

FISH OVERVIEW

Surveys show species diversity and abundance increasing since 1950s

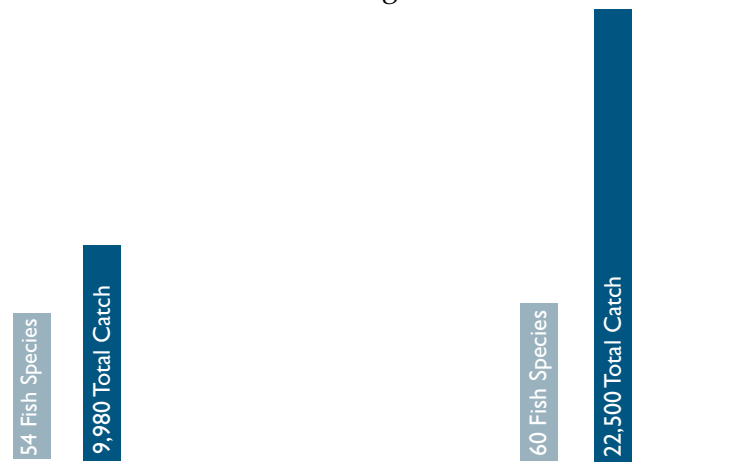
Historical Perspective

From the late 1800s to the present, surveys by the University of Minnesota, the Minnesota Department of Natural Resources and the Minnesota Pollution Control Agency have documented 104 fish species in 24 families in the counties adjacent to the Minnesota River. “As a result of stream degradation from turbidity and other sources such as chemical contaminants, populations of many species are likely much smaller than in the past, and twelve of the 104 species previously documented in the drainage have not been seen for 30 years and are likely extirpated” (MCBS, 2007).

Recent Trends

In recent decades, water quality has begun improving in the Minnesota River drainage. Likely in response to some improvements in water quality, species diversity and abundance are increasing the Minnesota River (MCBS, 2007).

“Seine hauls (in the 1950s) frequently contained peas and carrots from canneries, human feces from untreated sewage, and not surprisingly, very few fish.”



1950s

Dr. James C. Underhill
Curator Emeritus of the James Ford Bell Museum Fish Collection
University of Minnesota

1980-82

based on 60 surveys

2005

based on 32 surveys

Fish Species Doing Well



Flathead catfish

River supports healthy populations of:

- Flathead catfish
- Channel catfish
- Common Carp
- Walleye
- Sauger
- White bass

Troubled Fish Species



Shovelnose sturgeon

Fish species in greatest conservation need:

- American brook lamprey
- American eel
- greater redhorse
- largescale stoneroller
- shovelnose sturgeon
- shoal chub



The Blue Sucker Returns

One of the state's rarest fish, the blue sucker (*Cycleptus elongatus*), is reproducing once again in the Minnesota River. The blue sucker has been absent from the river for decades. Now the species has returned and is reproducing in the Minnesota River. Konrad Schmidt of the Minnesota Department of Natural Resources says sediment is a big problem for the blue sucker, so its return the Minnesota River is a signal of improved water quality. "The males, in the spring when they're spawning, become almost a sky blue in color," Schmidt says. "It really is a beautiful fish" (MPR, 2002).



