



STRIPED BASS ARE STRUGGLING; UMASS AMHERST BIOLOGISTS KNOW HOW TO HELP

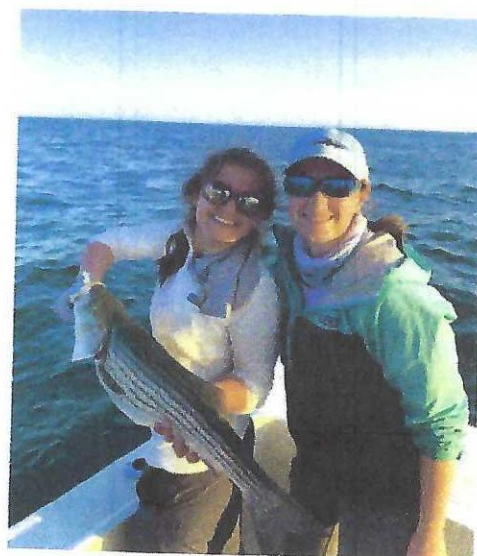
Reducing air exposure, fight times, water temps, as well as increasing angler education, are key to a sustainable fishery

December 2, 2025

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While there are only four official seasons in the year, anglers in the Northeast recognize a fifth: striper season, the months from May to November when striped bass, which can grow up to 100 pounds and are renowned for their fight once hooked, migrate along the coastal waters between



*Lead author Olivia Dinkelacker (l)
and principal author Grace*

the Chesapeake and Canadian Maritimes within range of thousands of fishing lures. But the fishery, which generated approximately \$13 billion in economic

activity along the Eastern seaboard in 2016, is crashing, despite the fact that the vast majority of bass caught by recreational anglers are released back into the ocean.

Casselberry (r) with one of the most sought-after species of fish in New England – striped bass. Top: Despite the fact that most stripers are caught by recreational anglers, who then release the fish back into the ocean, their stocks are crashing. Credit for photos: Andy Danylchuk.

A pair of recent papers, led by biologists at the University of Massachusetts Amherst and published in Fisheries Research (<https://doi.org/10.1016/j.fishres.2025.107459>) and Marine and Coastal Fisheries

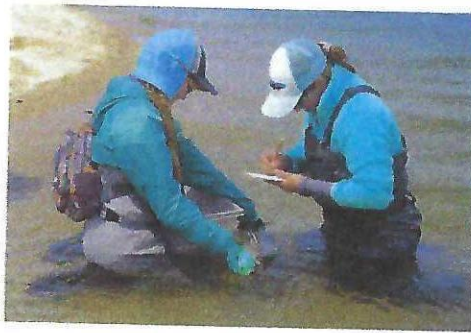
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comprehensively pinpoint which catch-and-release fishing practices pose a considerable risk to striped bass, and to show that there's a mismatch between what anglers know about catch-and-release best practices and how this knowledge translates into action once on the water.

"Striped bass are one of, if not the most sought-after species of fish in New England and the Eastern seaboard," says Grace Casselberry (<https://gracecasselberry.squarespace.com/>), a postdoctoral researcher at UMass Amherst and one of the principal authors of the two recent studies. "Especially in

Cape Cod, where we conducted the majority of our research, stripers are an integral part of the local industry and culture.”

Despite their popularity, “many orders of magnitude more stripers are caught by recreational anglers than commercial fishers,” says [Andy Danylchuk](https://www.fishforward.org/) (<https://www.fishforward.org/>), professor of fish conservation at UMass Amherst and the paper’s senior author. And because of conservation and management measures meant to maintain or even rebuild striped stocks, not all that are caught are kept.



Principal author Grace Casselberry records fish length and reflex assessment results with a research angler at the Cheeky Schoolie Tournament. Credit: Grace Casselberry.

Although a growing proportion of stripers are thrown back by anglers, the fishery is in danger of collapse. To determine the reasons, the UMass team sought to examine not only the effect of catch-and-release fishing on the stripers, but also get a detailed look at how anglers handle the fish.

Teaming up with guides, fishing clubs and fishing tournament contestants—“research anglers,” Danylchuk calls these rod-toting community scientists—lead author Olivia Dinkelacker, who completed this research as part of her Master’s research at UMass Amherst, Casselberry, Danylchuk and their coauthors caught 521 striped bass over two years using a variety of conventional equipment and lures, from flies and flyrods to surfcasting rigs and long, fishlike lures dangling with three-pronged treble hooks.

The team measured how long it took to reel the striper in once it was hooked. Once landed, they gave it a quick set of reflex tests—a good prediction of fish stress and potential

mortality—which would be repeated just before release. The stripers were divided into groups that remained out of the water for 0, 10, 30, 60 and 120 seconds before being thrown back.

