

# Sturgeon Come Surgin' Back

*This monstrous but beleaguered fish beat the odds and returned to its historic waters.*

By Tom Dickson

In May 1999 Brian Olson of Wannaska didn't land the biggest fish ever officially recorded in Minnesota history. But almost. His 71-inch-long lake sturgeon weighed 91 pounds--just 3 pounds, 4 ounces shy of the state record. Olson wasn't too disappointed. That week he'd also caught lake sturgeon of 52, 48, and 46 inches, plus "a bunch" of smaller ones. Said Olson, "I've been doing pretty well on sturgeon lately."



So have other lake sturgeon anglers plying Lake of the Woods and the straight, broad Rainy River, which flows 86 miles west from a hydropower dam at International Falls. Die-hard sturgeon angler Dennis Topp, whose fishing boat is emblazoned with Mishe-Nahma (Anishinabe for "big sturgeon"), estimates that he and his boss Mike Larson catch and release at least 100 lake sturgeon between them each year.

"It's not too often that we fish for more than an hour or two before hooking one," said Topp, Department of Natural Resources assistant fisheries supervisor at Baudette.

Yet it wasn't long ago that the sturgeon fishery in these waters appeared all but dead. Catches were rare for nearly a hundred years, following a late-1800s caviar boom that devastated the sturgeon population. And the river itself reeked of industrial and human sewage.

The story of the lake sturgeon's recovery on Lake of the Woods and the Rainy River is one of remarkable contrasts. It shows the human capacity for greed and waste as well as for atonement. And it demonstrates both the vulnerability and resilience of this species.

## Natural History

If a sucker and a shark could mate, the progeny would resemble lake sturgeon. The sturgeon's long, rubbery snout is shaped like a bullet. Its suckerlike mouth projects down from the underside of its snout. Like a vacuum tube, it sucks in food, mostly crayfish, nymphs, and other small aquatic animals. The name sturgeon comes from a Germanic root meaning "to stir" or "to poke around," referring to the way the fish stirs up river and lake bottoms when feeding.

The sturgeon's long, cylindrical body ends in a sharklike tail. Like the shark, the sturgeon is a prehistoric fish, resembling those in 100-million-year-old fossils.

Five rows of overlapping plates, called scutes, run the length of the sturgeon's body. Razor sharp on younger sturgeon, the scutes dull over time and, on old fish, resemble knobs.

No North American freshwater fish grows larger or lives longer than a lake sturgeon. A photograph from the 1800s shows one caught from the Roseau River in Manitoba estimated to be 400 pounds and nearly 14 feet long. Specimens have been aged at more than 150 years old. Like other long-lived animals, such as elephants and macaws, lake sturgeon reproduce late in life and infrequently. Females reach sexual maturity around age 25 and spawn only every four to eight years.

Today Minnesota lake sturgeon swim in the Minnesota River, the Mississippi as far north as the St. Anthony Falls dam in Minneapolis, the St. Croix and its tributaries, the Red River and some tributaries, the Canadian border waters as far east as Lac La Croix, and Lake Superior. The largest populations, however, are in Lake of the Woods and the Rainy River.

## **Life-Sustaining Fish**

Ojibwe Indians arrived on the shores of these pine-rimmed waters in the 1400s and built a life around the lake sturgeon. Just as the prairie tribes relied on bison, the Ojibwe depended on lake sturgeon for meat, skin, oil, and other necessities, such as a fixative derived by boiling the cartilaginous spine. The Ojibwe mixed this glue with red ochre to create a durable paint still visible in pictographs along the Minnesota-Ontario border waters.

Early European traders wrote of northern Ojibwe, whom they called Sturgeon Indians, capturing the fish with dragnets stretched between canoes, or with spears in spring when the fish moved into shallows to spawn. A Canadian surveyor wrote in the mid-1800s of visiting an Ojibwe sturgeon fishing village at Manitou Rapids, halfway between what are today International Falls and Baudette. The village had "twenty-five lodges surrounded by stages for drying fish." Up and down the river, as many as 1,500 Indians took part in a yearly spring celebration of sturgeon fishing, which included dancing, spiritual healing, and political meetings. Soon, however, that way of life would all but vanish.

## **Discarded and Prized**

European explorers found the Lake of the Woods region teeming with lake sturgeon. So abundant were the fish that commercial fishermen combing the waters for whitefish considered them a nuisance. The sturgeon blundered into nets, tearing them to shreds. In the early 1800s, so many entangled sturgeon were being killed that, to keep them from rotting, their bodies were burned on land or used to fire ship boilers.

What finally doomed the lake sturgeon, however, were their eggs. In 1855 Ohio entrepreneurs built a factory to process lake sturgeon roe into caviar similar to that of Russian beluga sturgeon. The new market created a caviar equivalent of the Gold Rush. New rail lines made it easier for fishermen to ship roe and fresh meat to eastern markets. Yearly commercial harvest increased 40-fold from 1888 to 1893, when the Lake of the Woods harvest reached nearly 2 million pounds.

The slow-growing fish couldn't reproduce fast enough to sustain such exploitation. So the plundered population crashed, almost to extirpation in Lake of the Woods, once called "the greatest sturgeon pond in the world." From 1893 to 1900, the commercial catch plummeted by 90 percent.

