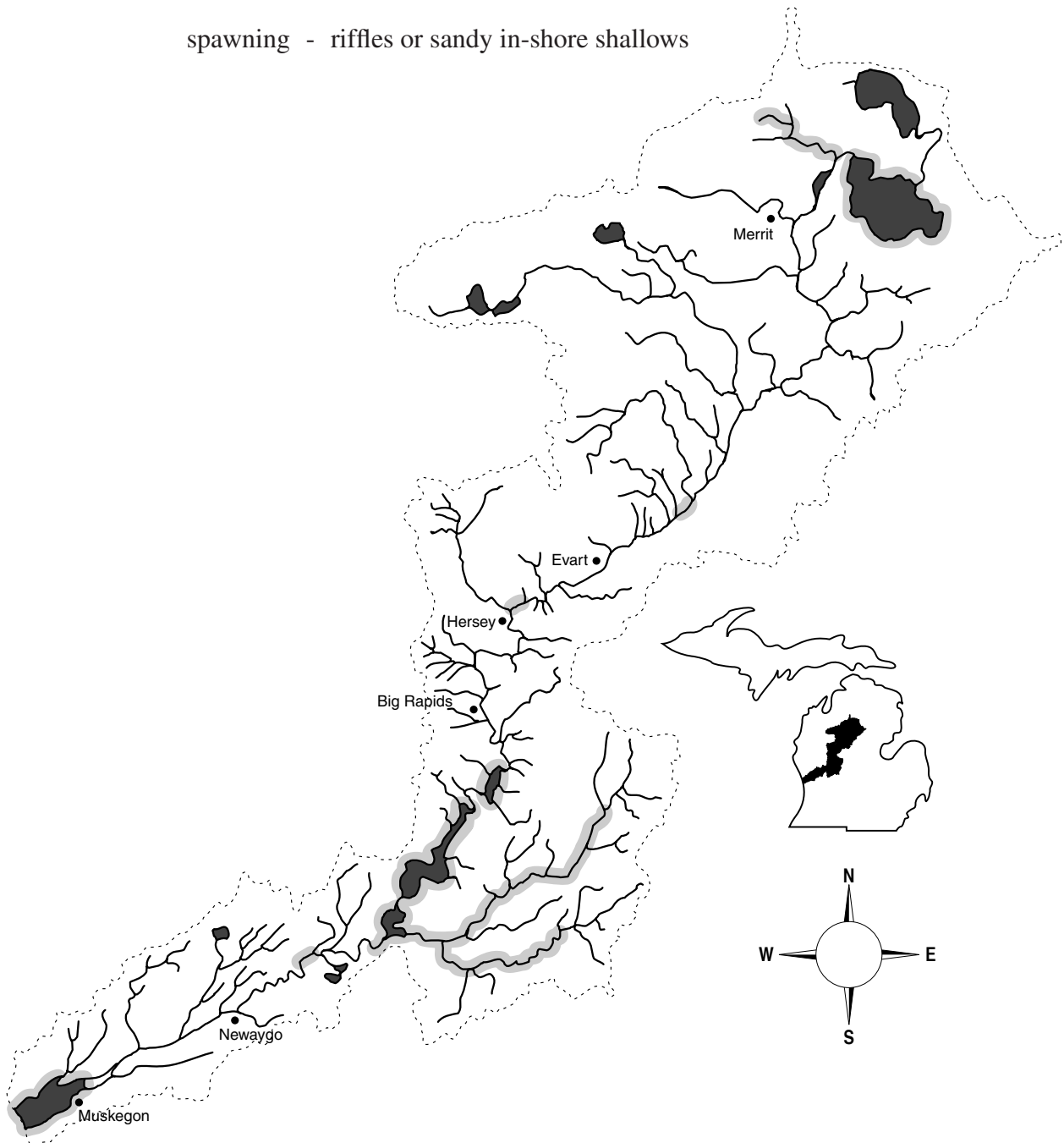
- feeding
  - clear lakes and impoundments; also Lake Michigan
  - low gradient rivers
  - abundance of rooted aquatics
  - muck, organic debris, sand, or gravel substrate
  - does not tolerate turbidity and siltation
  
