

7-26-2008

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Repository Citation

Schmitt, Catherine V., "Study targets striped bass" (2008). *Maine Sea Grant Publications*. 20.
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Study targets striped bass

Saturday, July 26, 2008 - Bangor Daily News

FORMAT FOR PRINTING

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By Catherine Schmitt

Special to the BDN

On a recent rainy Monday in the predawn hours, Joe Zydlewski cruised up and down the Penobscot River, trolling four fishing lines behind his battered boat in the hopes of catching that most storied of sea-run fish, the striped bass.

After four hours under gradually clearing skies, he hadn't caught a single fish.

Despite their apparent absence from the river, just the possibility of catching a striped bass in the Penobscot is an exciting prospect.

Blocked by dams and driven out by pollution, Maine's striped bass were all but gone by the 1930s. Despite their strength, they don't always use fishways, and to spawn they need a minimum of 12 to 15 miles of unobstructed flow. The restoration of the Kennebec River, culminating in the removal of the Edwards Dam in Augusta in 1999, opened up more habitat and allowed for increased survival of prey species, which helped draw striped bass up the river, according to Mike Brown of the Department of Marine Resources.

"Now we see them as far up the river as Waterville," said Brown. The only known spawning populations of striped bass in the Gulf of Maine are in the Kennebec and St. John rivers.

The Penobscot River Restoration Project is expected to have a similar benefit. The proposed removal of the Veazie and Great Works dams and passage around the Howland Dam will give striped bass access to historic habitat which, depending on whom you ask, extends either to the dam at Milford, where they would have been blocked by the natural ledges and steep falls, or to Howland, if flow conditions allowed for passage beyond the falls.

Zydlewski, a biologist with the Maine Cooperative Fish and Wildlife Research Unit at the University of Maine, is hoping to find out more about Penobscot stripers. Do they stay in the river year-round, or are they are merely visitors from the Kennebec or migrants from the Hudson or Chesapeake on their summer vacation? While people like to say that striped bass don't spawn in the Penobscot, it is hard to prove what doesn't happen. Zydlewski said the possibility exists that they once reproduced here, or that they could spawn in the Penobscot in the future if water temperatures continue to warm.

A true coastal fish

The native range of striped bass extends from the Gulf of St. Lawrence to Florida, and along the Gulf Coast from Alabama to Louisiana. In late winter, adult stripers move up into tidal tributaries of the Chesapeake, Delaware and Hudson estuaries to spawn. When the water temperature approaches 65 degrees Fahrenheit, they move close to the middle of the channel in slow to moderate currents. After sunset or before sunrise, the female rolls at the surface and releases her eggs to a splashy crowd of males waiting below. The fertilized eggs develop as they drift downstream to nursery areas in the estuary. Striped bass like strong currents, boulder fields (hence their nickname "rockfish"), mussel beds, and floating mats of rockweed. They ride the surf zone of sandy beaches and browse beneath the piers of urban harbors.

After spawning, some of the fish move back into the ocean and join schools traveling north along the coast to spend the summer in New England waters. Tagging studies like Zydlewski's provide evidence that striped bass, especially large females, can migrate long distances. Striped bass tagged in Chesapeake Bay have been recaptured in the Bay of Fundy, and fish tagged off North Carolina and Virginia in winter were recaptured in Maine waters in the summer.

Fish tagged by Zydlewski last year were found in the Kennebec, then the Piscataqua, and eventually the Delaware River in the fall.

"We know this because other researchers have hydroacoustic arrays," said Zydlewski.

"Striped bass are a good ambassador for partnerships throughout the Gulf of Maine and beyond, because all these different studies have the potential to detect tagged fish," said John Kocik of NOAA's National Marine Fisheries Service, who is working on the striped bass study along with Zydlewski and James Hawkes. The arrays in the Penobscot are also used to track sturgeon and salmon.

Striped bass in the Penobscot are members of the coastal migratory stock, although much less is known about smaller-scale migrations within and between rivers. They usually arrive in the Penobscot as early as late May, and stay until October or November. Some may stay longer, and Zydlewski said one of the things he and his colleagues are interested in is whether there is a subset of young stripers that stick around.

"Migration has its costs, and smaller fish may not be up for it, especially if there is food in the river late in the season," he said.

That food could be alewives, herring, menhaden, smelt, eels, silver hake, sand lance, squid, crabs, lobsters, worms, shrimp, even baby lobsters. Opportunistic feeders, striped bass will go after anything smaller than themselves when they are hungry.

In his book "Striper Wars," Dick Russell quoted Captain Barry Gibson of Boothbay Harbor describing fish caught along the shore whose bellies were "stuffed full of little green crabs, most about the size of a half-dollar." Striped bass are notoriously adaptable.

If striped bass find an area where food is plentiful, they will gorge, and so for the fishermen, finding the prey is as important as finding them. It could be the schools of menhaden rippling the surface of the river in July, or young alewives exiting the tributaries on their way to the ocean in September.

