

Understanding the Origins and Growth Rates of Juvenile Striped Bass in Small Rivers and Coastal Bays, Part II [UPDATE]

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The striped bass fishery remains one of the most important fisheries along the Atlantic Coast. It is an extremely important species for New Jersey's recreational fishing industry, providing an exceptional economic boost during the spring and fall fisheries. The striped bass fishery is unique in that it supplies equal angling opportunities for shore and boat based anglers. Management measures implemented in the mid-1980s resulted in a successful stock recovery. However, the stock has been declining over the past 13 years, forcing managers to tighten the regulations in an effort to reduce the harvest of striped bass. Scientists are uncertain why the decline is taking place.



NOAA photo

In 2016, a research team comprised of Ken Able, Paola Lopez-Duarte, and Olaf Jensen from Rutgers, the State University of New Jersey began a two year effort to investigate the presence of juvenile striped bass in Great Egg Harbor, Mullica River – Great Bay, Navesink River, and Raritan River with funding from the New Jersey Sea Grant Consortium. With assistance from recreational anglers and other organizations, they added 178 juvenile striped bass to their existing collection in the summer of 2016. Close to 70% of these fish came from rivers where they did not previously have samples for in their collection. The new sample locations include the Raritan River, Navesink River, Shrewsbury River, Atlantic Ocean off New Jersey, and Parker River in Massachusetts.

Obtaining the fish is only the first step. The Rutgers team must then remove the otoliths, also known as ear bones, from the juvenile striped bass. Otoliths are calcium carbonate structures that are located in the inner ear of bony fish. As more calcium carbonate is deposited around a core each day, rings – much like tree rings – are

produced. These rings provide a record of the individual's growth. The chemistry of the otolith provides a record of the fish's environmental history throughout its life.

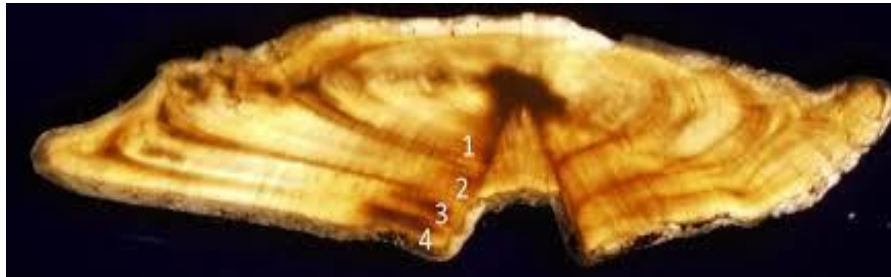


Dawn and Paola examining otoliths & data



NOAA photo

Over the past few months, the researchers have been preparing otoliths for chemical analysis and have been tuning and testing the laboratory equipment used to determine age and geochemical analysis. Geochemical analysis data will be used to identify when the juvenile striped bass entered the estuary and determine if they originated locally or from one of the larger regional estuaries such as the Chesapeake, Delaware, or Hudson. They will also compare growth rates of juvenile striped bass that remain in the estuary they were born in to those that migrate to a different estuary. In 2017, the Rutgers team will continue to work with anglers to obtain additional juvenile striped bass from the Navesink and Shrewsbury Rivers in order to prepare and analyze new samples and determine where the fish originate from. The results of the project will provide fishery managers with a better understanding of how small estuaries contribute to the overall stock of striped bass.



Otoliths, laser ablation ICPMS (Jensen)

Anglers can contribute to this project. When they catch a striped bass under 12" in a New Jersey river or bay other than the Hudson River or Delaware River/Bay, they can report the date, location, and number of stripers within this size to sej.stripers@gmail.com

Anglers are reminded that it is illegal to keep undersized fish.

For more information and updates on the project visit <http://marine.rutgers.edu/~ojensen/Striper.html>.