**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