Of stripers and humans

The striped bass is named for the parallel, sooty lines along its sides; these and the two separate dorsal fins distinguish the bass from white perch and other fish. Females can live as long as 40 years and grow to more than 100 pounds. Their strength and cunning have tempted anglers for centuries, and today striped bass are one of the most important sport fish on the East Coast.

The Atlantic States Marine Fisheries Commission, which manages the migratory population of striped bass, estimates that anglers caught 29 million striped bass in 2006, mostly in Maryland, Virginia, New Jersey, Massachusetts and New York. Since activist anglers and fisheries biologists helped pass the 1984 Atlantic Striped Bass Conservation Act, striped bass have increased eight-fold over the last two decades. Since that time, commercial harvest of striped bass has remained relatively constant due to strict management, while the recreational harvest has increased as the striper population has rebounded and fishing became more popular. Catch-and-release fishing has increased each year, and roughly 85 percent of hooked fish are released unharmed.

Mike Brown of the DMR says Maine works closely with the ASMFC to monitor striped bass and also relies on anglers and guides to provide information. State rules set a recreational daily bag limit of one fish between 20 and 26 inches or over 40 inches. Anglers and sport fishermen caught nearly 73,000 striped bass in 2007. The record rod catch was a 60-pound fish taken at the mouth of the York River in 1967.

While the majority of striper angling in Maine today occurs south of the Kennebec River and Merrymeeting Bay, striper fishermen do work the Penobscot and have for centuries. Renowned oceanographer Henry Bryant Bigelow wrote of the Penobscot: "Bass are seen in most years in Bangor Pool at the head of the estuary, where some are caught by anglers casting especially for them, also by salmon fishermen. And many in the two- to four-pound class were reported and caught in the Belfast River and in Searsport Harbor farther down Penobscot Bay in 1938."

A 1940 survey by Sumner Towne noted the presence of striped bass in the Passagassawakeag River in Belfast, Marsh River, Searsport Harbor and the Bangor Salmon Pool. Towne wrote of the Bangor Pool, "The best time to fish here is on the three-quarters incoming tide. Dark days. Late June to late September ... large maribou streamer flies of the salt water variety, fly and spoon combination and clam worms may be used." The Thomas Rod Company of Bangor even made a saltwater fly rod designed for striped bass.

In Maine, the historic commercial fishery for striped bass was based in the Kennebec; market fishermen in the Penobscot had their hands and nets full with salmon, shad, smelt and alewives. The largest commercially caught striped bass in Maine was a 100-pounder taken in a herring weir in Casco Bay in the 1880s. Commercial fishing for striped bass is now prohibited in Maine.

Last year, Zydlewski's team tagged 32 fish and tracked them using acoustic telemetry. The Maine Cooperative Fish and Wildlife Unit, in cooperation with the National Marine Fisheries Service and the University of Maine, maintains an array of up to 100 acoustic receivers that extend into Penobscot Bay. The receivers are marked by bright pink buoys that can be seen in the river channel and tributary mouths. The receivers record each passing of tagged fish. Every four to six weeks, the scientists retrieve the receivers and download the recorded data to find out what's been going on beneath the surface.

Last year's tracking results showed that many of the young "schoolies" stayed in the river until it iced over in November. This year, with funding from Maine Sea Grant, Zydlewski is using tags with a longer life so they can track the fish well into next winter. But so far, the fish are not cooperating.

"Everyone has a pet theory why the fish are not here," said Zydlewski. "Some people think they are offshore, feeding where the prey are. I think it just didn't warm up enough this spring for the stripers to come in." The temperature may have been too cool for striped bass, but it was just right for the salmon that came in fast and furious this year. The stripers may not be here in the Penobscot, but they are out there, with reports coming in of anglers having success on the beaches and shallows offshore.

"There is a concern among all the anglers and guides that the numbers of striped bass are lower than in past years. These fish have fairly specific food and temperature requirements that drive where they go, and this year those factors have not come together in Maine," said Brown.

Despite their remarkable recovery, striped bass remain a variable and vulnerable population. Two diseases have affected the population and a lack of food has stressed fish in Chesapeake Bay, where the menhaden fishery has removed an important prey item from their diet. And the numbers of striped bass that show up in Maine waters are directly related to the numbers in the Chesapeake.

Paul Dest, a striper fan who directs the Wells National Estuarine Research Reserve, said things are slow even in southern Maine. "From a fisherman's perspective, there are good years and bad years, and this is a bad year. It was bound to happen. What we need to watch for is what happens the next few years. But most fishermen are optimists, and we will have a good year again."

Perhaps a year like the one John Cole wrote about in his book, "Striper": "Every fish taken becomes a river of fish, then a cataract of billions, cascading over the centuries in a torrent of silver shapes that roars its testimony to nature's awesome abundance."

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