

Lake Sturgeon

Background Information



Introduction

- ◆ As a whole, sturgeon family (*Acipenseridae*) has been recognized since the Upper Cretaceous period (136 million years ago), about the time dinosaurs disappeared.
- ◆ Lake Sturgeon (*Acipenser fulvescens*) found their way into the Great Lakes near the time the glaciers receded and the lakes were formed.
- ◆ Lake Sturgeon is the largest fish in Michigan and can live to be 100-150 years of age, grow to be nine feet long and weigh over 300 pounds. In the Great Lakes they average roughly 40-60" for males and 50-70" for females.
- ◆ The current Michigan state record lake sturgeon was 87" long (7 feet 3") and weighed 193 pounds. It was speared through the ice by angler Joe Maka Jr. in 1974 on Mullet Lake in Cheboygan County.

Life History

- ◆ The lake sturgeon has a very unique life history. Females will be 20 – 26 years of age before they are mature enough to spawn. Males will be between 8 and 12 years of age but up to 22 years of age before they spawn. Once mature, a sturgeon will not spawn in consecutive years. On average, females spawn once every 4 – 9 years and males every 2 – 4 years.
- ◆ For every pound that a female sturgeon weighs, she can produce 4,000 – 7,000 eggs. The small, black eggs are deposited in rivers in April or May when the water temperature is approximately 55 – 64 degrees Fahrenheit.
- ◆ Once laid, the eggs adhere to the undersides of clean gravel stones or in openings among the stones, which offer protection. The eggs

will take approximately 7 – 10 days to hatch. Once hatched, the young fry have a yolk sac which supplies them with nutrients and food for the first couple of weeks of their life. They will remain in the gravel until they have absorbed their yolk sac and are ready to feed on their own at which point they are called swim-up fry.

- ◆ After swim up, some young lake sturgeons have been observed to remain in their natal rivers for their first full summer of life before migrating out to the lake environment.
- ◆ Habitat selection by in the lake environment by lake sturgeon varies widely. Some adult sturgeon have been found to remain in a small territory during the summer months, while others have been found long distances from their original capture site.
- ◆ Adult sturgeon are known to intermix in the Great Lakes during non-spawning periods, but habitually return to spawn in the same rivers they were born in (homing behavior). They often migrate long distances upstream in the spring to find areas of rapids and gravel in which to lay their eggs.
- ◆ Sturgeon are bottom feeders. They have four sensory protrusions located on the bottom of their snout called barbells. These are used to search through the lake or river floor for food.
- ◆ Once food is located, their tube-like mouth protrudes down and acts like a vacuum, taking in food, silt and other bottom materials. The debris is expelled through the gills, leaving the food items.
- ◆ Young sturgeon feed primarily on nymphs and larvae of aquatic insects such as caddis flies, dragonflies, damselflies and mayflies. As they grow, their diet diversifies including crayfish, fish eggs, small fish, worms (nematodes), leeches and a few plants. Lake sturgeon do not have teeth.
- ◆ Young lake sturgeon have 5 rows of sharp bony plates called scutes that run the length of their body. Because the scutes are hard and very sharp, they protect the juvenile sturgeon from predators. As the fish mature, the scutes remain but will become less sharp and less noticeable over time. This happens because the lake sturgeon grows so large, it no longer needs the protection. As adults they are too large to be eaten by any other fish.

Cultural History

- ◆ The lake sturgeon was historically revered by Native Americans. Called *Nahmay* meaning sturgeon, they were also referred to as *Ogimah* which translates to mean “King of All Freshwater Fish”.

Once very plentiful, the fish were big part of the Native American culture and community. They were prized for their oil, meat and leather and were used in modest quantities that satisfied the needs of the people.

