



# Trout in Trouble

A rare abundant population of brook trout in the West Credit River is under threat from a proposed wastewater treatment plant. Can a partnership between conservationists and anglers save this cold-water specialist?

By Patricia Hluchy

**Precarious existence:** Brook trout in southern Ontario are threatened by habitat fragmentation and degradation.

BROOK TROUT

The day is perfect for fishing, all August sunshine and fluttering goldfinches. I am with angler Mark Heaton at a forested spot on the West Credit River near Belfountain, about an hour's drive northwest of Toronto, where he is teaching me how to fly-fish for brook trout. As we stand in the middle of the rushing stream, he hands me a small fibreglass rod fitted with a barbless hook—a no-kill rule applied on this waterway—and a fly mimicking a grasshopper fashioned out of deer hair. Despite casting a dozen times into the tea-coloured water, I get just one (unsuccessful) tug on the line. With his first cast, Heaton catches an 18-centimetre trout, which he holds at the water's surface for a few seconds before putting it back in the river.

The West Credit abounds in brook trout, but it is one of a few remaining rivers in southern Ontario with a self-sustaining population of the native species. That makes it the go-to place for “brookie” fly-fishers. Heaton guesses there are 50 to 60 brook trout in the pool we are fishing. But that may not last. A proposal to build a wastewater treatment plant nearby has raised concern that resulting changes to the river could seriously affect this prized native creature, an integral part of the aquatic ecosystem.

The ponytailed Heaton, who describes himself as a “committed steward of the

**Southern sanctum:** The West Credit River supports a self-sustaining population of brook trout.



WEST CREDIT RIVER

critters that can't speak,” is a (mostly) retired fish and wildlife biologist who worked for what is now Ontario's Ministry of Northern Development, Mines, Natural Resources and Forestry for 34 years. He spent five of those years monitoring this very stretch of water and is among the many locals—along with environmentalists farther afield—disappointed by the proposed development. The Town of Erin plans to construct the \$118-million plant to support the community's growing population. Opponents argue that the 7.2 mil-

## “The decline of brook trout should be of concern not only to anglers but to all who care about healthy ecosystems and clean water.”

lion litres of sewage effluent projected to be dumped daily into the West Credit will harm the brook trout. For one thing, the effluent will probably warm the river's temperature, which is already expected to rise because of climate change.

That is a problem because the brook trout—which is not, biologically speaking, a trout but belongs to the char genus of the salmon family—needs cold, clean water to survive and reproduce. The Coalition for the West Credit River, formed in November

2020 by several groups to fight the proposed plant, has informed the municipality that the wastewater temperature needs to remain below 19 degrees Celsius and be well oxygenated to support the brook trout. “But [the town] won't commit to that,” says Heaton, who provides scientific support to the coalition. “They don't feel that they have to, so therefore they won't.” (The Town of Erin did not respond to calls requesting comment.)

Jack Imhof, a former national biologist with Trout Unlimited Canada and now a part-time biologist for the organization, is a passionate defender of the brook trout (his email handle is “jackthetrout”). He argues that the wastewater treatment plant, which will have the capacity to serve quadruple the population of Erin, will overburden the natural system. “We don't think the small stream can handle that,” Imhof says.

The brook trout was once abundant in what is now Ontario. Gary Pritchard, an Indigenous Knowledge Holder and fisheries biologist who used to work for the Ontario government, recalls Elders telling him that, at one time, “brook trout were so prolific in southern Ontario, you would often harvest them accidentally when fetching water with your bucket.”

In the past 70 years, however, the species' population has declined by 80 percent in the south of the province and by 30 percent in the north because of habitat fragmentation and land clearing. One of the main reasons for the decline has been the damming of rivers, including the West Credit, where a single big brook trout community once thrived, says Imhof. Settlers built dams to mill logs. Further damage occurred when the land was cleared for farming, which meant that massive amounts of sediment and nutrients from agriculture entered the stream. “The dams prevented animals from moving up and down the system and escaping some of these perturbations, and as a result these animals became isolated,” explains Imhof. “Aquatic fragmentation has been catastrophic for many aquatic animals.” It has been particularly disastrous for brook trout.

