

Shortnose Sturgeon Found in Potomac

Karl Blankenship

Alliance for the Chesapeake Bay, 619 Oakwood Dr., Seven Valleys, PA 17360-9395
bayjournal@earthlink.net



John Smith once observed that “no place affords more plenty of sturgeon” than the Chesapeake Bay, but biologists this spring saw something even the famed explorer never witnessed—a spawning run by a Shortnose Sturgeon (*Acipenser brevirostrum*).

Biologists in April tracked an egg-filled Shortnose that had been captured and tagged in the lower Potomac River last fall to a spawning area near Washington, D.C., where it remained for nearly a week.

Whether the fish actually released eggs into the water is uncertain. Nonetheless, they said it was the first recorded effort of a Shortnose Sturgeon—listed as an endangered species—to spawn in the Chesapeake.

“We’re 100 percent sure that was a prespawning migration by a prespawning female,” said Boyd Kynard, a biologist with the U.S. Geological Survey who is overseeing a three-year study of Shortnose Sturgeon in the Potomac.

Shortnose, and their larger cousins, Atlantic Sturgeon (*A. oxyrinchus oxyrinchus*), were the target of intense fishing pressure more than a century ago, and populations of the once common fish never rebounded. The Shortnose was listed as an endangered species in 1967, and the Atlantic Sturgeon is under review for potential listing under the Endangered Species Act.

They are the two largest fishes native to the Chesapeake; Atlantics can grow to be 12 feet long, and Shortnoses more

than four feet. Both can live for decades, but take years to reach maturity and only breed every few years—factors that have made it difficult for their depleted populations to rebound.

A small population of Atlantic Sturgeon continue to breed in the James River, but Shortnose Sturgeon are extremely rare in Chesapeake Bay, and scientists have debated for decades whether any fish native to the Bay remain.

Unlike the Atlantic Sturgeon, which live most of their lives off the coast but return to natal rivers to spawn, the Shortnose spends most of its life in the lower portions of the same large rivers where they are spawned, only occasionally venturing out.

Despite that tendency to hang around, Shortnose Sturgeon are hardly ever seen in Chesapeake Bay. In the past decade, a sturgeon reporting program supported by state and federal agencies in Maryland has generated more than 1,500 captures of Atlantic Sturgeon. But fewer than 50 Shortnose have been caught during the same time, and most of those were near the Chesapeake and Delaware Canal.

No one knows exactly how abundant Shortnose Sturgeon ever were in the Bay. Catch records from the late 1800s, which was the peak of the sturgeon fishery, did not distinguish between the two species. Even biologists historically made only a few reports of Shortnose Sturgeon in the Bay, all of which were in or near the Potomac River.

To shed light on the issue, the National Park Service is funding a three-year study, which started in the spring of 2004 and is scheduled to conclude this fall, to determine whether a sturgeon population remains in the river and, if so, what habitats they use.

Through last summer, biologists had logged more than 1,100 “net hours” before finally netting a sturgeon Sept. 20 near Craney Island on the lower Potomac River. When making

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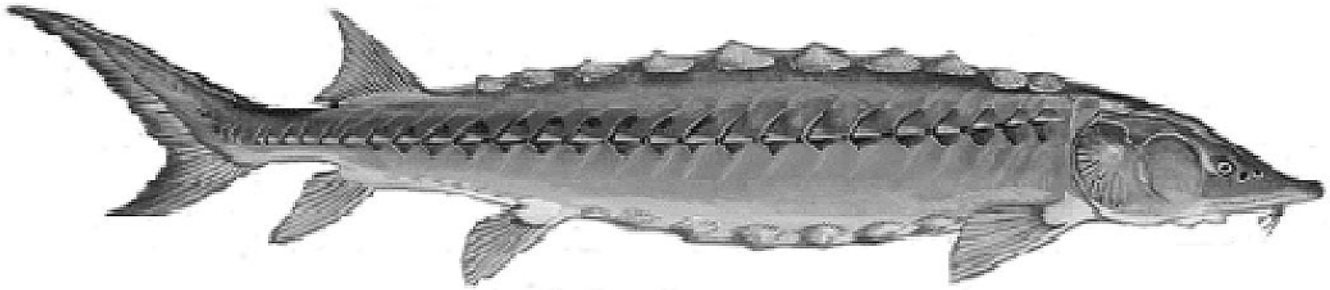


Fig. 1.

