Sturgeon in Oneida Lake, 2018

Updated Fall 2018

By
Thomas E. Brooking, Cornell University Biological Field Station
Richard Colesante, Oneida Lake Association

Lake Sturgeon were once very abundant in the Great Lakes region and its tributaries. Historical accounts indicate commercial fishermen used to stack them like cordwood up on the bank, because they tore up their fishing nets. Atlantic sturgeon in the Hudson River near Albany were referred to as "Albany beef", being loaded onto ice in railroad cars and shipped to New York City. The eggs of the sturgeon became prized as caviar, and the smoked flesh considered a delicacy. It was this popularity that soon led to their demise. These magnificent fish whose ancestors have been around for more than 200 million years were reduced to remnant populations by humans in a matter of 70 years.

Why did they disappear?

People overharvested sturgeon for caviar and for meat. Sturgeon are long-lived creatures, sometimes living up to 150 years old. Being long-lived, female sturgeon do not begin to spawn until they are about 17 years old, and were often harvested before they could even spawn once. People would catch a 5 foot long sturgeon and think it's a huge fish, but that fish has not even spawned once yet. During the Industrial Revolution, construction of dams on rivers was a major contributing factor to spawning failures, and many of those dams remain in place today. Not only did dams block their spawning streams, but fish stacking up behind the dams became easy targets for overfishing. Pollution and water quality problems likely affected sturgeon in some waters, and illegal poaching for the lucrative caviar trade may have contributed as well.

What kind of sturgeon are in Oneida Lake?

There are 27 species of sturgeon worldwide, and we have 3 species of sturgeon in NY, all of which are protected. All the sturgeon found in the Great Lakes and around our area are Lake Sturgeon. This species does not migrate to the ocean; they spend their entire lives in freshwater lakes and rivers, but they do ascend streams in the springtime to spawn. Maximum size of Lake Sturgeon is about 8-9 feet and about 250-300 pounds. Atlantic Sturgeon are another species found in NY. They spend their adult life in the ocean, and return to the fresh waters of the Hudson River to spawn. Atlantic Sturgeon get very large, up to 14 feet and 800 pounds. Shortnose Sturgeon are the only other sturgeon species found in NY, and spend their whole lives in the Hudson River. They are relatively small, and only grow to about 4.5 feet and about 14 pounds.

Many people ask about the pictures they see of 18 foot long sturgeon which they claim were caught in NY. Those are usually pictures of White Sturgeon from out on the west coast, and they do grow to 21 feet long and 2000 pounds but they are NOT found in NY, or in any of the Great Lakes states.

Historical accounts of Lake Sturgeon in Oneida Lake

In 1792, a prominent surveyor by the name of James Cockburn reported from an expedition at Oswego Falls in Fulton, NY that "the falls abound with sturgeon, catfish, Oswego bass and salmon." In 1856, a sturgeon measuring 6 feet 11 inches and weighing 104 pounds was caught in a net near Denmans Island, in the outlet of Oneida Lake near Brewerton. Another sturgeon was caught by Charles Shackelton, of the infamous Shackelton Point on Oneida Lake, in 1869 that weighed 21 pounds. Between 1856 and 1973, as many as 12 sturgeon catches in Oneida Lake have been documented. These fish likely migrated through the Erie Canal system, which was first opened around 1825. The table below lists these catches, along with some historic catches from the nearby Seneca/Oswego river system, and the Mohawk River:

Table 1. Historical records of sturgeon catches in Oneida Lake and nearby waters previous to 1995.