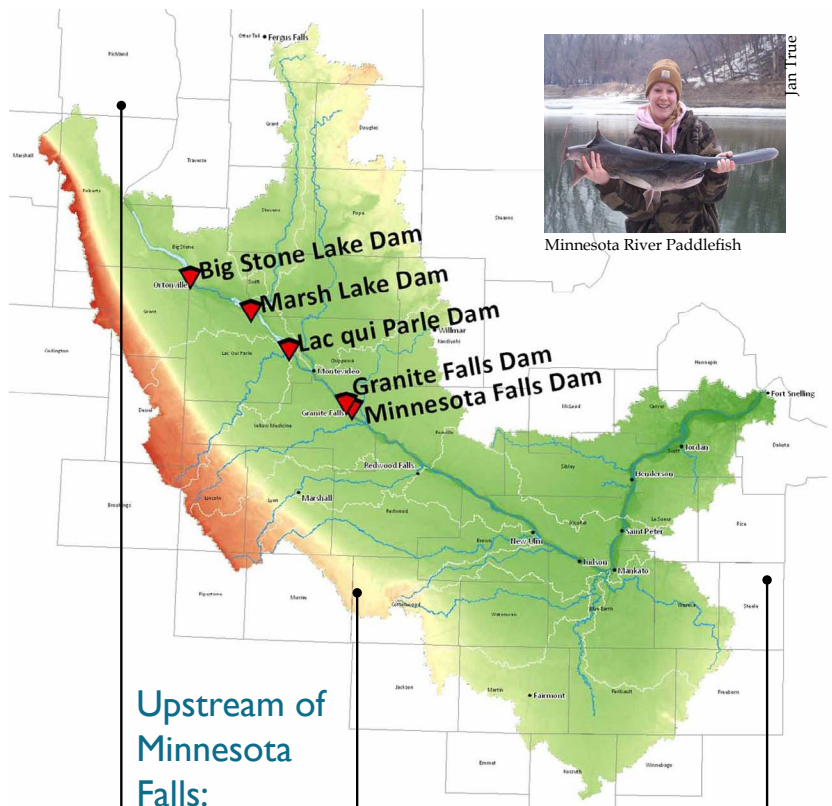
Excess Sediment and Fish

The mainstem of the Minnesota and many of its tributaries are extremely turbid, transporting enormous silt loads many miles downstream.

- Turbidity reduces light penetration which can eliminate submerged vegetation that provides fish habitat.
- Sediment deposits fill in the interstitial spaces in rocky substrates which are habitats for the invertebrate communities that feed many fish species.
- Some fishes require clean, exposed gravel and rubble to lay their eggs and develop. If the spaces are filled, the eggs suffocate.

Impacts of Dams

There are five dams on the Minnesota River mainstem. The first dam on the Minnesota River is at Minnesota Falls (near Granite Falls) about 250 miles upstream from the confluence with the Mississippi River. Except during floods, the five dams present barriers to fish migration. As a result, fish species diversity declines significantly from Minnesota Falls to the source of the river at Big Stone Lake. Prior to the dam era, at least two rare fishes (lake sturgeon and skipjack herring) were known to migrate annually up the Minnesota River to spawning areas in the lake.



Upstream of Minnesota Falls:

Five dams are barriers to fish migration (except during floods).

Fish species diversity declines significantly

From Minnesota Falls Dam to Mississippi River:

Longest free-flowing section of stream in Minnesota - 250 miles.

Richest fish species diversity. Can find species such as:
Paddlefish (threatened)
Blue sucker (special concern)
Lake Sturgeon (rare)
Black buffalo (rare)

Fishing the Minnesota River & Tributates

Fishing the Minnesota River & Tributaries

Steady increases in fishing angling licences across Minnesota and within the 37 counties within Minnesota River Basin suggests a growing interest in fishing. Bait shop owners are seeing more customers and long time fishermen are noting catching more rare species such as sturgeon and paddlefish.

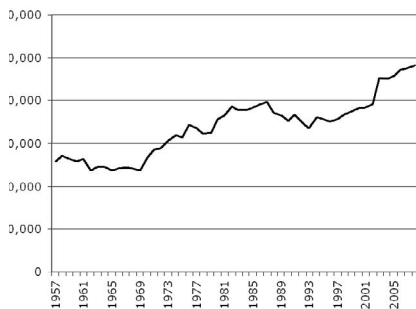


Fishing in the Minnesota River



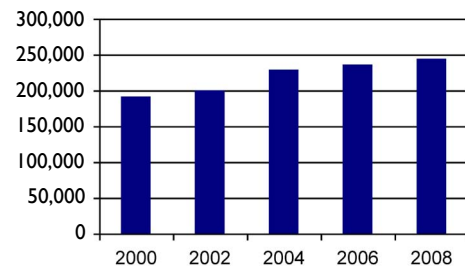
Walleye caught in the Minnesota River

Individual Angling License Sales in Minnesota



An increase in angling licenses in Minnesota from 1957 to 2008 suggests increasing rates of fishing across the state.