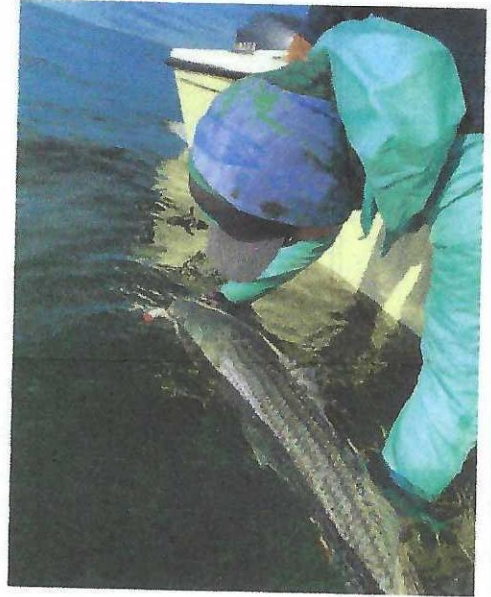
This was the first time that air exposure was scientifically and systematically tested to see its effects on striped bass.

A subset of 37 fish were fitted with a “triaxial accelerometer biollogger” velcroed to them and attached to fishing line. They were allowed to swim free for 20 minutes, then the team would retrieve the loggers and record the data, such as the fish’s acceleration and distance it swam.

They discovered that air exposure was the most significant factor influencing striped bass

stress and post-release swimming activity. Higher water temperatures, fighting for longer periods of time and getting hooked somewhere other than in the jaw all increased their recovery time.

Fish released immediately or after only 10 seconds retained most of their reflexes and recovered quickly, Casselberry said, adding that “stripers that had been out of the water for 60 seconds took 8–10 minutes to swim similarly to the low air exposure group.”



Striped bass that were out of the water for 120 seconds never fully recovered within the 20-minute window during which the team tracked their activity. Credit: Grace Casselberry



In addition to finding fish out of water for 120 never fully recovered during the 20 minute monitoring time, they also found that the bigger the fish, the greater toll of being hooked, landed and released. Reducing angler impacts on big fish, particularly females, is critical to the future of the population.

The team's findings suggest what many anglers already suspected: using lures or flies with single hooks, reducing fight and handling times, limiting air exposure and avoiding fishing during periods of high water temperatures are all key to preserving striped bass.



Principal author Grace Casselberry tests the body flex reflex prior to releasing a striped bass with an accelerometer data logger to monitor post-release swimming behavior. Credit: Andy Danylchuk

But how well is this knowledge being applied on the water?

Dinkelacker, Casselberry, Danylchuk and colleagues devised and distributed a comprehensive survey to wide swath of striper anglers, garnering 1,651 participants who mostly fished in

Massachusetts. The fishermen were grouped according to fishing method: conventional rod and tackle (57.4%) or fly fishing gear (42.6%).

Anglers ranked what they thought were most harmful to striped bass, from air exposure to fish size, and how often they engaged in catch-and-release best practices, among other questions.

The results revealed a consistent pattern showing that fly anglers were generally more conservation minded, showed a greater engagement in conservation practices, were more concerned about threats to the striped bass and voiced

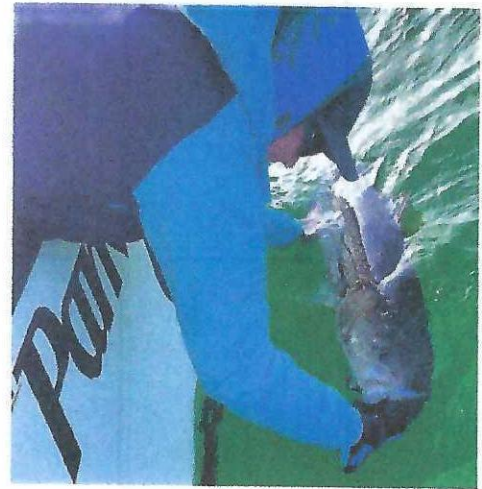
more support for stricter management practices. This was particularly true for air exposure, where a greater proportion of conventional anglers reported removing fish from the water than fly anglers.

Still, researchers say that anglers are some of the striper's best stewards, and that better, science-driven education is key to a healthy fishery.

"Thanks to the participation of so many research anglers throughout the Northeast, we now know the best

scientifically backed practices to help conserve the stripers," says Danylchuk. "Grassroots conservation efforts and fisheries management and policy has to be squarely informed by sound science, otherwise the striper stocks will remain in peril."

Funding for this research was provided by the Woods Hole Oceanographic Institute Sea Grant.



Striped bass can grow to more than 100 pounds and generate billions of dollars in economic activity. Credit: Grace Casselberry