Date Caught	Size	Where caught	Angler name	Newspaper name
		Oneida Lake		
5/5/1856	104 lb, 6 ft 11 in	Denmans Island	Unknown	Syracuse Standard, 2 others
May 1862	unknown	Brewerton	unknown	Skaneateles Democrat
7/6/1869	21 lb	Shackelton Point	Charles Shackelton	Fayetteville Recorder, Utica Herald
June 1878	40 lb	Oneida Lake	Dr. S. Millington	Rome Roman Citizen
7/23/1883	large	Avon House, Lakeport	John Wright	Madison County Times
c.1894?	50 lb	Big Bay	Unknown	Syracuse Post Standard
6/9/1897	42 lb	Oneida Lake	Hayden/Duan Wilson	DeRuyter Gleaner, Madison Times
7/20/1919	91 to105 lb, 62 in	Dakin Shoals	F. Cole, L. Rumsmoke	Syracuse Post Standard, 5 others
5/17/1973	40 lb, 4feet	Frenchmans Island	Charlie Bronner	Syracuse post standard
5/27/1973	17 lb	Oneida Lake	T. Ruggieri, R. Grosso	Syracuse post standard
unknown	6 ft	Oneida Lake	Unknown Old Timer	Henke book - Beach to Brewerton
unknown	40-50 lb	South Shore	W. Daly, D. Chapman	Henke book - Beach to Brewerton
		Seneca/Oswego River		
1792	unknown	Oswego Falls, Fulton	J. Cockburn	The VanDerKemp Papers
1810	unknown	Oswego Falls, Fulton	DeWitt Clinton	DeWitt Clinton Journals
May 1862	4 ft, 30 lb	Onondaga Lake	L. Adkins	Skaneateles Democrat
June 1869	68 lb, 5 ft 3 in	Weedsport	Edward Wilson	Syracuse Daily Courier
8/4/1874	5 ft, 65 lb	Cross lake	unknown	Rome Sentinel
8/20/1886	27 lb	Seneca Lake Outlet	unknown	Syracuse Daily Standard
8/23/1893	4 ft 6 in, 42 lb	Fulton Dam	Charles Harris	Syracuse Evening Herald
1893	36 lb	Jordan, NY	Charles Wood	Syracuse Daily Standard
5/16/1900	113 lb	Oswego Dam	G.G. Scully, 2 others	Syracuse post standard
6/13/1907	6 ft 7¾ in, 150 lb	Oswego Dam	James Roach	Syracuse post standard
6/15/1908	90 lb	Selkirk	Claude J Quick	Syracuse post standard
6/15/1908	100 lb	Port Ontario	Fernando Smith	Syracuse post standard
12/10/1908	unknown	Mud Lock, Seneca Canal	unknown	Syracuse Herald
1914	6 ft, 120 lb	Pontiac Hotel, Oswego R.	Himan P. Dutcher	Oswego Daily Times
5/22/1923	5 ft 6 in, 52 lb	Fulton Dam	T. Pullen, 2 others	Syracuse Journal
		Mohawk River		
5/17/1897	12 lb	Little Falls, 5 Mile Dam	Ezra Brown	Utica Semi Weekly Herald

Restoration Efforts

Lake Sturgeon are now a Threatened Species in New York State. A restoration program begun in 1992 by NYS DEC and the USFWS has shown great promise in restoring this flagship species to their niche in the ecosystem, with a goal of achieving recovery by 2024 (6 years) mainly through stocking and habitat restoration. The earliest attempts to rear sturgeon in the Oneida Fish Cultural Station used eggs collected from Rivière des Prairies in Montreal, Quebec, Canada. Since 1996, sturgeon eggs have been collected from spawning adults in the St. Lawrence River at Massena. The DEC and partners have stocked Lake Sturgeon in an effort to restore them throughout their former range in New York. Oneida Lake was selected to establish a spawning population due to its warm and productive habitat. About 5,000 fingerlings were stocked in the fall of 1995 in Oneida Lake at approximately 10 inches, and this group of fish provided the first large adult sturgeon which remain in the lake today. About 10,600 fingerling sturgeon have been stocked to date. The table below lists the number and average size of sturgeon stocked in Oneida Lake:

