

Aquatic Speciesat Risk.....

Fish Guidebook

Lower Thames Valley Conservation Authority Watershed



The Importance of Fish

Fish play an important role by providing us with food, employment and recreational activities. These opportunities come from the recreational, baitfish and the commercial industries.

Recreational

- Over 3.2 million Canadians were registered as anglers, contributing \$7.9 billion to local economies in 2015.¹
- The tourism industry, benefits from the 1600 licensed tourist operators generating millions of dollars per year in Ontario.²

Baitfish

- Baitfish are fish food that support angling and fish of commercial importance.
- In Ontario, there are approximately 1200 commercial bait fishing licenses issued annually, producing \$17 million through direct sales.²

Commercial

- Lake Erie is the largest freshwater commercial fishery in the world, contributing 75% of all catches from the Great Lakes.²
- In 2017, Ontario's commercial fishing was valued at \$2.5 billion annually.³

To maintain these benefits, the smallest of fish to the biggest need to be protected, as they are all an important part of the food web.



Alan Dextrase, MNRF

1. Government of Canada. 2015. Survey of Recreational Fishing in Canada. Fisheries and Oceans Canada.

2. Heron, Linda. 2014. Ontario's Fisheries: Significant Contributors to the Ontario Economy. Ontario River Alliance.

3. Government of Ontario. 2017. Facts on Canadian Fisheries. Canada.ca

Species At Risk

Many species of fish in the Lower Thames Valley Conservation Authority (LTVCA) are now species at risk (SAR). Taking action to reduce threats can help improve their survival and recovery.

Extirpated

species used to live in the wild in Canada, but no longer survive in the country, although they still persist in one or more other areas of the world.

Endangered

species live in the wild, but are facing imminent extinction or extirpation. Threats need to be addressed so these species do not become extirpated.

Threatened

species live in the wild, are not endangered, but are likely to become so if steps are not taken to address factors threatening them.

Special Concern

species live in the wild, are not endangered or threatened, but may become so due to a combination of biological characteristics and identified threats.

There are over 100 species of fish found in the LTVCA; 18 species, or more than 17%, are considered to be SAR. The loss of diversity puts freshwater mussels, other fish and mammal populations and human resources at risk. Continue reading to learn more about the fish SAR and their distribution within the watershed.

Diverse, healthy fish populations benefit people and are essential to freshwater mussel populations. Mussels improve water quality by filtering nutrients and pollutants. They rely on a fish host to complete their life cycle. See the LTVCA's *Aquatic Species at Risk Mussel Guidebook* for details.



SCAN ME



DFO

Gravel Chub

Erimystax x-punctatus - **Extirpated**



Brian Zimmerman

- Small, silvery minnow with an overhanging snout
- Has 'X' and 'Y' shaped markings along its body
- Prefers gravel bottom streams that remain silt free
- Historically, only found in the Thames River
- Disappearance is likely due to sediment loading
- Acts as cautionary tale for other SAR

Silver Chub

Macrhybopsis storeriana - **Endangered**



Brian Zimmerman

- Small, silvery minnow
- Identified by a white line on the bottom of its tail
- Has tiny barbels in the corners of its mouth
- Prefers eating mayfly nymphs, which require clear, unpolluted waters
- Diet preference may be shifting to invasive mussels
- Found at depths between 7 and 12 meters
- Inhabits Lake Erie, including Rondeau Bay, Lake St. Clair and the connecting tributaries
- Water quality improvements around Lake Erie are enhancing habitat conditions

Silver Shiner

Notropis photogenis - Threatened



Brian Zimmerman

- A small, silvery minnow
- Has two crescent-shaped marks between its nostrils
- Largest shiner in the genus (*Notropis*)
- Reportedly leaps above the water to catch insects
- Prefers coarse substrates and lives in schools
- Can accidentally be collected in bait buckets
- The Thames River is one of the few locations that support Silver Shiner

Pugnose Minnow

Opsopoeodus emiliae - Threatened



Brian Zimmerman

- A small, silvery minnow
- Has forked tail, black stripe and pale lower lip
- The small, upturned mouth gives this fish its name
- Likely a mid-water or surface feeder
- Prefers coastal wetlands or slow-moving waterbodies with an abundance of vegetation
- Considered extirpated from the Thames River
- Not to be confused with the Pugnose Shiner

