DNR fisheries biologists

A strong base for broad recovery

Lake sturgeon biologists, enthusiasts and anglers are helping restore these mammoth, long-lived fish to their traditional waters. Here are updates on six sturgeon projects statewide.

MIKE DONOFRIO

An ultrasonic transmitter that can send a signal for almost three years is implanted in a large, adult sturgeon to track movements and spawning activities of these fish in stream and river tributaries to Green Bay and Lake Michigan.

Dedicated funding, more protective regulations and robust research are helping restore lake sturgeon to more of their native range in Wisconsin. That work increases the prospects that more fish watchers and anglers will get a chance to see or land one of the state's largest, longest-lived fish.

"We've got the foundation in place to keep building this fantastic natural resource," says Karl Scheidegger, the DNR fish biologist who led efforts to set goals and strategies in the *Wisconsin's Lake Sturgeon Management Plan* that will be revised in the next year or so.

"We want to provide sturgeon harvest on waters that can handle the demand while restoring populations of these awesome fish to their original range in other areas of the state," he says.

Historically, lake sturgeon were found throughout the Great Lakes and Mississippi River basin. They flourished in Wisconsin's boundary waters including the Mississippi, Wisconsin, and Menomonee rivers, Lake Superior, Lake Michigan and Green Bay.

Dams, pollution, habitat degradation and overharvest dramatically reduced lake sturgeon populations in some Wisconsin waters over the past 100 years, and eliminated them entirely from other stretches of water. Because female fish don't reproduce until they are 20 to 25, and then spawn only once every three to five years, lake sturgeon populations are very vulnerable to overexploitation.

New regulations in effect in fall 2008 protect vulnerable females by requiring a minimum 60-inch length limit on those waters with hook-and-line seasons. The Lake Winnebago system spearing season has been separated into two zones — upriver lakes and Lake Winnebago, with a lottery limiting the number of spearers on the upriver water to 500, where harvest rates are traditionally higher. The total sturgeon spearing harvest is capped at pre-set limits.

Dedicated funding from license and harvest tag sales for the Lake Winnebago system, and for the sturgeon hook-and-line season in the rest of the state supports research to effectively restore, reintroduce and manage this species. Here are updates from six of those research projects.

Turtle-Flambeau Flowage/ Manitowish River Study, Iron County

In 1990, a fish survey of the Manitowish River system showed a diverse fish population that included a small, remnant lake sturgeon population. All sturgeon captured during that survey were extremely large, old fish, likely born before the Turtle-Flambeau Flowage was created in 1926. Time shows that the major sturgeon spawning site at the confluence of the Turtle and Flambeau rivers was destroyed by constructing the power dam on the Flambeau that created the flowage. Though sturgeon are still present in the flowage, survey results concluded this prolific fishery offered no natural sturgeon reproduction and no young fish

JEFF ROTH

Crews sexing sturgeon taken in the Turtle-Flambeau system assess how stocked fish are thriving in the flowage.

to rebuild the population. Consequently, the hook-and-line season was closed here while sturgeon were studied.

A telemetry project with radio-tracking determined sturgeon still spawn in two places on the vast waters and steps could improve natural reproduction. Results of that work identified two sites where adult sturgeon were found spawning, but interim measures were warranted to maintain the population. On a near annual schedule from 1993 through 2008, crews from the DNR, Fish and Wildlife Service, U.S. Forest Service and hatchery staff from DNR and the Lac du Flambeau tribe captured adult fish to spawn and propagate sturgeon. Crews obtained eggs and milt on four occasions which resulted in a total 56,946 fingerlings and 152,578 fry that were restocked into the Flambeau Flowage system.

JEFF ROTH

Sturgeon are weighed and spawned to provide eggs and milt to rebuild populations on the Manitowish River and on the Turtle-Flambeau. The research also shows where spawning habitat can be enhanced to encourage these slow-growing fish populations to rebound.