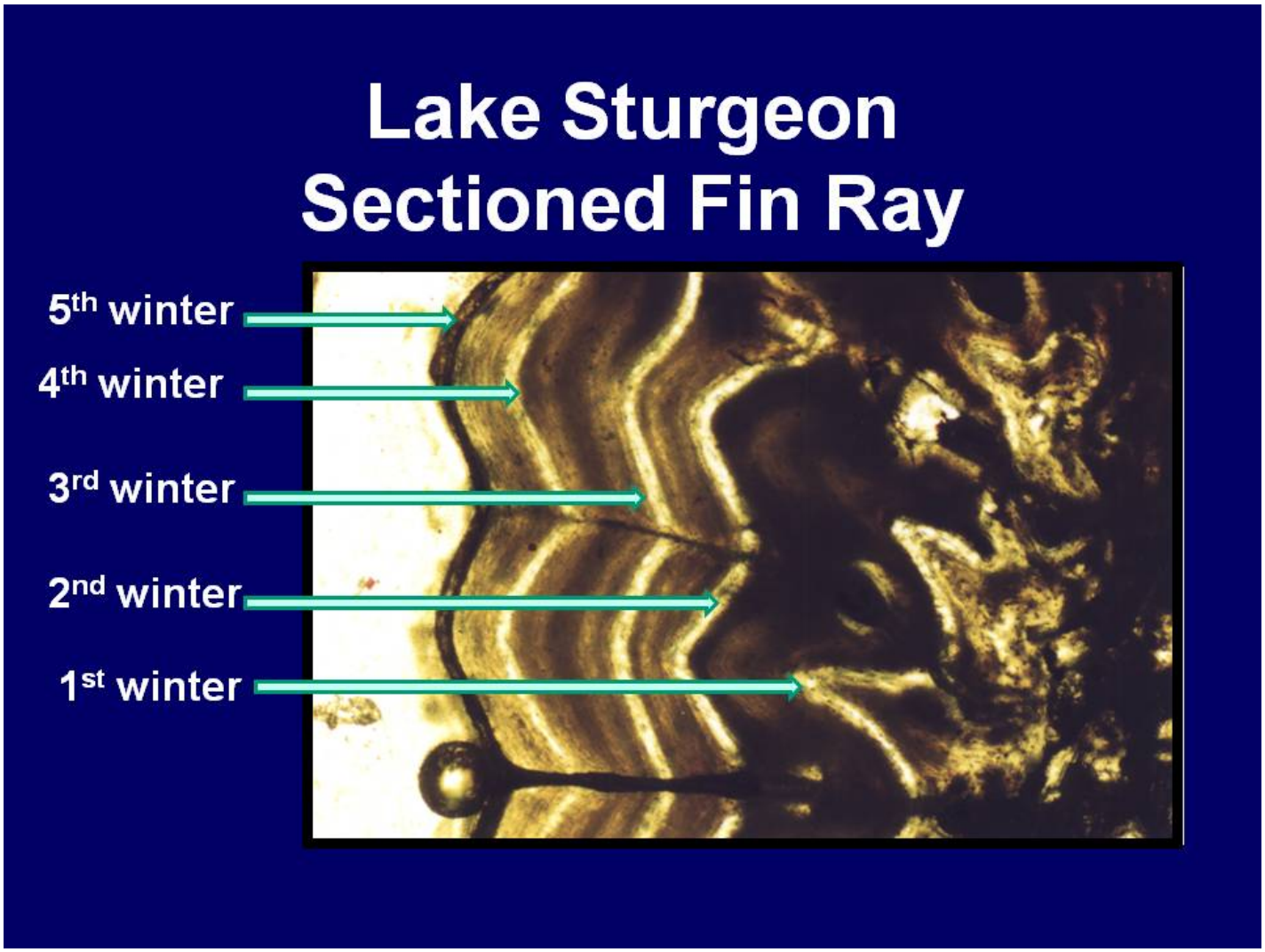
Table 2. Number of Lake Sturgeon stocked in Oneida Lake.

Year	Number Stocked	Size at Stocking
1995	5,000	10"
1996	500	7"
	50	22"
1998	287	22"
	100	15"
1999	300	9"
	20	35"
2000	300	7"
2003	368	9"
2004	1,200	7"
2014	500	8"
2015	500	9"
2016-2024	500/year	5"-7"

In addition to Oneida Lake, sturgeon have been stocked in Cayuga Lake, and they have moved through the river system to the Seneca River, Oneida River, Three Rivers near Baldwinsville, Onondaga Lake, Cross Lake, and the Oswego River to Lake Ontario. They have also been stocked in the Genesee River, Black Lake, Oswegatchie River, Chaumont Bay, St. Regis River, Salmon River (Franklin County), and Raquette River. Wild sturgeon populations still exist in Lake Erie, Lake Ontario, the St. Lawrence River, Grasse River, Black River, Lake Champlain, and Niagara River.