Individual Angling License Sales in the Minnesota River Basin



Angling license sales in the 37-county Minnesota River Basin show a steady increase from 2000-2008.

Fish Consumption Advisories Remain

The Minnesota Department of Health issues fish consumption advisories for lakes and streams in Minnesota where fish have been tested. The advisories contain recommended rates of consumption based on contaminant levels in the fish. The Minnesota Department of Health provides two types of advice on how often fish can safely be eaten: 1) Statewide Safe Eating Guidelines and 2) Site-Specific Advice. The primary contaminants of concern in the Minnesota River Basin are mercury and polychlorinated biphenyls, or PCBs. Current consumption advice for the Minnesota River shows recommended restrictions for the upper portion of the basin (above Minnesota Falls) primarily due to mercury in fish. Below Minnesota Falls, fish are more likely to be contaminated with PCBs and carry more stringent consumption advisories than the upper portion of the basin. To learn more about advisories, see: <http://www.health.state.mn.us/divs/eh/fish/eating/index.html>

Mercury Levels in Fish Rising

A recent MPCA study found that after falling for years, mercury levels in large fish are unexpectedly on the rise. The study looked at methylmercury concentrations in northern pike and walleye in 845 selected lakes throughout Minnesota over a 25-year period from 1982 to 2006. Mercury levels in northern pike and walleye fell 37 percent from 1982 to 1992 after the state began limiting the discharge of mercury. From 1996 to 2006 mercury concentrations in fish studied rose by 15 percent. MPCA scientist Bruce Monson said the source of the mercury probably is not local because the trend is statewide. Monson said the cause is probably either increased global mercury emissions by sources outside the United States, such as China or India, or factors associated with climate change, or both. Global mercury emissions increased between 1990 and 1995, largely because of an increase in electricity produced by coal-fired power plants in Asia. Reversing this trend requires a worldwide solution and the United States recently began negotiations for a new global treaty to control mercury pollution (MPCA, 2009).

Commercial Fishing

The Minnesota Department of Natural Resources (DNR) issued a permit to commercial fisherman for seining commercial species, primarily smallmouth and largemouth buffalo in the Minnesota River near New Ulm between State Highway 4 and State Highway 169 and cutoff oxbow lakes. According to the DNR, they saw this as an opportunity to observe, learn and subsequently discuss the future of commercial fishing in the river and the potential for using large mesh seines and/or observing commercial seining for sampling large Minnesota River fishes.

Fishing Technique

The commercial fishermen used a 5-inch stretch seine to deploy across the oxbows as they drove the fish using a wall of sound created by beating on the boats with metal stakes and using modified funnel to plunge the water. Once the boats reached the unanchored end of the seine a boat towed it over to the opposite bank to capture the fish. Small fish were allowed to escape as the rest of the catch was cribbed along the shore to be held for later transport by truck to New York for live sale.



Ron Bolduan

Fishermen caught an estimated 28,000-36,000 pounds of fish over four days.



Ron Bolduan

Commercial fish netted during the seine included large numbers of bigmouth buffalo along with smaller amounts of common carp, smallmouth buffalo, and river carpsuckers.

What did they Catch?

This commercial fishing operation took place over two days in May and two days in June. Commercial fish netted during the seine included large numbers of bigmouth buffalo along with smaller amounts of common carp, smallmouth buffalo, and river carpsuckers. Game fish caught and released included northern pike, walleye and catfish. Numerous paddlefish were also caught and released ranging from 8 pounds to 32 pounds. The nets also captured false map turtles and softshell turtles.