Pugnose Shiner

Notropis anogenus - Threatened



Brian Zimmerman

- A small, slender minnow
- Has a tiny, upturned mouth
- It's black side stripe makes it look like other fish referred to as the shiners
- Distinguished by its dark lower lip
- Likes Stonewort (*Chara* sp.) for food, breeding and shelter
- Prefers cool, clear, heavily vegetated habitats
- Found in the coastal wetlands of Lake St. Clair and its tributaries, and historically in Rondeau Bay

Lake Sturgeon

Acipenser fulvescens - Threatened



Todd Stailey, Tennessee Aquarium

- Identified by rows of bony plates along its body
- Ontario's largest and longest-lived fish
- Barbels around its mouth help it search for food
- Non-edible materials such as mud, sticks and stones are cast out the mouth
- Lives in cool waters of large rivers and lakes
- Found in Lake St. Clair near the Thames River
- Status in the Thames River itself is unclear
- The only known host for endangered Hickorynut

Spotted Gar

Lepisosteus oculatus - **Endangered**



Joachim S. Mueller

- Gars have long bodies and long, thin mouths
- Has a wider, shorter beak than the Longnose Gar
- Uses its swim bladder like a lung, to survive in low oxygen environments
- Uses vegetation to hide and ambush their prey
- Prefers slow moving, heavily vegetated waters
- Destruction of wetlands is one of its main threats
- Found in coastal wetlands along Lake Erie, including Rondeau Bay

Lake Chubsucker

Erimyzon sucetta - Endangered



Brian Zimmerman

- A small sucker with thick, fleshy lips
- Has a deep body, arched back and no lateral line
- Lives in still, warm water habitats with lots of plants
- Wetlands, marshes and ponds are preferred habitat
- Draining of wetlands is one of the major threats
- Found in Rondeau Bay, along the eastern shores of Lake St. Clair and in Jeannettes Creek (a tributary of the lower Thames River)
- One of the rarest fishes in Ontario

Black Redhorse

Moxostoma duquesnei - Threatened



DFO

- Part of the sucker family
- Identified by its black tail and uniform scale colour
- Grows up to 50 cm in length and weighs up to 1 kg
- Uses its large mouth to suck aquatic insects and crustaceans off the bottom
- Lives in medium-sized rivers (less than 2 m deep)
- Prefers fast, clear water and little vegetation
- The Thames River is one of the few waterbodies where the Black Redhorse can be found in Canada
- The rarest redhorse in Ontario

River Redhorse

Moxostoma carinatum - Special Concern



NYSDEC

- A silvery, deep-bodied sucker
- Has a large head and red tail
- Grows up to 80 cm in length and 5.5 kg in weight
- Molar-like teeth in its throat are used to crush mussels, insects and crustaceans
- Lives in large, cool river habitats
- Migrates to spawn in fast-moving, gravelly habitat
- Dams act as barriers and prevent them from reaching their spawning grounds
- Found in the Thames River