Also called speckled trout, brookies are angler favourites because they put up a fierce



GREAT BLUE HERON



MINK



BELTED KINGFISHER

**Piscivorous predators:** Herons, mink and kingfishers prey on brook trout.

fight and have jewel-like beauty, with olive-green, worm-like markings on their backs and blue-haloed red spots on their sides. Their fins are edged in red, black and white. Brook trout spawn from October to December, typically in streams or lakes where cold groundwater upwells from beneath the waterway's bed, or where it flows from the shore. “They are the fish of the springs—they require that icy cold groundwater in order to survive,” says Imhof. “And invariably where they're found, it's beautiful.”

Females build dish-shaped depressions, called redds, in stream bottoms and lay from 75 to 100 eggs, depending on the size of the female. Males sense when a female is about to lay and scoot in to fertilize the eggs. “There is always jockeying for position,” says Imhof, “and it's usually the most dominant male that is successful.”

The fertilized eggs become sticky, which allows them to adhere to rocks on stream beds. The female then fans the gravel and sand around the redd to bury and protect the eggs from being eaten by other fish. The fry emerge in April or May and mature at between one and two years of age, feasting on aquatic insects as well as occasional grasshoppers and other small fish. In southern Ontario, brook trout live from three to five years, reaching up to 40 centimetres in length (most southern Ontario brookies are smaller), but Heaton says the fish can live longer and grow bigger if they have access to larger bodies of water. “They will migrate downstream and live in the bigger rivers because they offer more habitat and more food,” he explains. When temperatures warm in late spring, the river-dwelling fish

will move back into the cold-water tributaries until after they spawn.

Brook trout have special significance for First Nations. Pritchard, who now runs 4 Directions of Conservation Consulting Services out of Curve Lake First Nation near Peterborough, says that his nation, the Michi Saagigig (the people of the salmon), historically harvested the waters that flowed into northern Lake Ontario. Brook trout and its salmon-family relative Atlantic salmon were regular parts of the community's diet and were used in artwork and for ceremonial purposes. But that is all changing. “Atlantic salmon have been extirpated because of settler occupation,” says Pritchard, “and the brook trout is next.”

Non-native fish such as rainbow trout, which have colonized brook trout habitat by various means, including escaping from people's ponds or fish hatcheries upstream, compete with it for food. Sediment from construction sites, agricultural pollution and groundwater extraction have also played roles in the species' plight. “The decline of brook trout should be of concern not only to anglers but to all who care about healthy ecosystems and clean water,” says Anne Bell, director of conservation and education at Ontario Nature. “The loss of historic brook trout populations in southern Ontario is a clear indicator of the degradation and mismanagement of aquatic habitats and surrounding landscapes, which ultimately impact us all.”

Erin's proposed wastewater treatment plant will add another challenge for the brook trout in its West Credit stronghold, the Coalition for the West Credit River argues. Judy Mabee, president of the Belfountain Community Organization, first learned about the project in 2018 and

helped establish West Credit River Watch specifically to fight it. The following year, the provincial Ministry of the Environment, Conservation and Parks (MECP) approved the plant in principle even though a site for the project had not yet been chosen. Mabee's organization raised concerns with the Ontario government about potential environmental impacts it believed had not been explored, including chemicals in the river, a decrease in its oxygen content and higher water temperature.

When the government failed to act, six organizations joined forces: Mabee's two groups plus Ontario Streams, the Ontario Rivers Alliance, the Gregg Clark Chapter of Trout Unlimited Canada and the Izaak Walton Fly Fishing Club. In February of last year, the coalition approached the federal ministry Environment and Climate Change Canada to request an intervention under the Impact Assessment Act. In an ostensible game of political hot potato, however, the federal government communicated in June that it is up to municipal and provincial governments to sort out the matter.

In August, the coalition applied to the provincial MECP under its Environmental Bill of Rights for further review of the plant, a request a ministry spokesman says is being investigated. Brookie lovers are hopeful that the Ontario government will recognize what it stands to lose. “People need to understand the ramifications of losing this river and this very highly valued species, because when it's gone, it's gone,” says Mabee. “We don't want the brook trout to become another statistic.”

**Patricia Hluchy's ON Nature feature about wild American ginseng was a finalist for a 2018 National Magazine Award.**