The Shortnose Sturgeon, *Acipenser brevirostrum*—which can grow more than four feet long—was listed as an endangered species in 1967. Courtesy: U.S. Fish and Wildlife Service.

an incision to tag the fish, they discovered it was filled with “late stage” eggs, meaning she would be ready to spawn this spring.

After spending the winter near Mattawoman Creek, the fish in early April went up the river and spent several days near Chain Bridge outside Washington, D.C.—a rocky area that resembles spawning habitat in other rivers. It is also located near the head of tidal waters, an area where Shortnose Sturgeon don’t go unless they are spawning.

“It is the first documented spawning run of Shortnose Sturgeon on the Potomac River,” said Steve Minkinen, director of the U.S. Fish and Wildlife Service’s Maryland Fisheries Resource Office, which is cooperating with the study.

For that matter, it was the first documented spawning run for a Shortnose Sturgeon in the entire Chesapeake Bay. If John Smith or anyone since saw a spawning Shortnose, they never made a note of it.

But what biologists don’t know is whether the fish actually spawned. They used special nets to catch eggs, but failed. “It is possible that the situation just wasn’t to her liking,” Kynard said.

One thing she may not have liked, Kynard said, was the apparent lack of males in the area. Before spawning, a female releases a pheromone into the water to attract males. Usually, anywhere from three to seven males then accompany the female to the spawning ground where they fertilize the eggs. But Kynard said the biologists never saw any males, or caught them in their nets. That leaves open the question of whether the Potomac—or the Bay—actually has a population of Shortnose Sturgeon.

“You aren’t a population until you’ve proven reproduction,” Kynard said. “The definition of population means breeding. It’s close to that, but it hasn’t been documented.”

A second egg-bearing fish was caught and tagged this spring in Pope Creek, but it never moved up the Potomac. Biologists say its failure to move may have been caused by stress from tagging.

For now, biologists are trying to sort out what the discovery of two egg-filled females, and one spawning run—but possibly no spawning—actually means. “When you have two fish, you don’t know what to make of that,” Kynard said.

It’s possible the males were just overlooked. Or, it could mean there is a remnant Potomac River population, but none of the males made it up the river this spring for some unknown reason. Or, it could be that the females are starting to colonize the Chesapeake Bay from the Delaware Bay, but males have not yet made it this far.

The Delaware River has a Shortnose Sturgeon population that numbers more than 10,000, and the occasional discovery of Shortnose Sturgeon in the vicinity of the Chesapeake and Delaware near the head of the Bay raises the possibility that sturgeon move back and forth through the canal.

Biologists took tissue samples of the Potomac fish for DNA analysis which may indicate whether they are from the Delaware population.

Kynard said if the sturgeon were colonizing from the Delaware, the Potomac River might contain some of the most suitable habitat they would encounter. “Shortnose only go in big rivers,” he said. The only other big river they would pass is the Susquehanna.

Even if the fish turn out to be from the Delaware, they could become the building block of a new Potomac population, Kynard said—if some males show up. Colonization by Shortnose has never been documented before, possibly because their numbers are so low. “Finding that this species can recolonize would be wonderful information,” he said.

Wherever they came from, Kynard said the two sturgeon appeared to have been living in the Potomac for a while. Radio tracking of the fish did not show any random wandering—they knew where suitable wintering habitats were, the location of foraging habitat, and the female making the spawning run appeared to know exactly where she was going.

