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A NEW INVASIVE ON CHAMPLAIN'S DOORSTEP

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ake Champlain is an amazing special lake. Whether we swim in it, drink from it, boat on it, or fish it, we're all fiercely protective, and we want nothing but the best for our Crown Jewel.

But like all waterways around North America, Lake Champlain faces a never-ending threat to its health and biodiversity from aquatic invasive species. Unfortunately, the next threat is knocking at both our front and back doors right now.

Goby Arrival and Spread
Gobies are small, bottom-dwelling

Last summer, fisheries researchers with the NY State Department of Environmental Conservation found round gobies in the Hudson River, just a short distance below the Troy Dam near Albany. This was the first time the invasive fish species was found in the Hudson.

At the same time, gobies have been moving up Lake Champlain's outlet – the Richelieu River – from the St. Lawrence River in Quebec, and are currently milling around the St. Ours lock and dam. fish native to Eurasia. They look very similar to our native sculpin, but can get much larger – up to 10 inches in length. The main difference between the two can be seen in the pelvic fins. On the goby, the left and right pelvic fins are fused into a single fin on the belly that looks like a suction disk, while native sculpin have separate pelvic fins.

Gobies were first discovered in the St. Clair River in 1990, transported there from Europe in the ballast water of ocean freighters. Within eight years, they spread to all five Great Lakes and many inland waters through connected rivers, and lock and canal systems.

In 2013, they moved through a canal system from Lake Ontario to Oneida Lake in central NY, and by 2015 they were the most abundant fish species in the lake, reaching densities of 100 fish per square yard of lake bottom. Since then, gobies have been steadily spreading eastward through the Erie Canal and Mohawk River system, reaching the Hudson River in 2021.

They're now just a hop, skip, and a jump from Champlain, with only 60 miles of water between their

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current location and our lake. The eleven locks along the Champlain Canal between Troy and Whitehall NY give them a direct route into Champlain. The first 35 miles or so is upstream and will require them to maneuver through 6 boat locks, which will slow their movement somewhat.

But once they cross the watershed divide at Lock 9 in Fort Edward, it's all downstream to Champlain.

Goby Impacts

As the 2022 Lake Champlain International Father's Day Derby approaches, there's probably a few bass anglers reading this right now saying "bring it on!", based on a perception that gobies, as prey, will lead to bigger bass.

But while the prospect of footballshaped 6 and 7-pound Champlain smallmouth can certainly fire anglers up, it's short-sighted, misinformed, and frankly, selfish.

Gobies will inevitably change Champlain's fish communities and fishing forever. And not in a good way. Quite simply, We. Do. Not. Want. Gobies.

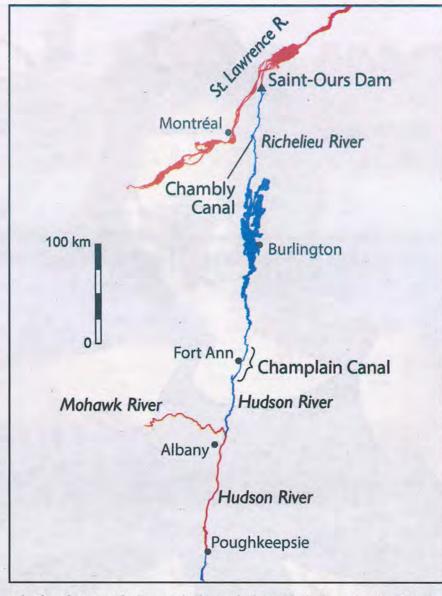
First, gobies spawn multiple times throughout a single season, and build their numbers to frightening levels. Millions of gobies blanketing the bottom of Lake Champlain can have massive ecological consequences, as has been observed in the Great Lakes and other waters where they have invaded.

In Oneida Lake, for example, important native fish species like sculpin, darters, and logperch have nearly disappeared due to competition with gobies for food and habitat. From an ecological standpoint, that's an unacceptable loss of native biodiversity for Champlain.

But let's now imagine you're an angler whose favorite thing to do is fish for yellow perch, or take your kids out to catch a mess of sunfish for a tasty meal. Although there's no evidence so far suggesting that gobies have harmed populations of these species, trying to catch perch or sunfish in goby waters has become an exercise in futility and frustration.

