

With dam gone, will shad return?

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For most of their lives, shad – a group of fish in the the herring family – live in the ocean.

But each spring – or so the story goes – as the shad burst into bloom, they run up the Delaware Bay, into the river and tributaries like the White Clay Creek, where, drawn by fresh water, the fish spawn.

Or that's the way it's supposed to go.

Since colonial times, manmade dams have blocked the passage of shad to historic spawning grounds on the White Clay Creek.

With one of those dams now gone, there's one big question, said Gerald Kauffman, director of the Water Resource Agency at the University of Delaware: "Will they return?"

In mid-April, after a few 80-degree days, Kauffman went out to check the creek. The water temperature was 66 degrees and it was a sunny day. He didn't find schools of fish everywhere he looked, but he did find shad.

The following day, a team went snorkeling on the White Clay in search for shad. While they didn't find fish, there was a promising sign: a single shad scale on the bottom.

Then it rained and got cold. The water temperature dropped. No sign of the elusive silver fish, prized for its row and flesh.

Kauffman is still looking and hoping for reports from recreational anglers. Shad can spawn from March through June, depending on water temperatures.

State fisheries officials have no monitoring plans for the White Clay during this spawning season. With limited staff, they are instead monitoring striped bass spawning in the Delaware River.

"We're waiting for somebody to catch one," Kauffman said.

Shad are native to the East Coast and are found from Newfoundland to Florida. But they are most abundant from North Carolina to Connecticut. They are found in all major mid-Atlantic rivers, but their migration has been limited by two factors: water pollution and dams. As water quality improved in the Delaware River, the fish were able to migrate north to historic spawning areas. The Delaware is unaltered by dams that would block fish passage.

But there are dams along many of the tributaries. Along the White Clay, Kauffman estimates this species of fish has been unable to reach spawning grounds since colonial times, when the first dams were built to provide power for mills.

The plan is to ultimately restore the



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Byrnes Mill Dam on the White Clay Creek has been removed to restore fish passage up the creek. The dam was blocking the upstream movement of American and hickory shad, fish with a long history in the region.



COURTESY OF DANIELLE QUIGLEY

Gerald Kauffman, director of the Water Resource Agency at the University of Delaware, takes measurements before the dam on the White Clay Creek was removed.

White Clay to a free-flowing river in Delaware. That doesn't mean removing all the dams. In some cases, Kauffman believes they will be able to cut out notches that will be wide enough to create fish passageways and re-establish spawning.

American shad spend most of their lives in the Atlantic Ocean and return to freshwater rivers to spawn. Fisheries scientists believe that they once spawned in every river and tributary along the mid-Atlantic Coast. They were just as important on the Chesapeake Bay as they were in the Delaware. Commercial shad boats worked the Nanticoke River in Seaford. The Nanticoke is a tributary of Chesapeake Bay. The Nanticoke is a free-flowing river, too. Shad typically migrate far enough upstream to spawn so the eggs hatch in freshwater. The eggs will drift downstream toward salt water.

Typically, the fish spawn when the water temperature is between 55 and 68 degrees.

When Kauffman saw the fish, the water temperature was 66 degrees but heavy rain and colder temperatures caused the temperature to drop to 53 over a few days.

White Clay Creek flyfisher Edward O'Donnell walked the banks with Kauffman, looking for a glint of silver.

But there were no fish.

The historic Hale-Byrnes dam, built in 1777, was removed late last year. The project was years in the making. With the timbers removed, the creek was opened up and connected another 3.5 miles of White Clay Creek to the tidal Christina River, which flows to the Delaware River. This dam removal was the first of seven planned along the creek within its Delaware reach.

If you see shad or catch one on the White Clay Creek, Jerry Kauffman, director at the Water Resources Agency at the University of Delaware, would like to know about it. And if you snap a picture, that will help identify the species. Send Jerry an email at jer-ryk@udel.edu.

The Water Resources Agency, with \$190,000 in grants from American Rivers; the National Oceanic and Atmospheric Administration Community-based Restoration Program; the National Fish and Wildlife Foundation; the Fish-America Foundation; and the National Park Service removed White Clay Creek Dam 1 built by Daniel Byrnes.

University of Delaware historians found that the 100-foot-long dam, built by Daniel Byrnes, was constructed to power a mill at the Hale-Byrnes House.

The dam was hand-built and University of Delaware researchers are studying the timbers that were removed for clues to the construction methods and materials. Part of the dam remains as a reminder of the past.

Meanwhile, Kauffman is optimistic the shad will return. One spring day a few years ago, he visited the dam site and saw hickory shad everywhere on one side of the dam. On the other side, there were none.

"They were literally hitting their heads on the dam trying to swim upstream," he said.

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