- ◆ Unfortunately, during the early years of commercial fishing in the Great Lakes prior 1850, the lake sturgeon was considered a trash fish by European fishermen because of the damage they caused by getting caught in their fishing nets. Consequently, thousands of sturgeon were butchered and stacked on beaches to rot in the sun or burned in great pyres.
- ◆ However in the 1850s, attitudes towards the fish had begun to change. The sturgeon flesh, eggs and by-products developed a value that led to an increased market demand and subsequently heavy exploitation. In 1855, a caviar-producing plant was built in Sandusky, Ohio, by entrepreneurs who realized that lake sturgeon were similar to the Russian beluga sturgeon, the roe (fish eggs) of which was made into expensive caviar. Harvest peaked in the mid 1880's after which the population declined rapidly thereafter.
- ◆ Eventually, the commercial and sport fishery for lake sturgeon was closed in 1929, but unlike other fish species that often recover once protected, there has not been any significant improvement in lake sturgeon populations. Ironically, those characteristics that have allowed the lake sturgeon to persist since the time of the dinosaurs-- long life, large size and remaining a juvenile for an extended period-- are characteristics that also prohibit the species from making a rapid recovery.
- ◆ In addition to overfishing, the lake sturgeon population also suffered from inland development during the 20th century. The construction of dams resulted in a substantial loss river spawning habitat while pollution and sedimentation degrade those spawning grounds sturgeon still has access to.
- ◆ Currently in the United States, the lake sturgeon is listed as a threatened species in 19 of the 20 states (including in Michigan) within their original range.
- ◆ By far the largest concentration of lake sturgeon in the Great Lakes region is in Lake Winnebago in Wisconsin. Additionally, high concentrations of are also found in Black Lake, Menominee River, St. Clair River and Lake, and Otsego Lake in Michigan. Some of these populations are healthy enough to allow a low level of highly regulated recreational fishing harvest.

Bringing Back the Lake Sturgeon

- ◆ In August of 1997 the Michigan Department of Natural Resources Fisheries Division issued Fisheries Special Report 18 titled *Lake Sturgeon Rehabilitation Strategy*. The primary goal of the document is “to conserve and rehabilitate self-sustaining populations of lake sturgeon to a level that will permit delisting as a threatened species under Michigan Endangered Species Act (Section 36505 (1a), Part 324, of Act 451 of 1994).”
 - ◆ The strategy’s goals further define that a self-sustaining population that can maintain itself indefinitely without supplemental stocking. “To achieve or maintain a self-sustaining population, there must be enough individuals to prevent inbreeding, sufficient spawning, sub-adult and adult habitat and low human-induced mortality (such as fishing or dam mortality). Pg 7, *Lake Sturgeon Rehabilitation Strategy*.
 - ◆ Also, three sub-goals are described in the document as:
 - 1) “Where populations now exist, conserve or rehabilitate self-sustaining populations,
 - 2) Where populations have been extirpated, re-establish self-sustaining lake sturgeon populations when possible to their known former range;
 - 3) Where opportunities arise re-establish self-sustaining lake sturgeon populations in waters with appropriate habitat and within their suspected historical range.”

Rearing Lake Sturgeon in Michigan

- ◆ The Wolf Lake State Fish Hatchery first began rearing lake sturgeon for supplemental stocking in 1987. They were raised intermittently at the hatchery until the late 1990’s when they began rearing them on an annual basis.
- ◆ Beginning in 2010, the DNR began 4 streamside rearing facilities located on the Kalamazoo River (Allegan co.), Black River (Cheboygan Co.), West Branch Whitefish River (Alger Co.), and Cedar River (Menominee co.). With the establishment of these streamside facilities, the DNR has stopped raising sturgeon at the hatchery.
- ◆ The eggs taken from adult fish in May and are planted at the end of October or beginning of November.
- ◆ When planted, the fish are on average 7.5” long.

- ◆ Each year, the streamside facilities raise approximately 10,000 fall fingerlings.

Lake Sturgeon Recovery

- ◆ Due to the longevity of the lake sturgeon reproduction cycle it will be some years before an accurate measure of rearing success will be possible.
- ◆ How will success be measured?
 - Each lake sturgeon raised by the DNR receives a tiny individually numbered coded wire tag (CWT) that is placed inside its snout. The tag does not harm the fish but does earmark it as a fish originating from either a hatchery or streamside facility. Likewise, any sturgeon found without a CWT tag, are known to be wild fish.
- ◆ Besides rearing and stocking fish, additional actions are underway to improve the recovery of lake sturgeon populations. The state DNR along with Michigan's native American tribes, and private conservation groups are all actively working together to promote the removal of dams, improving river habitat, and reducing pollution. We are all hopeful that actions taken today will have a last effect tomorrow.