Fish Hauls

- **First Haul** (May 19th) – total catch estimated at 5,000 pounds; largely bigmouth buffalo (represented approximately two thirds of the catch), smallmouth buffalo, common carp (one third of the catch) and carpsuckers; four game fish – two northern pike (estimated at eight and ten pounds) and two walleye (estimated six pounds).
- **Second Haul** (May 19) – approximately 10,000 pounds; proportionally similar to the first catch in both species and numbers (carpsuckers might have slightly more abundant); approximately 20 adult gizzard shad lodged in the mesh; a few freshwater drum along with one northern pike, two walleye and one white bass.
- **Third Haul** (May 20) – estimated 2,000 to 3,000 pounds; predominately bigmouth and smallmouth buffalo with smaller numbers of common carp and carpsuckers; one northern pike (estimated at 8 pounds), two walleye (estimated at 7 pounds) and one paddlefish (measured 42 inches and weighed 9 pounds).
- **Forth Haul** (June 4) – estimated total catch between 10,000 and 15,000 pounds; predominately bigmouth with small numbers of common carp, smallmouth buffalo and river carpsuckers; one gizzard shad and eight freshwater drum; northern pike (9 to 12 pounds) and walleye (6 to 9 pounds); four paddlefish (8 to 32 pounds)
- **Fifth Haul** (June 5) – estimated catch of 1,000 to 3,000 pounds of buffalo fish; two paddlefish of 48 and 47.5 inches (“the paddlefish swam away strongly”); three walleye (5 to 7 pounds).

Survey of Bait Shops Owners in the Minnesota River Basin



Many diverse bait shops in both rural and metro areas can be found across the Minnesota River Basin. Some are family owned and operated, while others are larger corporate sporting goods stores. To get a better understanding of fishing trends we interviewed seven bait shop owners around the basin and asked them a series of questions related to fishing and water quality.

A summary of their responses follow:

- Most of the bait shop owners report increased demand for fishing supplies. For some it is either very good or good. "I have seen an increase in the number of [people fishing]. More people fishing brings a greater demand for the supplies."
- In terms of selling fishing licenses, it has stayed relatively stable - for some either a slight increase or decrease. "I think it is steady, not really up or down."
- There has been no change in the number of Minnesotans fishing compared to those from out-of-state. "Quite a few people from Iowa are fishing for catfish. I would say it is about the same as the past."
- Some of the bait shop owners have noticed a change in the type of fish being caught. "Bigger sturgeon, shovelnose sturgeon, and paddlefish [are being caught.] This is a sign that the river is cleaning up. Walleyes are bigger. More people are catching and releasing catfish. A few years ago 20-30 pound catfish were good, but the biggest this year was around 66 [pounds]. The average is the upper 30 pounds now. Those doing catch and release are better. The sturgeon increase was a big surprise, and the bigger walleyes." Others report it has been pretty constant. Most of them have seen more catfish being caught.
- All of the bait shop owners noted improvements in water quality with changes in the level of pollutants and fishing projects. "A lot cleaner, not as murky, foamy [as it was]15 years ago. [I] attribute [it] to people cracking down on [the] river, people not dumping as much."



"Not too many years ago, tributaries pouring into the Minnesota River near Shakopee and Chaska would be foaming. We don't have that ... nor the real bad odor that was there. We have seen personally and through increased customers the comeback of the Minnesota River as a prime fishing haunt." Terry Hennen, Owner, Sport Stop Bait Shop, Shakopee

Photos courtesy of Ron Bolduan, Jan True , Hawk Creek Watershed Project, Konrad Schmidt, www.fishingminnesota.com, Scott Kudelka "Ask an Expert about the Minnesota River" project profiles scientists and citizens answering questions about the health of the Minnesota River. More answers to questions about the Minnesota River can be found at: mrbdc.mnsu.edu/learn
Funding for this project was provided by the Minnesota Environment and Natural Resources Trust Fund as recommended by the Legislative-Citizen Commission on Minnesota Resources (LCCMR) and the McKnight Foundation.