Annual sampling has shown that these stocked fish are surviving and growing. Continued work is enhancing known spawning habitat so that we might someday have a stable, self-sustaining lake sturgeon population in sufficient numbers to again allow hook-and-line harvest season on the Turtle-Flambeau Flowage.

Jeff Roth, fisheries biologist, Ashland and Iron counties

Yellow Lake, Burnett County

In 1979, a 79-inch lake sturgeon weighing 170 lbs. 10 oz. was caught and released on Yellow Lake; it set the state hook-and-line record. Fish biologists didn't know if this isolated fish population on a 2,287-acre lake could survive the extra fishing pressure that such a catch would surely bring. A study to measure fish populations as well as angler success rates was conducted from 1981 through 1986. We found the sturgeon population was similar to the per-acre rates on Lake Winnebago in terms of numbers, growth rates and natural reproduction. Based on those surveys, we estimated only 15 or fewer sturgeon per year could be harvested from this water. Creel surveys in the 1980s showed that catch-and-release fishing would be crucial to preserving this fishery. Anglers were catching twice as many legal fish as the safe harvest goal. Fortunately, most were being released.

Since mandatory registration began on this water in 1983, the harvest has averaged only 9.8 sturgeon annually. However the situation was still very uncertain. If even a small percentage of anglers kept fish without registering them, or if fish died after being released, this population could get into trouble fast.

Recent surveys show this population has really benefited from catch-and-release fishing. The population of adult sturgeon greater than 45 inches in length has grown fourfold since the mid-1980s while sturgeon fishing on Yellow Lake has become even more popular and successful. Anglers are spending twice as much time fishing for sturgeon during a four-week season and are catching two to three times as many fish as they did 20 years ago. Lots of small sturgeon are now part of the catch. Incredibly, 44 sturgeon longer than 60 inches were caught last year and all were released. That's partly due to sportsmanship, and partly to the fact that the sturgeon on Yellow Lake taste terrible no matter how you try to prepare them. In fact, the bigger the fish, the worse they taste. So the "fish for fun" ethic came naturally.

Larry Damman, fisheries biologist, Washburn County

Raising sturgeon, stocking them in the central Wisconsin River, and follow-up sampling have tracked fish movement and growth since restoration started on this river segment in 1991.

TOM MERONEK

Central portions of the Wisconsin River

Restoration work started on sections of the Wisconsin River near Stevens Point in 1991 when DNR fisheries staff transplanted some adult lake sturgeon from Lake Wisconsin. These fish had a habit of returning downstream, so in 1997, we started collecting eggs from lake sturgeon below the Kilbourn Dam in Wisconsin Dells. More than 200,000 of the young sturgeon we grew have been stocked in the river at Stevens Point and areas farther north, mostly as fall fingerlings. This project has been very successful and we've had strong assistance and cooperation from Alliant Energy that provides both facilities and help from their staff at the dam.

In addition to the fingerlings, the department started stocking lake sturgeon yearlings at Stevens Point in 2003. DNR biologists radio-tagged 20 yearlings released in August 2005 and tracked their habits for three weeks. This revealed their preferred habitat areas and the extent of their migration downstream. The lake sturgeon moved an average of six miles from their stocking site and did not show any tendency to migrate downstream. They moved upstream near the base of Dubay Dam, or downstream near Lakeside Bay, of the Stevens Point Flowage in about equal numbers. This work helped prove the value of stocking yearling fish. These larger fish were also implanted with tags, which help biologists track individual fish histories when they are recaptured.

We've also sampled the Wisconsin River lake sturgeon population annually by gillnetting since 2006, catching between 40-100 fish each year that range from 20-44 inches. Spine samples for aging prove that lake sturgeon from the very first fall fingerling stockings in 1997 still inhabit the Wisconsin River. This has encouraged biologists who are looking forward to the day when lake sturgeon in the Upper Wisconsin River will spawn and reproduce on their own.

