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After More than a Century, Endangered Shortnose Sturgeon Find Historic Habitat Post Dam Removal

Orono, Maine — Endangered shortnose sturgeon have rediscovered habitat in the Penobscot River that had been inaccessible to the species for more than 100 years prior to the removal of the Veazie Dam in 2013. University of Maine researchers confirmed evidence that three female shortnose sturgeon were in the area between Veazie (upriver of the dam remnants) and Orono (Basin Mills Rips), Maine in mid-October. Researchers had previously implanted these sturgeon with small sound-emitting devices known as acoustic tags to see if they would use the newly accessible parts of the river.

Among the most primitive fish to inhabit the Penobscot, sturgeon are often called "living fossils" because they remain very similar to their earliest fossil forms. Their long lives (more than 50 years) and bony-plated bodies also make them unique. Historically, shortnose sturgeon and Atlantic sturgeon (a related species also present in the watershed) had spawning populations in the Penobscot River as far upstream as the site of the current Milford dam, and provided an important food and trade source to native peoples and early European settlers. Overharvest and loss of suitable habitat due to dams and pollution led to declines in shortnose sturgeon populations and a listing as endangered under the U.S. Endangered Species Act (ESA) in 1967. In 2012, Gulf of Maine populations of Atlantic sturgeon were listed as threatened under the ESA.

Today, a network of sound receivers, which sit on the river bottom along the lower river from Penobscot Bay up to the Milford Dam, detect movement and location of tagged fish. According to Gayle Zydlewski, an associate professor in the University of Maine School of Marine Sciences, the three individual fish observed were females. These fish have since been tracked joining other individuals in an area identified as wintering habitat near Brewer, Maine. Wintering habitat in other rivers is known to be staging habitat for spawning the following spring.

"We know that shortnose sturgeon use the Penobscot River throughout the year, and habitat models indicate suitable habitat for spawning in the area of recent detection upriver of Veazie, although actual spawning has not yet been observed," Zydlewski said.

Since 2006, Zydlewski has been working with Michael Kinnison, a professor in UMaine's School of Biology and Ecology, and multiple graduate students, including Catherine Johnston, to better understand the sturgeon populations of the Penobscot River and Gulf of Maine. Johnston, who has been tagging and tracking sturgeon in the Penobscot for two years to study the implications of newly available habitat to shortnose sturgeon, discovered the detections of sturgeon upstream of the Veazie dam remnants. Each new bit of information adds to the current understanding of behavior and habitat preferences of these incredible fish.

“We’re very excited to see sturgeon moving upstream of where the Veazie Dam once stood, and into their former habitats,” said Kim Damon-Randall, assistant regional administrator of the National Oceanic and Atmospheric Administration (NOAA) Fisheries’ Protected Resources Division. “We need to do more research to see how they’re using it, but it’s a tremendous step in the right direction.”

Habitat access is essential for the recovery of these species. The removal of the Veazie Dam is only a portion of the Penobscot River Restoration Project, which, when combined with the removal of Great Works Dam in 2012, restores 100 percent of historic sturgeon habitat in the Penobscot. In addition to dam removals, construction of a nature-like fish bypass at the Howland Dam in 2015 significantly improves habitat access for the remaining nine species of sea-run fish native to the Penobscot, including Atlantic salmon and river herring.

“Scientific research and monitoring of this monumental restoration effort has been ongoing for the past decade,” said Molly Payne Wynne, Monitoring Coordinator for the Penobscot River Restoration Trust. “The collaborative body of research on this project is among the most comprehensive when compared to other river restoration projects across the country,” Wynne said.

NOAA Fisheries is an active partner and provides funding for this long-term monitoring collaboration that includes The Penobscot River Restoration Trust, The Nature Conservancy and others. These efforts are beginning to shed light on the response of the river to the restoration project. Restoration of the full assemblage of sea-run fish to the Penobscot River will revive not only native fisheries but social, cultural and economic traditions of Maine’s largest river.

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About the University of Maine:

The University of Maine, founded in Orono in 1865, is the state's premier public university and is celebrating its 150th anniversary in 2015. UMaine is among the most comprehensive higher education institutions in the Northeast and attracts students from Maine and 45 other states, and 65 countries. It currently enrolls 10,922 total undergraduate and graduate students who can directly participate in groundbreaking research working with world-class scholars. The University of Maine offers doctoral degrees in 35 fields, representing the humanities, sciences, engineering and education; master's degrees in nearly 70 disciplines; 90 undergraduate majors and academic programs; and one of the oldest and most prestigious honors programs in the U.S. The university promotes environmental stewardship on its campus, with substantial efforts aimed at conserving energy, recycling and adhering to green building standards in new construction. For more information about UMaine, visit umaine.edu.

About the Penobscot River Restoration Trust

The Penobscot River Restoration Trust orchestrates the Penobscot River Restoration Project; an unprecedented collaboration between the Penobscot Indian Nation, seven conservation groups, dam owners, and state and federal agencies (including US Fish and Wildlife, Maine Department of Marine Resources), to restore 11 species of sea-run fish to the Penobscot River. Removal of the lower two dams (Great Works completed in 2012, and Veazie in 2013) and bypassing of a third (Howland in 2015), greatly improves access to nearly 1000 miles of habitat for endangered Atlantic salmon and shortnose sturgeon, American shad, alewife, and seven other species of sea-run fish. With fish passage improvements at four remaining dams and energy increased at six, the Penobscot Project is expected to have large-scale ecological, cultural, recreational and economic benefits throughout the watershed while maintaining energy production. For more information please visit www.penobscotriver.org.

About NOAA Fisheries

NOAA Fisheries is responsible for the stewardship of the nation's ocean resources and their habitat. We provide vital services for the nation: productive and sustainable fisheries, safe sources of seafood, the recovery and conservation of protected resources, and healthy ecosystems—all backed by sound science and an ecosystem-based approach to

management. For more information on efforts to recover shortnose sturgeon, visit <http://www.greateratlantic.fisheries.noaa.gov/protected/snsturgeon/>



After measurement and implantation of a small tagging device, graduate student L. Izzo releases a shortnose sturgeon back into the Penobscot (ESA Permit #16036 compliant, photo courtesy G. Zydlewski).



Graduate student C. Johnston and Associate Professor J. Zydlewski implant a small tagging device into a shortnose sturgeon (ESA Permit #16036 compliant, photo courtesy G. Zydlewski).