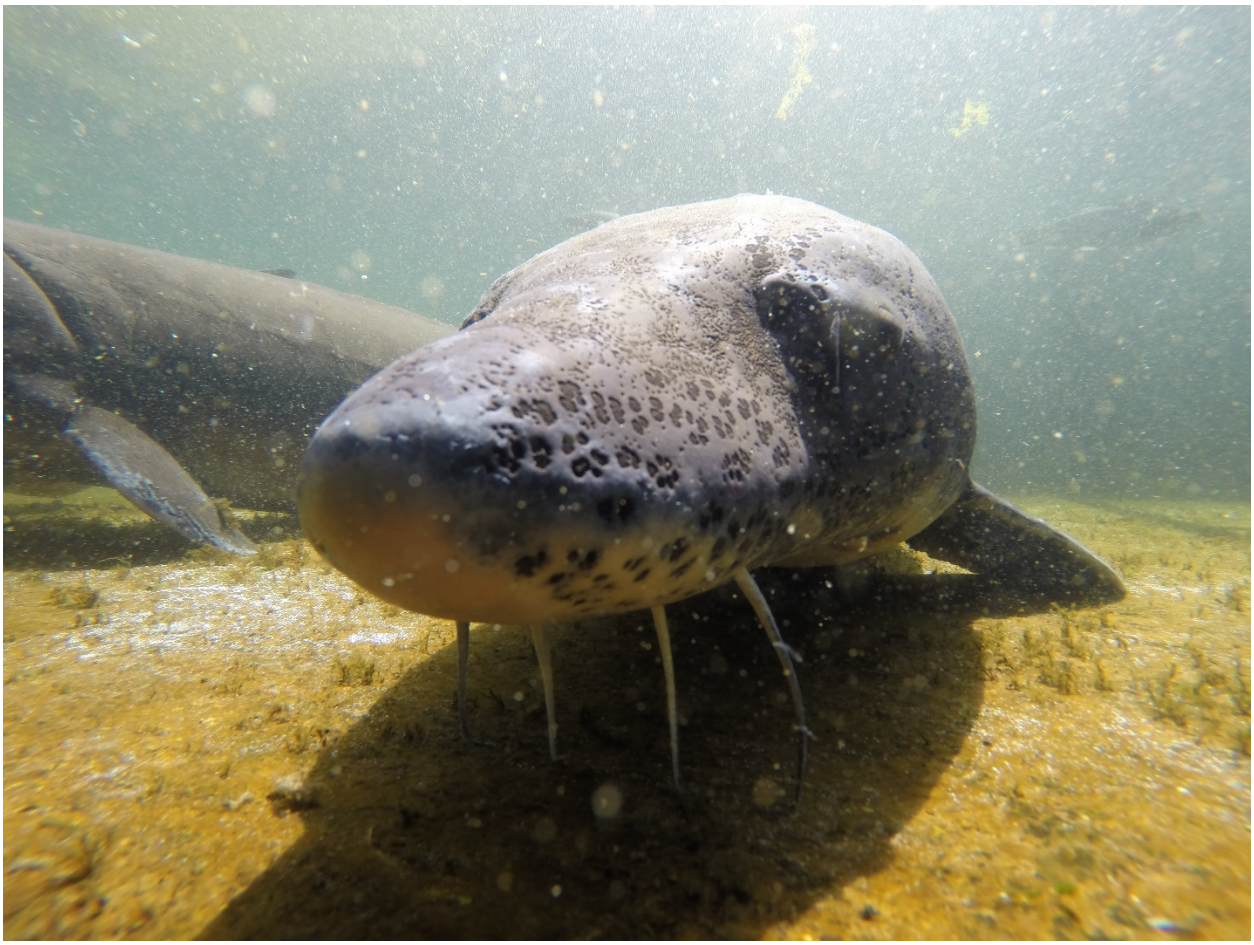

White Sturgeon in the Snake River

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White Sturgeon are the largest freshwater fish in North America and one of the most prized game fish in the Snake River. Idaho Power, the Idaho Department of Fish and Game and the College of Southern Idaho have been using the latest research to support native sturgeon populations in the Snake River. Starting in 2021, a new Idaho Power hatchery will begin raising young sturgeon to be released into areas of the Middle Snake where these ancient fish have survived for millennia but can no longer sustain their populations.

