The return of lake sturgeon to the historic Cass River

By Tom Lounsbury

The lake sturgeon found in the Great Lakes is unique in that it has remained the same since prehistoric times. The fact that it features cartilage instead of bones like other fish has it closely related to sharks. Being a bottom feeder, the lake sturgeon uses its spade-like snout to root in the mud to stir up food and 4 sensory organs dangling down known as barbels to locate it, and uses its prehensile lips to vacuum up the food. Its diet consists of worms, leeches, insect larvae, crustaceans, mussels, snails and small fish. It is a large species which survives by eating very small species.

The lake sturgeon is a long lived fish with males typically reaching 55 years and females 150 years of age. It is very slow growing, about an inch per year, but can reach up to 8 feet in length and weigh over 300 pounds. Its reproductive rate is also slow, with only about 10 to 20 percent of the population spawning each year, with spawning runs taking place each spring (usually in April and May) in fast running rivers, and is water temperature dependent requiring 53 degrees F or warmer. Sturgeon are also slow to reach sexual maturity with males being at least 15 years old and females 20 to 25 years old. The sturgeon mating ritual has the male and female circling each other while shaking violently until sperm and eggs are released. The sturgeon afterwards will then usually return to the Great Lakes. The fertilized eggs soon turn into juvenile sturgeon that will eventually return to the Great Lakes as well, until they are sexually mature. Typically the river in which the spawn takes place will leave a genetic imprint for the sturgeon to return to when they have reached sexual maturity.

The sturgeon was very abundant in the pre-settlement era and an important food source for Native Americans. Besides being eaten fresh, it could also be smoked or dried to keep for winter storage and its flesh offered an excellent source of protein. The spike-like projections on its body were also used as abrasive scrapers (quite handy in making wooden bows and arrows or

smoothing out a dugout canoe). The plentiful sturgeon were also an important food source for European settlers, but its having an all too common presence had it becoming considered as being trash fish, taking a backseat to other species such as trout and whitefish. It was buried to act as fertilizer and used to feed hogs.

Commercial fisherman developed a great dislike for the sturgeon because there was no market for them and their large size and body spikes damaged nets when they thrashed around. Instead of releasing the netted sturgeon to eventually cause more damage, the fishermen would kill them. Dead sturgeon were placed in piles on the beach, and when they became oily enough, set on fire. They were also dried and stacked like cordwood to be used to fuel steamboats.

In 1879, it was discovered there was a market for lake sturgeon and its flesh was considered a gourmet delight (similar to cod) and its roe (fish eggs) could be used as caviar. The sturgeon's swim bladders were also used to create a gelatin called insinglass which speeded up the clarification process for beer and wine. From that time on until 1900, Great Lakes commercial fishermen would harvest over four million pounds of sturgeon each year. However, this overharvest of a fish species with a low reproductive rate would eventually have its effect. The Great Lakes sturgeon harvest would be less than 2000 pounds in 1928.

Progress of a fast and growing young nation would also be hard on the lake sturgeon. Dams were built in rivers to create energy to power lumber and grain mills, and eventually to create electricity. The dams in turn would block sturgeon from performing their annual spawning runs up rivers they had used for eons. Pollution as well as sediment caused by erosion would also have a major impact, and the lake sturgeon numbers would continue to plummet in a steady and dramatic decline. There is no question that the only thing which kept the lake sturgeon from becoming an extinct species of the (near) past was its longevity. Being able to live a long time was its only edge during hard times. Even though the harvest of sturgeon became highly regulated, this very unique fish truly required more help.

The Clean Water Act of 1972 has certainly been one of the best things to ever happen for the Great Lakes in general, and is a definite boon to lake sturgeon (not to mention other fish species as well). Removing no longer used dams which only serve as a fish-spawning block in rivers is another very positive move. A good example is the Fish Passage on the Cass River at Frankenmuth, which was completed in 2015. This replaced the Frankenmuth Dam, which was originally constructed in 1850, and blocked spawning fish from venturing further upstream ever since. This Fish Passage is not a fish ladder like that provided for salmon and trout, but is instead a series of fish ways, with resting pools which allow fish such as walleyes, suckers and sturgeon to successfully venture further upstream.

A very important factor that is bringing the lake sturgeon back to the Great Lakes is the fish hatcheries managed by the US Fish and Wildlife Service and the MDNR Fisheries. Roe (eggs) and sperm are collected from captured wild sturgeon, after which the captured fish are released unharmed. All is then taken to the fish hatchery where fertilized eggs are carefully brought to fruition in a highly controlled environment. In this manner thousands of juvenile sturgeon are being released each year in select Michigan rivers.

On August 31, 2018, Frankenmuth was the site of a grand celebration of releasing juvenile sturgeon into the Cass River. It would include representatives from the US Fish and Wildlife Service, the MDNR Fisheries, MSU's Sea Grant and of course the City of Frankenmuth. This was the result of the successful joint effort of all those folks and agencies working closely together to make it happen.

Water buckets carrying juvenile sturgeon (which are small and beautiful mirror images of the adults) were carried down to the Cass River, where participating children were allowed to scoop them up from underneath with cupped hands and individually release them, one at a time. This gave all the children present an opportunity to play an important role in a definitely historic moment they will long remember. In all likelihood these sturgeon will make a genetic imprint of the Cass River and return to spawn when they reach sexual maturity in about 20 years.

The fact is, adult sturgeon have already been documented of late in the Cass River as far upstream as Frankenmuth, and there is no doubt the Fish Passage at Frankenmuth now allows them to venture even further upstream, the way it was once, before 1850. Natural reproduction per these adult fish will no doubt occur, and adding hatchery produced sturgeon certainly ups the ante.

I just completed canoeing down the Cass River from Cass City to Saginaw and I can attest that the water quality and river habitat is truly ideal for lake sturgeon spawning activities.

It is truly wonderful that a very unique fish species which nearly came to the brink of extinction now has a definite and positive future in the Great Lakes for all to enjoy for generations to come.