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Targeting end of pesticides to kill lamprey

By Candace Page
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A proposal to treat more streams with pesticides has added a new question to the long-running argument over sea lamprey control on Lake Champlain: Is lamprey control working — and can it work?

Fisheries managers have used pesticides to kill lamprey larvae in 12 streams in Vermont and New York since 2002, a program that costs $1 million to $1.2 million a year. Now they are proposing to expand treatment to the Lamoille River, Mill Brook in New York state and perhaps Otter Creek.

Anglers say lamprey attacks on lake trout and Atlantic salmon appear to have decreased and expanded lamprey control will make the fishing even better.

"Salmon sizes are growing and the lakers are showing improvement. We still have a long way to go, though! I have caught many small lakers with up to three lamprey on them. They are doomed to death," fisherman Ben Birch wrote recently, urging more control measures.

Conservationists say data show the anglers are wrong — lamprey control isn't working and the program should be reconsidered.

"Wounding rates of salmon are higher now than before control efforts began in the early 1990s ... lake trout fare only somewhat better," Mollie Matteson of the Center for Biological Diversity in Richmond wrote. "The fact that the sea lamprey poisoning program is faltering should be a warning to take stock of its fundamental assumptions, not a flag to wave on even greater lethal control measures."

In the short term, the outcome of this disagreement is hardly in doubt.

The states of Vermont and New York, and the U.S. Fish and Wildlife Service, have committed to reducing lamprey numbers to improve the health of trout and salmon. The proposal to expand chemical treatment to the Lamoille and other rivers is expected to be approved this month.

But biologists say it's not clear why lamprey control has not been more successful to date.

And, they say, the arrival of invasive species in Lake Champlain raises questions about the possibility of reaching the program's ultimate goal — restoration of a self-sustaining population of salmon and trout in the lake.

Disappointing results

Lamprey are an eel-like fish native to Lake Champlain. They reproduce in rivers, where their larvae live for four years before transforming into their adult form and swimming into the lake. There, they feed on other fish. They attach, leech-like, and suck their victims' blood.

GLENN RUSSELL, Free Press
A lampreys sticks to the side of a tank at ECHO Lake Aquarium and Science Center in Burlington on Wednesday.

Fish can survive a single lamprey wound, but are weakened and can be killed by repeated attacks.

Lampreys are blamed, at least in part, for the failure of stocked lake trout and Atlantic salmon to become self-sustaining in the lake.

An experimental, eight-year lamprey-killing program in the 1990s succeeded in reducing lamprey wounds on salmon and trout by between 30 percent and 50 percent, but not close to the goal of 15 to 25 wounds per 100 fish.

The new program, begun in 2002, has produced uncertain results.

Lamprey wounds on salmon have not declined — and appear to have increased above the levels seen in the 1980s, before any control.

Wounds on lake trout dropped sharply last year, but biologists say

that finding was based on a survey of such a small number of lake trout that they want to see if this year's results confirm the finding.

"It is very troublesome that the program is not as remotely effective as we hoped it would be," given the success of a similar program in the Great Lakes, said Ellen Marsden, a University of Vermont biologist who has studied lampreys and the control program.

Fishery in decline

One possibility, Marsden said, is that the remaining, untreated streams in the watershed are producing more lamprey than biologists have realized.

That is what many anglers believe. Many are critical of Vermont for interrupting the pesticide treatments that began in the 1990s. That allowed the lamprey population to recover, they argue.

"I support the full expansion of the sea lamprey control program. The treatments that took place in the '90s were a success. Since that time we have seen our fishery continually decline," wrote Tony Bushway of South Hero, a charter boat captain.

More than 60 anglers and sporting organizations commented on the expansion report, including the Vermont Federation of Sportsmen's Clubs and the Hunters, Anglers Trappers Association. Like Bushway, they said salmon and trout are favorite game fish, and poor fishing costs the Vermont economy lost business.

Conservationists object

To reduce lamprey numbers, fisheries managers sometimes trap the fish or erect barriers on small streams. More commonly, they treat lamprey-producing rivers once every four years with a pesticide called TFM.

The chemical is applied at rates calculated to kill lamprey larvae, but to kill as few other fish, mollusks and amphibians as possible. Nevertheless, some other creatures are killed during the treatments.

It is those incidental kills, in part, that led conservation groups to oppose use of the pesticide.

They say pesticide treatments can further endanger species already on the state's threatened-or-endangered list, including lake sturgeon, several species of mussel and the eastern sand darter.

If the lamprey control program is neither reducing the attacks on trout and salmon, nor contributing to the goal of a self-sustaining fishery, there is even less reason to sacrifice endangered species to the cause of killing lampreys, they argue.

Instead, fisheries biologists should seek a better understanding of the complex relationship among species in Lake Champlain. Before humans arrived, they note, salmon and lamprey co-existed in the lake.

"Specifically, we need to understand why, after thousands of years of interaction among fish species in Lake Champlain, sea lamprey numbers exploded during the latter decades of the 20th century," The Nature Conservancy said in its comments, which did not oppose expanding lamprey treatment, but called for additional study.

The broadest critique of the lamprey program came from the Center for Biological Diversity. The Lake Champlain Committee and the Adirondack Council also opposed expansion of the chemical treatments.

"There are strong indications that the sea lamprey control program is not only failing to achieve it own narrow goals, but is, in fact, harming aquatic ecosystems and jeopardizing already vulnerable native species, all at great public expense," Matteson wrote.

In killing lamprey, she argued, biologists are treating the symptom, not the cause of a damaged ecosystem.

New threats

If there is one concern shared by all sides — anglers, biologists, conservationists — it is the arrival of alewives, an invasive forage fish, in Lake Champlain.

Salmon and trout, whose diet is made up of alewives, do not obtain all the nutrition they need and suffer from early mortality syndrome, or EMS.

Matteson accuses the state of "voodoo management," for expanding its lamprey control program before understanding what the arrival of alewives means for trout and salmon.

Wayne Bouffard, a federal fisheries biologist, warned in his environmental assessment of the proposed pesticide treatments, that the combination of alewives and unchecked lamprey attacks could spell failure after years of effort.

"High sea lamprey parasitism rates combined with symptoms of EMS have the potential to push lake trout and Atlantic salmon populations beyond our ability to restore," he wrote.