- spawning
  - shallows of lakes, tributaries of streams
  - occurs over rooted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

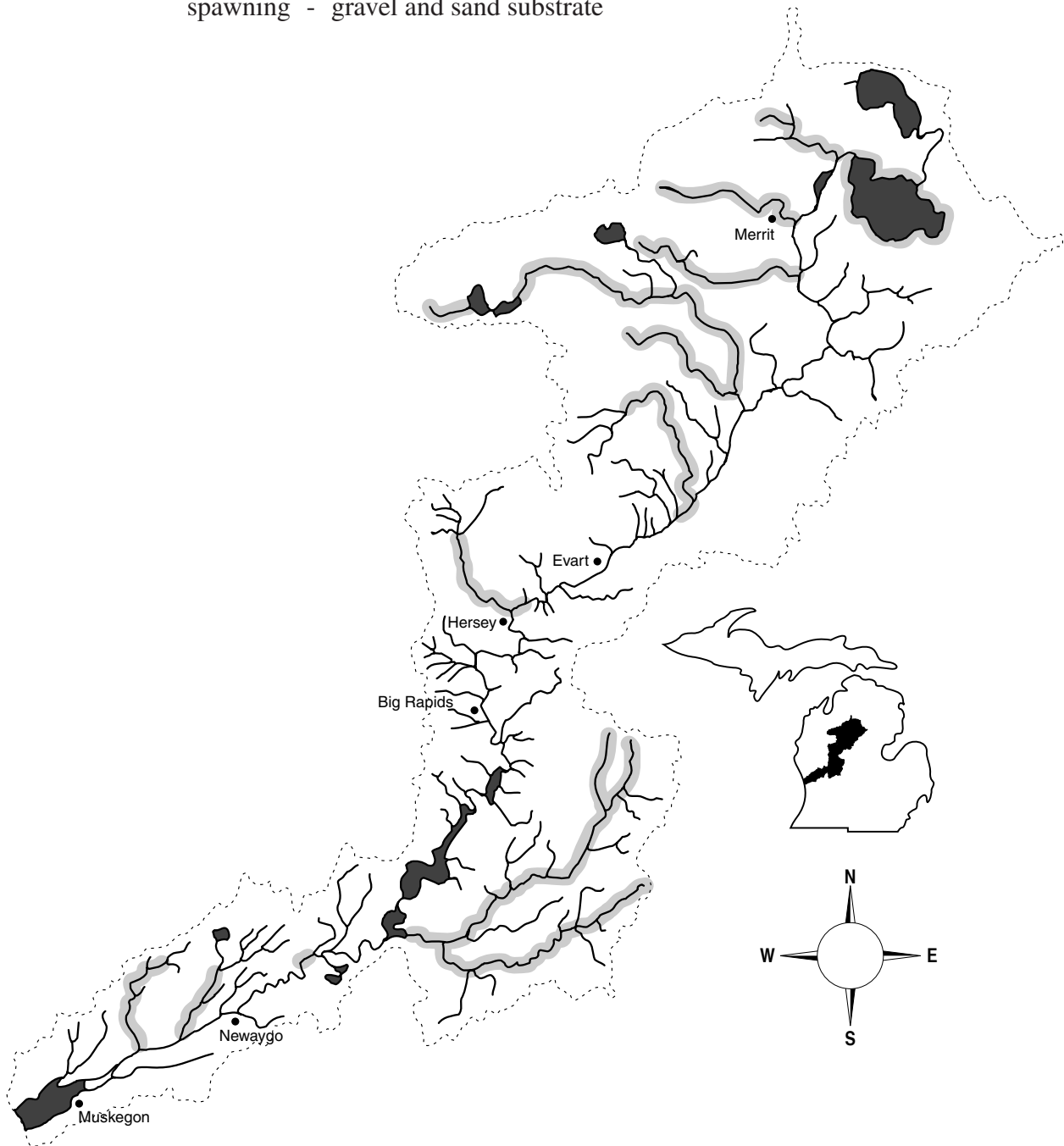




