

# Fisheries Partnership Aids Sturgeon Restoration

Efforts to restore Chesapeake Bay's sturgeon population took another step forward this spring when researchers transported three large Atlantic sturgeons from the James River to a spawning facility in Maryland.

The largest sturgeon was a 5'6", 85-pound fish caught in a gill net by commercial fisherman Kelly Place. Place, along with fishermen George Trice and Jimmy Moore, are partners in a collaborative project with Dr. Chris Hager, Fisheries Bycatch Specialist with the Sea Grant Marine Advisory Program at VIMS. Their partnership is part of a larger sturgeon monitoring and restoration effort among state and federal agencies in Virginia and Maryland.

The three large sturgeons were some of the first captured in Virginia waters large and mature enough to hold significant promise for spawning efforts. Captive spawning is one part of a management strategy designed by the Atlantic States Marine Fisheries Commission (ASMFC) in the mid-1990s to help restore wild sturgeon stocks to levels that will provide for a viable population and sustainable fisheries in Chesapeake Bay.

"These fish can't come back on their own," says VIMS fisheries scientist Dr. Jack Musick. "There are simply not enough spawning adults."

Researchers were hoping that at least one of the two largest fish would prove to be a reproductively capable female, but all three fish proved to be males. The good news is that hormone treatments encouraged the two large males to produce gametes. These are now being preserved in the hopes that Hager and Place will capture a reproductively capable female during next spring's spawning season.

If on-going DNA tests ultimately show that the males are of James River stock, their gametes could be used to fertilize a James River female and help jumpstart a local population in the River.

For now, the genetic make-up of East Coast sturgeon stocks remains an open question. Scientists are unsure if the Chesapeake Bay sturgeon population is genetically unique, or represents a blend between Hudson River and South Carolina populations.

dietary habits of commercially and recreationally important fishes in Chesapeake Bay in light of oxygen levels and other water-quality parameters.

### Antarctic Research

Visit [www.vims.edu/phae/](http://www.vims.edu/phae/) to learn about a new NSF-funded research grant to Drs. Kam Tang and Walker Smith. During their 1-year project at McMurdo Station, the pair will compare the ecological roles of solitary and colonial forms of *Phaeocystis antarctica*. This marine plant plays a crucial role in polar ecology and biogeochemistry, but little is known about its physiology, life history, and place in the food web.



Dr. Chris Hager nets the sturgeon from its temporary home in the York River.

If there is a unique sturgeon gene pool in Chesapeake Bay, those fish should be used for restoration, says Hager. "We need to get some Virginia genes in the spawning program," adds Musick.

Previously, the only captive sturgeons large enough to spawn have come from the Hudson River in New York. Female sturgeon typically do not reach sexual maturity until they are about 12 years old and about 6 feet long. Males mature slightly earlier, at around 7 years old. The fish may live up to 60 years and grow to 14 feet.

The James River watermen caught the sturgeon during a fishery-independent research project designed to throw light on the sturgeons' abundance, habitat, and seasonal movements within local waterways. Another aspect of the study aims to understand how sturgeons are being affected by fisheries bycatch.

The study is funded by a Fisheries Resource Grant from the Virginia Sea Grant Program to Place and Hager. These grants are designed to provide Virginia watermen with an opportunity to use their knowledge and experience to help develop new fisheries gear, restore or enhance fishery habitat, improve aquaculture operations, or advance technologies for processing and marketing seafood.

"The grants provide fishermen with a means of improving their industry through collaborative applied research projects," says Hager. "Their knowledge and experience can go a long

way toward our shared goal—to re-establish a sustainable fishery for sturgeon in Chesapeake Bay."

Musick and his graduate students are pursuing a related study to better understand the sturgeon's spawning behavior and habitat requirements. Such knowledge is needed to guide the selection of any future stocking locations.

"We're working to find the optimal spot for restoration," says Musick. One thing the researchers already know is that sturgeons need a hard-bottom for attaching their eggs. Because human activities in the Chesapeake Bay watershed have greatly increased the amount of silt blanketing the bay floor, hard bottoms are now rare. Thus "one option we're considering is the addition of rocks to certain areas," says Musick.

Efforts to restore Chesapeake Bay sturgeon populations involve numerous stakeholders, including commercial watermen, the Maryland Department of Natural Resources, the National Aquarium in Baltimore, the Horn Point Laboratory at the University of Maryland's Center for Environmental Science, VIMS, the Sea Grant Marine Advisory Program at VIMS, the Virginia Marine Resources Commission, the US Fish and Wildlife Service, the Virginia Dept. of Game and Inland Fisheries, the James River Association, the Army Corp of Engineers, and NOAA Marine Fisheries. Tanks for captive spawning are provided by Horn Point and a facility operated by Mirant Corporation, an energy provider with four power plants in the Chesapeake Bay watershed. Because sturgeon range up and down the East Coast, the restoration project is coordinated by the multi-state ASMFC.

Sturgeon restoration efforts also include a coast-wide moratorium on sturgeon harvesting, which was enacted by the ASMFC in 1997. Virginia has had a moratorium on sturgeon harvesting since 1974.

Sturgeons once supported the second largest commercial fishery on the U.S. East coast, with a peak landing in 1890 of 7.5 million pounds. But decades of over-fishing and habitat loss forced the sturgeon population into a steep decline. Populations of Atlantic sturgeon are now extirpated in Maryland and at historically low abundance in Virginia, where remnant populations exist in the James and York rivers.

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Visit [www.vims.edu/resources/databases.html](http://www.vims.edu/resources/databases.html) and click "Trawl Survey Database" to access data from the Chesapeake Bay Multispecies Monitoring and Assessment Program (ChesMMAP). Monthly ChesMMAP surveys monitor the abundance, age, and

dietary habits of commercially and recreationally important fishes in Chesapeake Bay in light of oxygen levels and other water-quality parameters.

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