How fast do Lake Sturgeon grow in Oneida Lake?

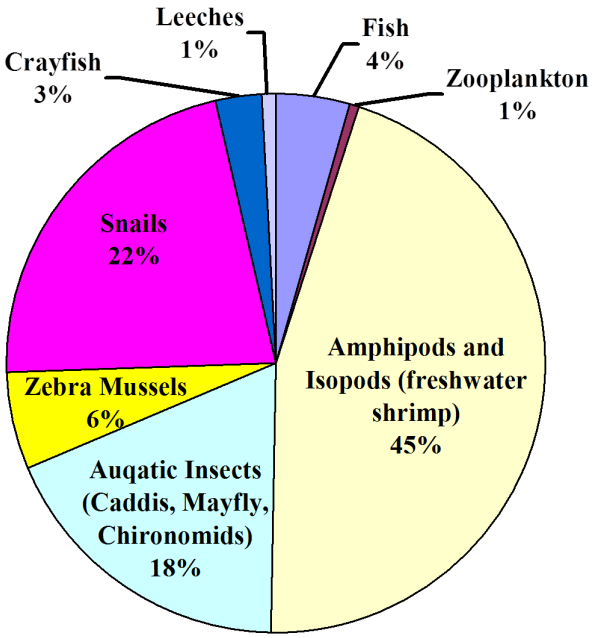
Lake Sturgeon are born in May-June, and grow to about 6-9 inches by the end of their first summer. In their second summer they can reach 14-15”, and by 10 years of growth they average 46” long and about 29 pounds. Sturgeon grow faster in Oneida Lake than most other lakes where they occur, and some sturgeon have reached 69” and 106 pounds already in Oneida Lake after 23 growing seasons. We can tell how old these fish are by taking a small segment of the fin ray in their pectoral fin. When this is cut very thin and viewed under a microscope, we can count growth rings similar to the rings on a tree (see diagram below).



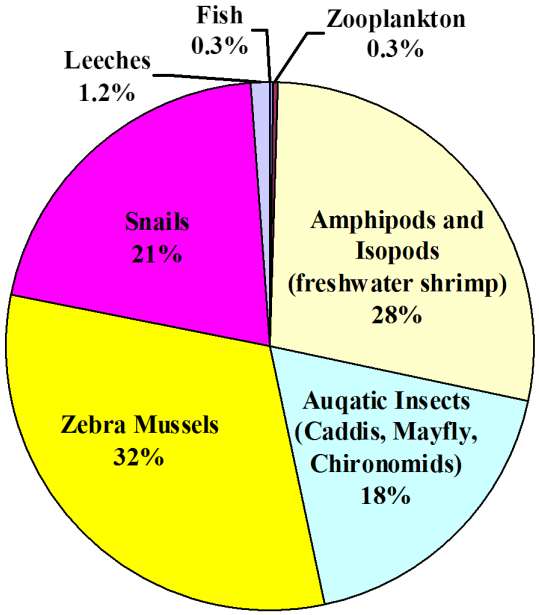
What do they eat?

Diets of sturgeon were examined by flushing the stomachs with water, and emptying the contents into a pan for identification. This method does not harm the fish. Items found included amphipods, which are small aquatic insects sometimes called freshwater shrimp or scuds, and also large numbers of zebra mussels. Many sturgeon also ate snails, insects, and worms (see chart below). Sturgeon have a bottom-type sucker mouth and no teeth, and eat few fish other than small minnows they catch on bottom, such as darters or gobies. In some lakes sturgeon eat winter-killed shad off the bottom. They have no effect on other fish populations in the lake (many people are afraid they will eat all the game fish). Also, despite what you may read on the internet, they do not have any teeth or eat people.

Items found in the diets of Lake Sturgeon



Sturgeon less than 35”



Sturgeon greater than 35”

What have we learned about sturgeon movements?