Spotted Sucker

Minytrema melanops - **Special Concern**

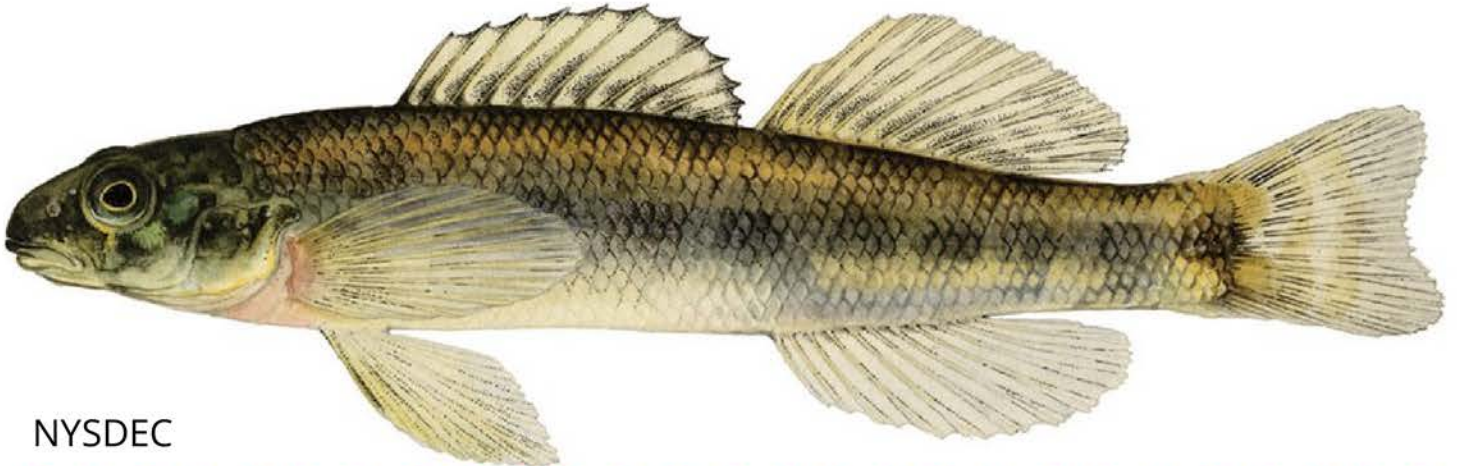


Brian Zimmerman

- A member of the sucker family
- Its spots distinguish it from other sucker species
- Found in deep river pools and along lake shores
- Prefers habitats that are free of silt
- In Canada, it is only found in southwestern Ontario
- Ontario is at the northern edge of its range
- Can be found in the Thames River and historically from Two Creeks

Channel Darter

Percina copelandi - Endangered



NYSDEC

- A member of the perch family
- Has markings along the the body resembling the letters 'M', 'W', 'X' and 'V'
- Bottom-dwelling fish that eats aquatic insects
- Prefers clean, sandy, gravelly streams and lakes
- Doesn't do well in turbid or polluted waters
- Population is likely declining due to Round Goby
- Disappeared from most of its habitat in Lake Erie
- Only found at Rondeau Bay within the watershed

River Darter

Percina shumardi - Endangered



Brian Zimmerman

- A member of the perch family
- Like other darters, the spiny-rayed and soft-rayed dorsal fins are separate
- Distinguished by two dark spots on its dorsal fin
- Prefers gravel and cobble substrates in deep waters
- Threats are not well understood
- One of the most widely distributed darter species
- One of two populations in Ontario occurs in the lower Thames watershed

Eastern Sand Darter

Ammocrypta pellucida - Threatened

Alan Dextrase, MNRF



- A member of the perch family
- Has a slender, translucent body with dark spots
- Its colouration helps to keep it camouflaged
- Prefers sandy, shallow lakes and streams
- Buries itself in sand to conserve energy from flows
- Found in the lower Thames River and Rondeau Bay
- The main host of endangered Round Hickorynut