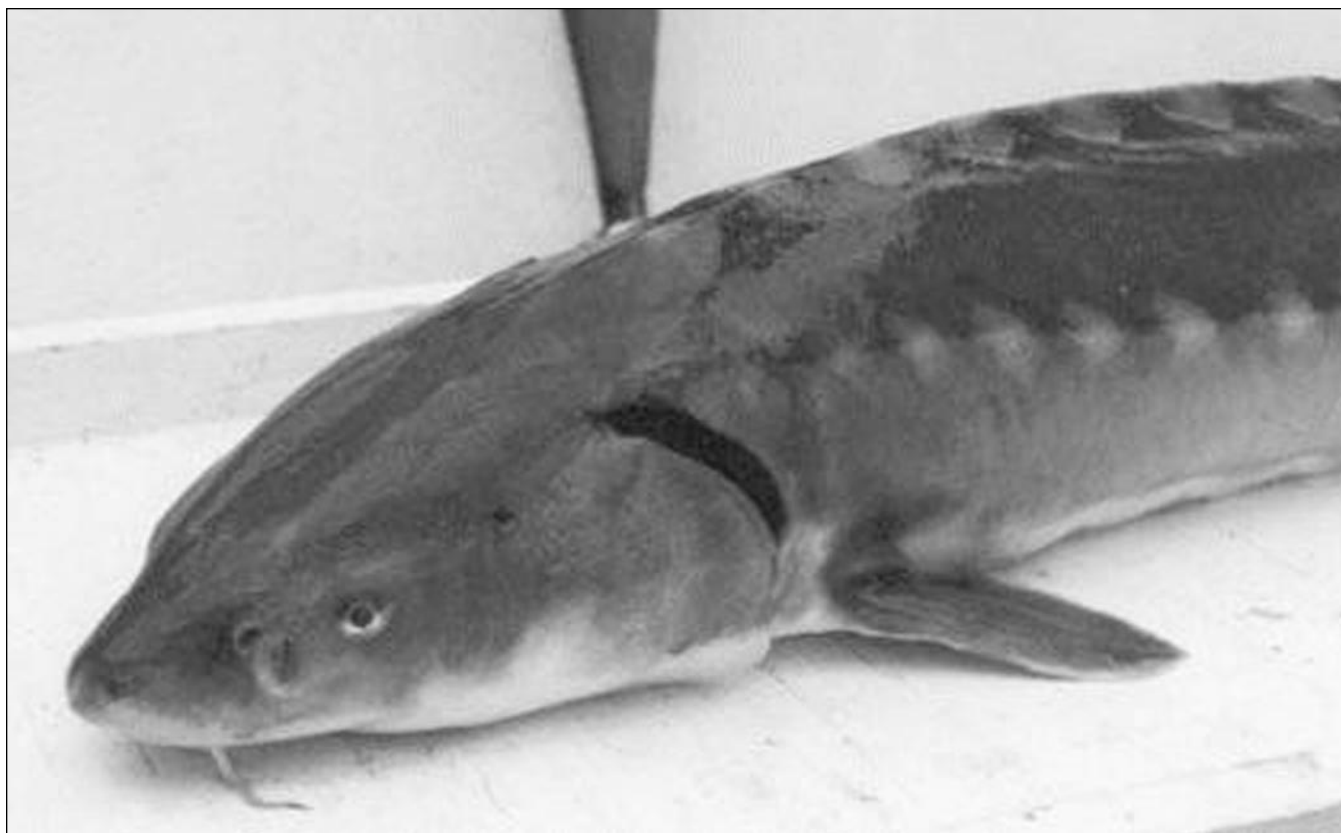


Fig. 2.

Wherever this Shortnose Sturgeon came from, she appeared to have been living in the Potomac for a while. Radio tracking of the fish revealed that she knew the locations of suitable wintering and foraging habitats. Courtesy: U.S. Fish and Wildlife Service.

“It suggests that these fish have cased out the river,” said Kynard, who has tracked different species of sturgeon on three continents. “They know the river and they know the habitats and they were using them appropriately. If a fish had just gotten there, you might have expected a great deal more searching and a lot more variability in the kind of habitats you were finding them in day after day.”

The biologists hope to continue tracking the sturgeon to see if they lead them to other Shortnoses. “The more fish you have, the more likely you are to encounter more—the hard part is catching that first or second one,” Minkinen said. “Shortnose are very social animals. They aggregate in places.” In the Delaware River, he said, underwater videos taken during the winter show Shortnose Sturgeon “stacked up side by side like cordwood.”

Tracking may also help to identify important habitats that should be protected to promote a recovery of the sturgeon population. “This has big management ramifications,” Kynard said.

What any population should find is adequate water quality—at least when the region’s nutrient and sediment goals are reached. When setting water quality criteria for Chesapeake Bay several years ago, state officials ultimately adopted dissolved oxygen standards tougher than those originally proposed specifically to protect any remaining endangered Shortnose Sturgeon, which are particularly sensitive to low oxygen conditions.

“It is real neat to see some kind of spawning activity there,” said Rich Batiuk, associate director for science with the EPA’s Bay Program Office. “It completely validates what the states have adopted. It reconfirms that we had the right science, that we published the right criteria and the states adopted protective standards.” 