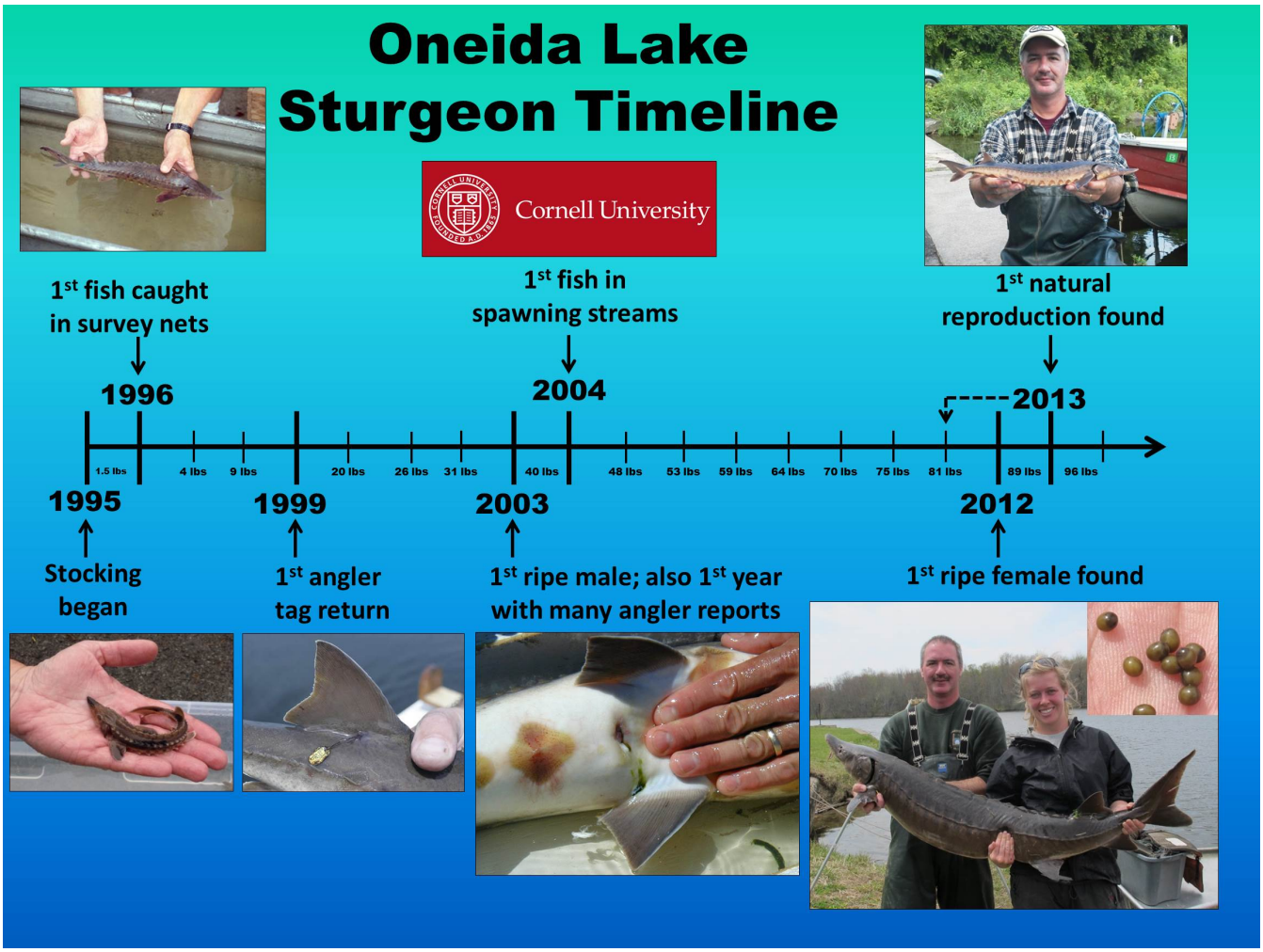
Annual netting surveys by the Cornell University Biological Field Station, located on the south shore of Oneida Lake at Shackelton Point, indicate that stocking of sturgeon may have been highly successful. Many sturgeon are tagged with a small yellow dangler tag attached to their dorsal fin near the tail. As of 2018, Cornell University has tagged 2,537 sturgeon in Oneida Lake with dangler tags (about 1 out of 4). If anglers catch a tagged fish, it is especially important to write down the tag number, estimate the length of the fish, and quickly return the fish to the water. Note the location where caught, then call the phone number on the tag or call your nearest DEC Fisheries Office. This helps biologists track fish and know where they go, how fast they grow, and where they spawn. About 3,502 sturgeon also have tiny magnetic tags that biologists can scan with a tag reader. Recaptured sturgeon can provide a lot of insight into growth, habitat use and movements of fish after they are stocked.