**Blackside darter (*Percina maculata*)**

**Habitat:**

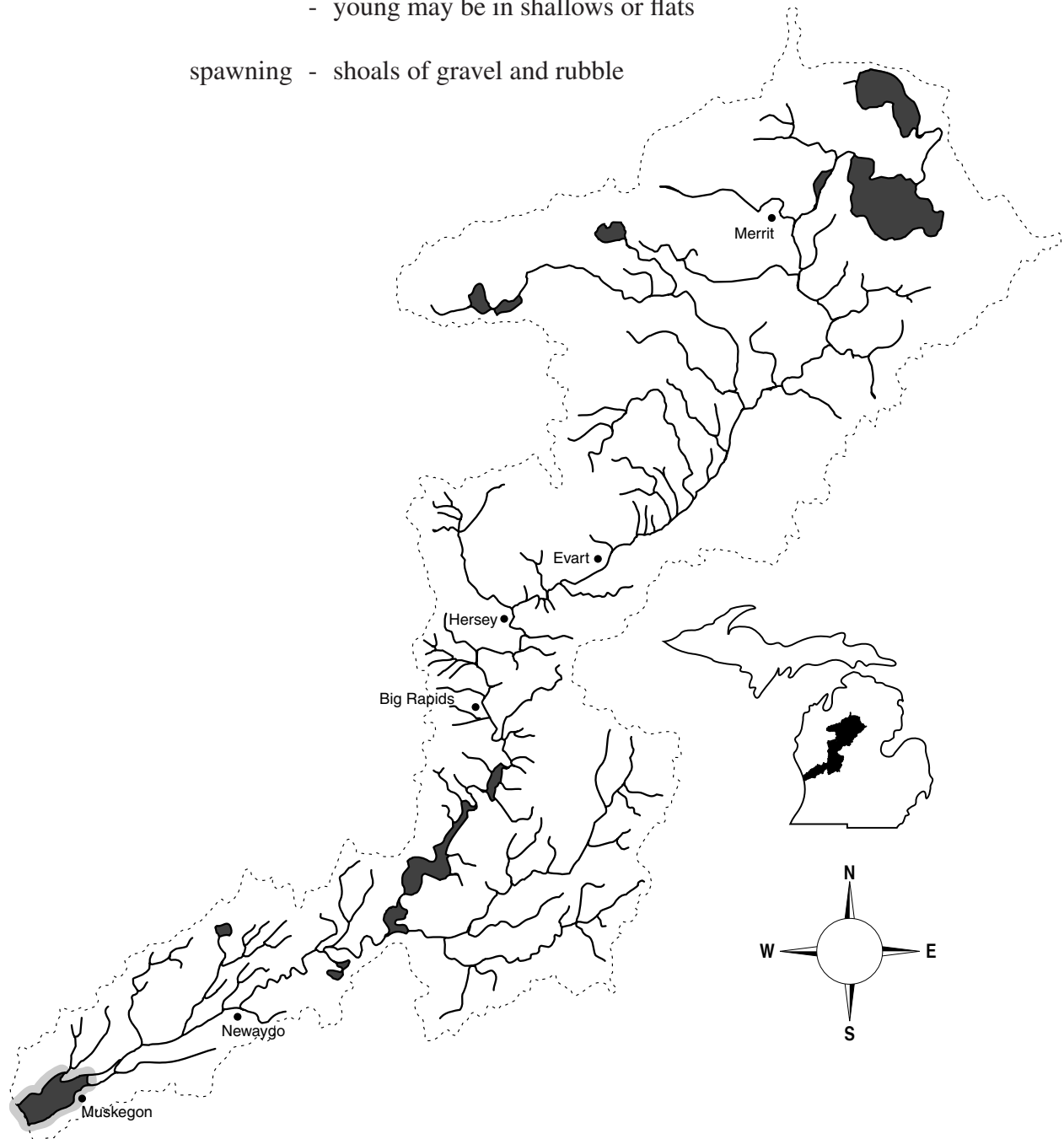
- feeding - small to medium streams
- low to medium gradient
- gravel and sand substrate
- tolerate some turbidity
  