Warmouth

Lepomis gulosus - **Endangered**

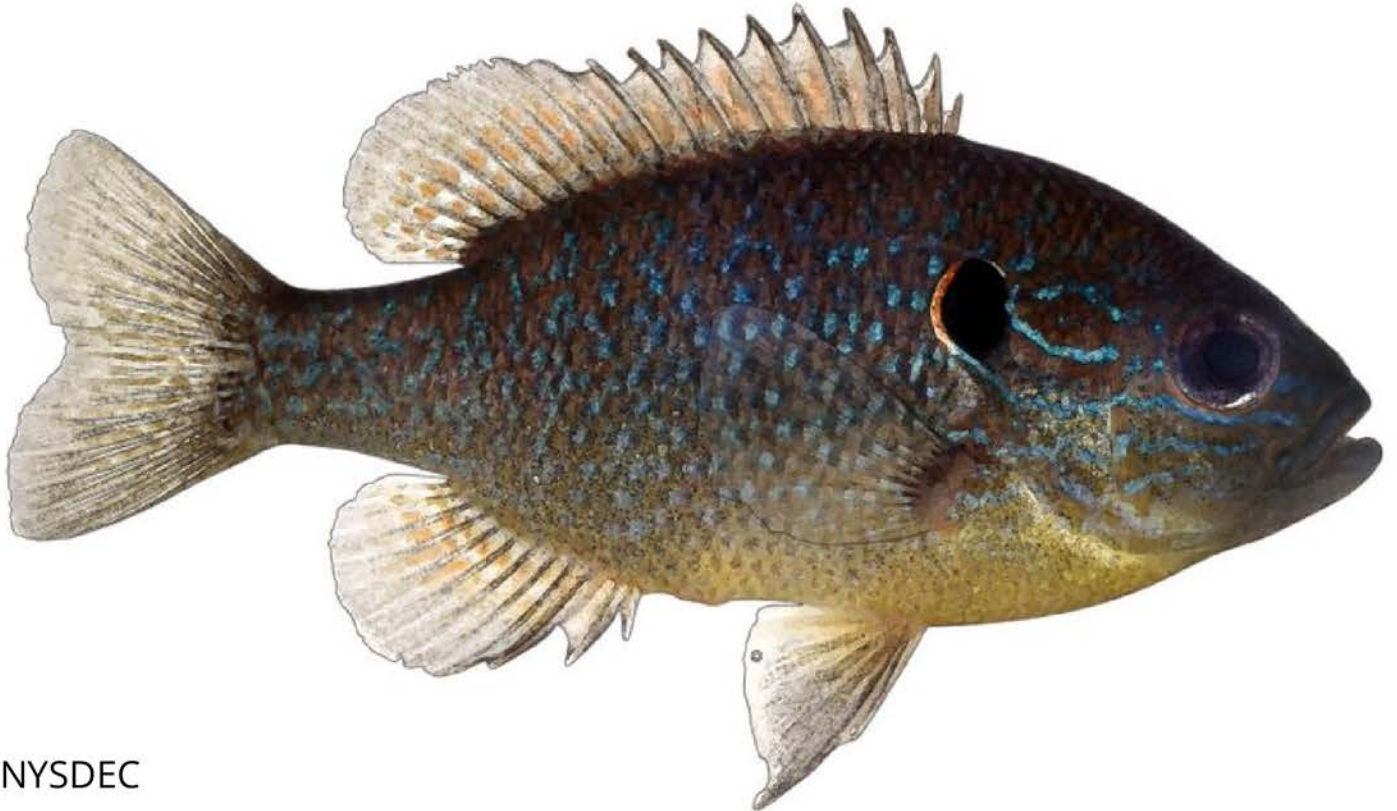


Brian Zimmerman

- Member of the sunfish family
- Identified by the 3-5 dark lines across its cheek
- Has a large mouth and teeth on its tongue which suit its ravenous appetite
- Prefers silt free, warm marshes, ponds and lakes
- Found in Rondeau Bay
- The rarest sunfish in Ontario

Northern Sunfish

Lepomis peltastes - **Special Concern**



NYSDEC

- Member of the sunfish family
- Identified by an upward facing ear flap (operculum)
- Has orange and red markings on the operculum
- Uses vegetation to take refuge from strong currents
- Prefers slow-moving, clean, heavily vegetated water
- Intolerant of siltation and turbidity
- Considered an indicator species of habitat quality
- Found at one location in the Thames River

Silver Lamprey

Ichthyomyzon unicuspis - **Special Concern**

Konrad Schmidt



- An eel-shaped fish
- Has a sucking, disc-shaped mouth
- Distinguished from the invasive Sea Lamprey by its single dorsal fin with two lobes
- Feeds on the blood of fish
- Needs clear waters to find a fish host to attach to
- Found in Rondeau Bay and the downstream reaches of the Thames River

Northern Madtom

Noturus stigmosus - Endangered



Andrew Drake, DFO

- A nocturnal (active at night) catfish
- Has long whiskers (barbels) around its mouth that it uses to search for food in the darkness
- Fins have spines connected to a poison gland that can inflict a painful wound
- Lives in large streams or the deep waters of lakes
- Requires clean, unpolluted waters to survive
- The Thames River is one of the few places this globally rare species can be found