On fabled perch fishing grounds of lakes like Erie and Michigan, anglers complain they now go through 10 times as much bait and only catch half as many perch than they used to, before finally giving up. For each yellow perch they catch, they have to deal with 20-30 bait-stealing gobies first. Gobies are so aggressive and abundant, they simply steal your bait before a perch has half a chance.

Another troubling observation from the Great Lakes is that gobies are a major predator of lake trout eggs. Gobies swarm over lake trout spawning reefs during the spawn; because they can access small crevices, gobies eat eggs in significant numbers. As Lake Champlain's wild lake trout start to show signs of a resurgence in the last few years, this is especially



Lake Champlain is at risk of invasion by the round goby from both the north and south fronts. Gobies were recently discovered in the Hudson River after moving east across New York through the Erie Canal and Mohawk River system. Only 11 locks and 60 miles of water along the Champlain Canal now separate gobies from Lake Champlain. Gobies are also moving upstream in the Richelieu River from the St. Lawrence River, and the nine locks on the Chambly Canal give them direct access to Lake Champlain.

worrisome for the future of our lake trout fishery.

Gobies also carry diseases such as Viral Hemorrhagic Septicemia that has killed dozens of fish species in the Great Lakes. They are the main cause of bird deaths – including our beloved loons – due to avian botulism because of their appetite for invasive zebra. Zebra mussels concentrate the botulism toxins found in bottom sediments, and when gobies eat them, the toxins are transferred to and kill waterbirds that consume the gobies.

Monster Smallmouth — Fact or Fiction?

As for the not-too-subtle whispers of giant bass reaching mythical proportions in other goby waters? Let's revisit that for a moment.

There's no doubt that smallmouth bass have experienced higher growth rates from taking advantage of gobies as a new and



Anglers who fish in goby-infested waters in the Great Lakes region says they will have to weed through a dozen or more gobies for every perch they catch, making perch fishing less enjoyable and less productive.

PHOTO / SCOTT GEORGE USGS



As gobies have spread through the Great Lakes region and invaded new waters, anglers have often been the first to document their presence. If you catch a fish you think might be a goby, take several pictures including the belly for identification, and contact your local fish and wildlife agency.

PHOTO / KARA KOZLOWSKI

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widely available food source. And sure, individual bass are reaching sizes rarely seen before.

But what's the trade off? Some research is beginning to show that bass populations overall may be negatively affected in the long run.

Gobies are aggressive nest raiders, and can consume all the eggs of a single unguarded smallmouth bass nest in under 15 minutes. Gobies have also been observed eating newly hatched fry. If this happens at a large scale it could have widespread impacts at the population level. And, male bass defending nests can become completely exhausted chasing away the constant onslaught of gobies, sometimes leading to the death of the fish.

In the early 2000s fisheries

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managers with Ohio Division of Wildlife noticed smallmouth bass numbers in Lake Erie were dwindling rapidly due to goby impacts, and it was being made worse by spring fishing pressure. Catching a bass from a nest surrounded by hundreds of gobies spelled doom for that nest. In response, Ohio closed spring bass fishing completely – even catch and release fishing – to increase protection and give bass a fighting chance to reproduce.

Uncertain Future

We can't predict the exact outcome we'd see if gobies invade Champlain. But with gobies knocking on our door, Lake Champlain and its fish community face an uncertain future.

Lake Champlain is widely considered one of the top bass fisheries in the country for quality and numbers. Are we OK with a future where we have some bigger smallmouth, but fewer fish overall to catch? Do we want to risk closure of the spring bass fishery, as in Lake Erie? Do we want to catch hundreds of gobies but fewer perch to eat? Do we want to risk VHS and botulism outbreaks in our lake?

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I'd prefer not to take the "let's see what happens" approach, myself, and instead take steps to prevent them from getting here in the first place.

That starts with educating anglers on the potential issues we face, and getting them to look out for the lake's well-being. For one, anglers must be extremely vigilant when using live baitfish now that gobies are in the region. Never take baitfish from one waterbody and use them or release them in another. And always make sure you know how to identify what you're using for bait. An errant goby mixed in and released elsewhere could be the beginning of the end.

In the meantime, management agencies are working hard to figure out the most appropriate actions to stop gobies and other invasive species from spreading through the Champlain Canal from the south and the Richelieu River-Chambly Canal from the north.

We all want Lake Champlain to remain the Crown Jewel we all know and love.



Round goby look very similar to native sculpin but get much larger, up to 10-inches in length. In this photo, a male round goby displays the jet-black spawning phase coloration.

PHOTO / STAN YAVNO