The loss devastated the local Indian people. The sturgeon slaughter by European commercial boats "was the eternal nightmare of [the Ojibwe's] apprehensions," wrote a provincial Indian agent in 1888. Three years later another Canadian official reported that sturgeon no longer returned to spawning areas where they could be easily netted or speared. The Indians, he wrote "were almost starving."

## **New Threat**

As commercial netting dwindled during ensuing decades, a new threat hampered recovery of the fishery. Two paper mills built upstream of sturgeon spawning waters--at International Falls in 1907 and at Fort Frances, Ontario, in 1914--spewed wood fiber sludge, which smothered invertebrates and depleted dissolved oxygen. The entire river was deemed unfit to drink.

Pollution worsened as the paper mills increased production and growing riverside cities piped raw sewage into the Rainy River. In 1965 University of Minnesota researchers found the entire river laced with the mills' wood fiber effluent. They reported that when this fibrous sludge decomposed, it produced dissolved sulfides "acutely toxic" to invertebrates and fish eggs and fry.

"The sturgeon population was extremely low in the mid-1960s," said Tom Mosindy, fisheries biologist for the Ontario Ministry of Natural Resources, a Lake of the Woods sturgeon expert. "A single large sturgeon would make up the entire commercial catch some years."

## Reduced Harvest

But then, beginning in the early 1970s, the sturgeon population began to rebound. The annual commercial fishing catch tripled from 1969 to 1990, indicating a growing population in Lake of the Woods and the Rainy River, said Mosindy. Recent surveys of the Lake of the Woods sturgeon population by Ontario and Minnesota show a marked increase in sturgeon numbers beginning about 30 years ago.

Mike Larson, DNR fisheries supervisor at Baudette, said the reason for the population growth is simple: "Reduced harvest and improved water quality."

Minnesota closed commercial sturgeon fishing in the 1930s, and the Canadian government finally bought out commercial operations in 1995. That same year, the Rainy River First Nations Band of Ojibwe, population 250, put a moratorium on its commercial fishing operation, which harvested about 3,000 pounds of sturgeon each year.

"The elders were concerned about declining fish stocks, and they decided we had to do something about it," said Chief Jim Leonard.

In addition to the commercial cutbacks, recreational sturgeon fishing regulations since 1952 have protected the fish as they congregate in shallow water to spawn. Minnesota and Ontario have pledged to keep harvest below levels that would hamper a sustained recovery. A 45-inch minimum size limit, imposed in 1978, increases the chance of a sturgeon spawning at least once before being harvested.

## Cleanup

Meanwhile, the Rainy River has become considerably cleaner during the past three decades. The Boise-Cascade paper plant at International Falls installed its first working treatment system in 1972 to screen larger fibrous material from mill wastewater, and built a more sophisticated system in 1980. Similar systems have been installed in the Fort Frances plant, owned by the international paper processing giant Abitibi Consolidated. Though the two plants combined still send roughly 50 million gallons of treated wastewater into the Rainy each day, it's "a heck of a lot cleaner" today than it was 30 years ago, said Nolan Baratono, Rainy basin coordinator for the Minnesota Pollution Control Agency.

Mosindy said, "Apparently there were enough old lake sturgeon remaining to take advantage of the improved water quality and begin a recovery."

A recent watershed cleanup spearheaded by the Rainy River First Nations band should help further. Already, in one of 30 projects, said program coordinator Jennifer Mercer, many Canadian farmers are fencing their cattle out of Rainy River tributaries to reduce erosion from trampled riverbanks.

## Keeping Watch

Though the apparent recovery is encouraging, biologists aren't sure it will continue. "Right now there's a lot we don't know about the sturgeon and its biological requirements," said Larson.

One yet-to-be-funded study would determine if water level fluctuations, caused by a hydropower dam at International Falls, are hampering sturgeon spawning success downstream. Monitoring of Lake of the Woods sturgeon since 1990 is building a long-term record of the population.

The DNR has also started an adopt-a-sturgeon program to promote catch-and-release fishing and to track fish movement and growth. Another study is asking anglers if they would accept stricter size limits that would increase opportunities to catch larger, older fish. "Seven years ago, most anglers said 'no way,'" said Topp. "But the recent survey shows they are increasingly more open to the idea."

Minnesota and Ontario biologists may need to tighten regulations if angler harvest increases and threatens the recovery of lake sturgeon, Topp said.

"Right now, there's no way a sturgeon can escape being caught, year after year, to reach 100 years old," said Topp. "The big question now is, do anglers want the chance--and to give their grandkids a chance--to someday catch a really old sturgeon that's 200 or 300 pounds? It seems a shame for us not to do what we can to make that happen."

The DNR is working to restore lake sturgeon on two other waters: Otter Tail River near Fergus Falls and St. Louis River near Duluth. Lake sturgeon fishing is permitted only on part of the St. Croix River and the Minnesota-Ontario border waters. For more information on sturgeon fishing and the adopt-a-sturgeon program, call Dennis Topp or Mike Larson at 218-634-2522.

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