Cornell has recaptured 309 tagged sturgeon; 21 of these fish have been recaptured twice, and 1 has been recaptured 3 times. Most of the recaptured sturgeon have still been in Oneida Lake, however 36 recaptured fish (12% of recaps) have travelled to other waterbodies connected to Oneida Lake.

Eight of the sturgeon tagged in Oneida Lake have travelled all the way to Lake Ontario! One sturgeon was captured in Lake Ontario at the Niagara River Bar near Fort Niagara. This fish was stocked and tagged in Oneida Lake by Cornell University at the Oneida Fish Cultural Station in Constantia, way back on September 13, 2004. In the 15 years since then, this fish traveled down the Oneida River to Three Rivers (17 miles) and down the Oswego River through Fulton and Oswego to Lake Ontario (another 24 miles), navigating through multiple locks and dams on the way. It then wandered around through Lake Ontario another 132 miles as the crow flies to the Niagara Bar, for a total travel distance of at least 173 miles. This is the farthest any tagged sturgeon from Oneida Lake has traveled that we know of. Three other tagged sturgeon were caught in Black River Bay near Watertown, a distance of at least 105 miles. Other sturgeon tagged in Oneida Lake have been recaptured in Cross Lake, Onondaga Lake, Seneca River, Fish Creek, and the Mohawk River/Erie Canal.

Are Lake Sturgeon spawning in Oneida Lake?

On May 19, 2003 Cornell fisheries biologists caught the first ripe male sturgeon in Oneida Lake. The male sturgeon were attempting to spawn after only 8 years, and the females had not reached maturity yet. The first reports of sturgeon in tributaries that might be spawning came in 2004 from anglers. It was not until April 19, 2012 that the first ripe female sturgeon from stocking was found in a netting survey by USGS around Baldwinsville, NY, a 17 year old fish. Biologists were now hopeful that sturgeon may reproduce naturally! Just a year later, on July 29, 2013, Cornell University captured their first naturally reproduced sturgeon in Oneida Lake. This fish was 19.5" long and was determined to be 2 ½ years old, meaning the first documented sturgeon reproduction had taken place in spring of 2011, when female sturgeon were 16 years old. Several photos were also sent in of other young sturgeon caught by anglers. This was a huge milestone for Oneida Lake sturgeon! Since then, a total of 9 naturally reproduced young sturgeon have been found in Oneida Lake.



Is it legal to catch a sturgeon?

In NY, Lake Sturgeon are regulated as a Threatened Species. Any unintentionally caught Threatened or Endangered fish species must be unhooked and released immediately. They may not be handled for any purpose other than removing the hook and placing them back into the water. Anglers may not target sturgeon

or try to catch them specifically. If an angler is catching sturgeon in an area, they should change tactics or move to a different area to avoid the risk of being ticketed.

The Future

The ancestors of Lake Sturgeon have been around for over 200 million years, and humans managed to decimate their populations in about 70 years, so it is our responsibility to restore them and keep them from going extinct. There are well-managed fisheries for Lake Sturgeon in other parts of the country, and once recovery is achieved in New York, some kind of fishery may be possible. In 2018, NYS DEC updated a recovery plan for lake sturgeon with the goal of achieving recovery by 2024 (6 years). If recovery is achieved, efforts will be begin to de-list lake sturgeon from the Threatened Species list, and consider sport fishing options. Stocking efforts by NYS DEC and USFWS have shown great success in Oneida Lake and elsewhere in NY State. We hope that these sturgeon will continue to spawn and thrive in Oneida Lake, re-establishing the King of Freshwater Fish.

May 19, 2015. Cornell University fish biologists Tony VanDeValk (left) and Tom Brooking (right) tagging a Lake Sturgeon caught in survey nets in Oneida Lake, NY before being released.