Sturgeon historically ranged throughout the Snake and Columbia rivers from Shoshone Falls downstream to the Pacific Ocean. However, Idaho's Office of Species Conservation designates the White Sturgeon's current status in Idaho as "imperiled" largely due to fragmented habitats, altered stream flows and degraded water quality.

Core Conservation Populations

The Idaho Department of Fish and Game's White Sturgeon Management Plan identifies two populations within this range as "Core Conservation" populations important to long-term survival of the species in Idaho. These core populations, downstream of Hells Canyon and Bliss dams, are essential because they support themselves through natural production. The White Sturgeon Management Plan designates all other populations in the Middle Snake River (between Shoshone Falls and Brownlee Dam as "conservation" populations. Conservation populations have low numbers of sturgeon and have been supplemented with hatchery sturgeon since the early 1990's to ensure persistence and provide anglers catch-and-release fishing opportunities. River segments that support conservation populations cannot sustain natural production due to insufficient spawning habitat and low number of reproducing adults. Idaho Power, in consultation with resource agencies, developed conservation measures for White Sturgeon as part of the company's license requirements to operate hydroelectric projects on the Snake River. This included implementing an aquaculture program for sturgeon in the middle Snake River to increase fish numbers and preserve genetic diversity in conservation populations.

Changing Science

Until recently, hatchery practices used to supplement the conservation populations relied on capturing a small number of adults (up to three males and three females) to be used as brood stock each year. Wild adults were taken from the Snake River in February or March to the College of Southern Idaho and held until they were ready to spawn in June or July. Their offspring were reared for 1-2 years before being returned to the river to bolster those conservation populations. Unfortunately, only 50-150 juvenile sturgeon could be returned to the river each year because they were so closely related. This lack of genetic diversity could pose a risk to the wild populations they are intended to benefit.

Recent research shows that "repatriation," a different hatchery practice that uses eggs gathered from the river to raise young sturgeon, has many benefits over spawning wild-caught adults. Eggs that have been naturally spawned in the river are collected and incubated. The sturgeon emerge as larvae at the hatchery, where they are raised to yearling juveniles before being released. The young sturgeon will be 10-12 inches long at this point. Repatriation allows for natural mate selection, natural spawn timing and spawn site selection, and a much higher genetic diversity than could be practically achieved using brood stock spawning.

Because of the relatively high number of mature White Sturgeon in the Bliss Dam to C.J. Strike Dam reach of the Snake River, this population is an ideal source for repatriation efforts. For example, research in 2015 showed that 98 individual parents contributed to a collection 1,165 sampled eggs. Higher genetic diversity among the hatchery-raised sturgeon allows managers to stock a greater number of juveniles annually without risking the genetic integrity of the population. Because of these benefits, repatriation has recently replaced brood stock spawning as a method to rebuild abundance in populations of the middle Snake River that cannot sustain natural production.

Egg Collection

White sturgeon spawn in the reach between Bliss Dam and C.J. Strike Dam. One spawning area with high use is within a few miles of Bliss Dam. Idaho Power biologists used small mesh nets anchored in or near the main channel to collect eggs drifting downstream. Checking this gear daily throughout the spawning period maximizes potential genetic diversity among the eggs collected. These eggs were taken to the College of Southern Idaho Fish Hatchery on the day of collection for cleaning, incubation and eventual rearing.

In a month of collecting, from May 5—June 5, 2020, biologists collected 27,056 eggs. Of those, 22,913 (85%) were determined to be viable and loaded into incubators. Of those incubated, 9,562 completed hatching for an overall hatch rate of 41.7%.

Juveniles from this collection will be reared at the College of Southern Idaho until reaching suitable stocking size, in the spring of 2021. The fish will be marked by removing one of the small bony plates (scutes) on their side. A small electronic PIT tag inserted in each fish will allow biologists to track their histories, providing valuable information about their movement, survival and growth rate. A hatchery designed specifically to successfully raise sturgeon from eggs collected from the Snake River and rebuild White Sturgeon populations in the Middle Snake is under construction at Niagara Springs. Construction is anticipated to be complete and be ready to receive eggs in the spring of 2021.

For additional details and a list of research cited here, a more detailed report is available on Idaho Power's website.