- spawning - gravel and sand substrate



**Sauger** (*Stizostedion canadense*) - threatened

**Habitat:**

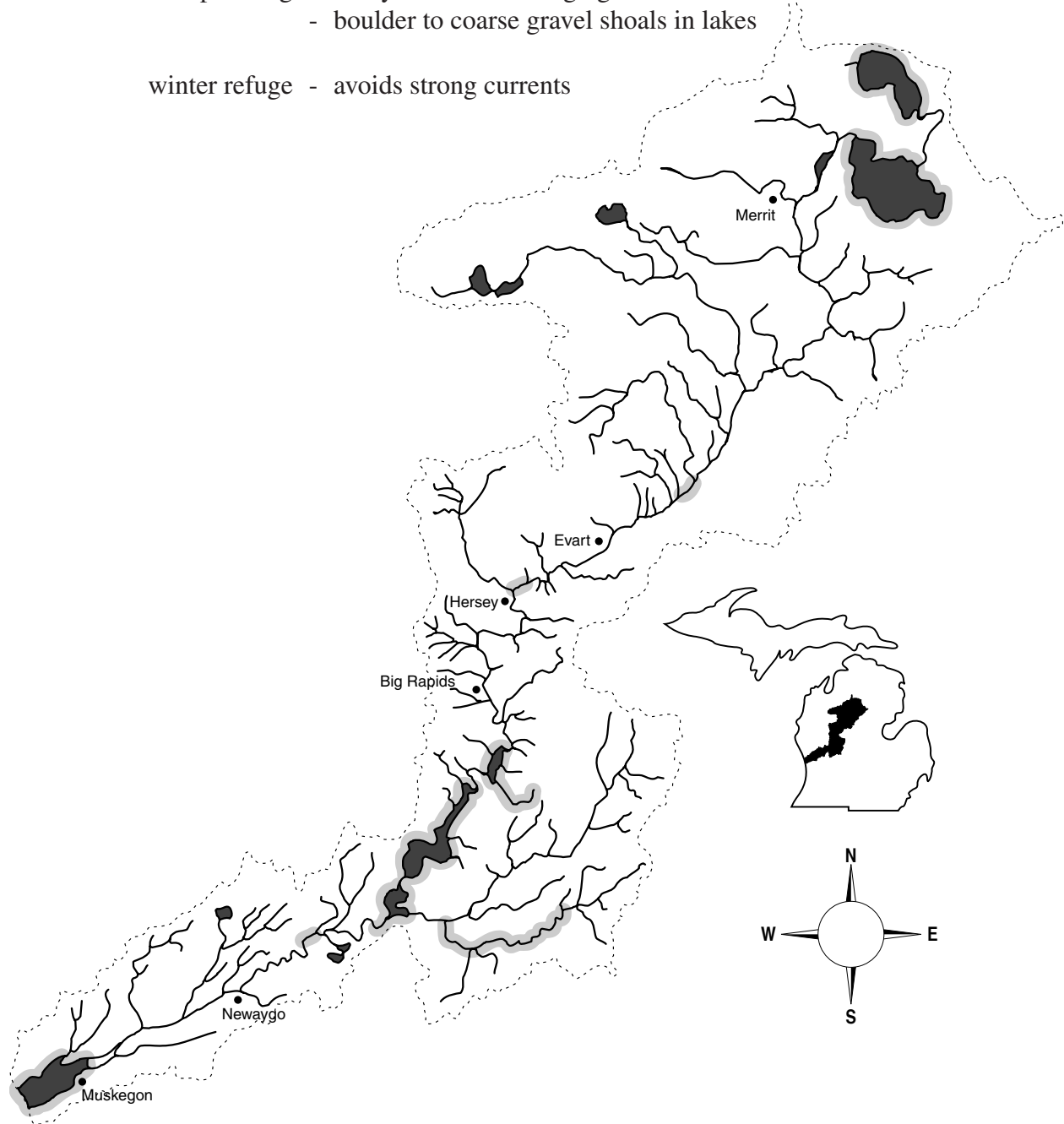
- feeding - larger, deeper, low gradient rivers; turbid lakes and impoundments;  
also Lake Michigan
  - not tolerant of high gradient
  - tolerant of silted substrate
  - more tolerant of turbid water than walleye
  - young may be in shallows or flats
- spawning - shoals of gravel and rubble



**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
- 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