Flathead Catfish

Pylodictis olivaris - Data Deficient

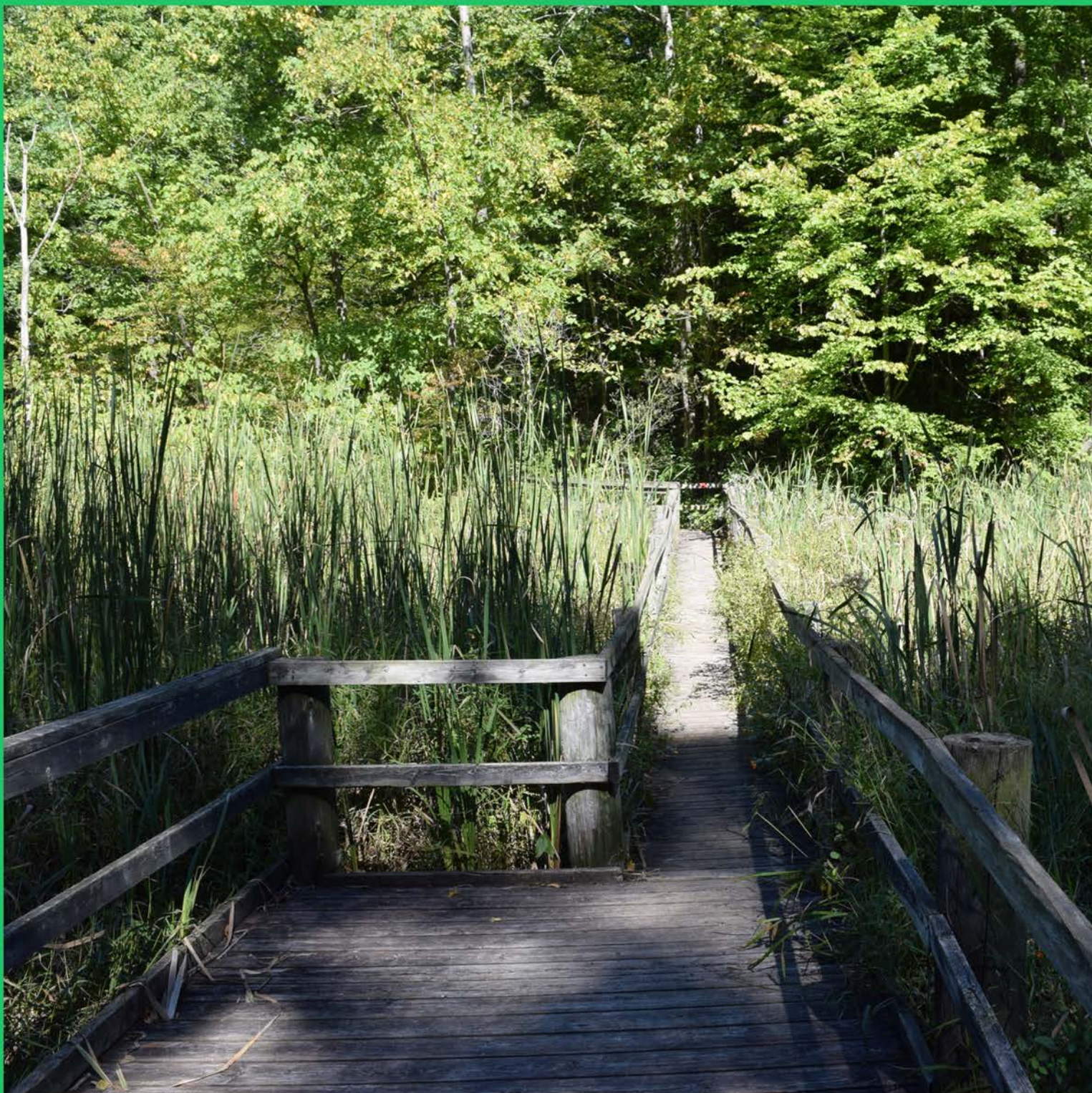


USFWS Mountain-Prairie

- Identified from other catfish by its protruding lower jaw, compressed head and large adipose fin
- A bottom dwelling fish that prefers warm water
- Hides in woody debris, undercut banks and substrate depressions
- Their habitat preferences and solitary behaviour make data collection difficult
- Its range and abundance are not currently known
- Has been found in Lake Erie, Lake St. Clair and the Thames River

Notes

This image shows a blank sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



Cover photo credits: Philippe Blais (Hickorynut), DFO (Lilliput), Vicki McKay (Snuffbox), Todd Morris (Rainbow), Joachim S. Mueller (Spotted Gar), Todd Stailey (Lake Sturgeon), Shawn Staton (Northern Riffleshell) and Brian Zimmerman (Lake Chubsucker, Silver Chub and Warmouth).



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