Tom Meronek, fisheries biologist, Wausau

A radio-tracking study is underway on sturgeon in the southern reaches of the Wisconsin River.

TIM R.LARSON

Southern reaches of the Wisconsin River

Current sturgeon management studies focus on two populations: one above the Sauk dam at Prairie du Sac on the Wisconsin River and 35 miles upstream to Wisconsin Dells, and the second, below the dam on the 93-mile Lower Wisconsin River flowing to Pool 10 of the Mississippi River.

We've made population estimates of mature sturgeon (bigger than 50 inches) below the dam each year since 2005. Some 598 sturgeon above the dam also have been tagged. The 2005 harvest rate below the dam was too high to preserve these slow growing, late maturing fish. Increasing the minimum size limit from 50" to 60" in 2007 temporarily reduced the excessive harvest and kept the population stable.

A radio-tracking study began in fall 2007 on 16 mature fish below the Sauk dam. That winter, all the tracked fish remained in the vicinity of the dam. In springtime, most had moved from the Wisconsin River into the Mississippi River. By mid-October, six of the tagged fish had returned to below the Sauk dam. The six-year life on the batteries in the tracking units will allow long term information on the movements of these Lower Wisconsin River fish.

Tim Larson, fisheries biologist and basin team supervisor, Columbia County

Evaluating stocking on the St. Louis River

Lake sturgeon originally inhabited the St. Louis River in western Lake Superior, but the population disappeared during the early 1900s due to overharvest, water pollution and habitat alteration. After water quality was improved in 1979, the Wisconsin and Minnesota DNRs started a stocking program in 1983 to reestablish a spawning sturgeon population. The river forms the border between the two states. From 1983 through 2000, some 762,000 fry, 143,000 fingerling and 500 yearling lake sturgeon were released into the St. Louis River.

STEVE SCHRAM

St. Louis River stocking efforts in western Lake Superior will be considered successful if mature lake sturgeon can naturally reproduce at historical spawning locations.

Their dispersal was monitored by capture and tagging studies, and routine fish surveys on the river and Lake Superior. Lake sturgeon were sampled most frequently near river channels, and studies show they stay in the estuary up to five years before entering Lake Superior. Follow-up studies in the lake captured and released 1,219 sturgeon an average of 16 miles from the mouth of the St. Louis River. Net surveys and tracking of tagged fish show that sturgeon released in the St. Louis River generally remain in the extreme western arm of Lake Superior.

If these fish follow typical maturation rates we've seen elsewhere in the Great Lakes, we assume the lake sturgeon stocked in the mid 1980s are mature and have started to reproduce in the last few years. Large lake sturgeon have been observed on historical spawning grounds in the St. Louis River, and we will consider the project successful if mature lake sturgeon can naturally reproduce at historical spawning locations.

Steve Schram, fisheries biologist and team supervisor, Bayfield

West shore of Green Bay

Large tributaries (Menominee, Peshtigo, and Oconto rivers) along Green Bay's west shore harbor remnant adult populations of lake sturgeon. These populations mainly use the lower rivers for spawning activities, though sturgeon reside in the Menominee River year-round. The Lake Michigan management agencies believe these sturgeon populations and their movements can answer important management questions.

In 2006, the Peshtigo office secured a $50,000 grant from the DNR's Office of Great Lakes to assess how frequently adult lake sturgeon use streams where they were not born. Staff surgically implanted relatively long-lived (1,000 day) ultrasonic transmitters into 67 sturgeon captured in or near the mouth of these three rivers. Two stationary receivers in each river continue to monitor the spawning and nonspawning movements of these adult sturgeon that range in size from 49 to 76 inches. To date, signals have been received and we are tracking the journeys of most fish in the study group. In most cases, there is a high degree of fidelity, and the fish stay in one river; but we have noted some straying to adjacent rivers. The details will be summarized in 2010 and reported to the scientific community.

Mike Donofrio, fisheries biologist and team supervisor, Peshtigo