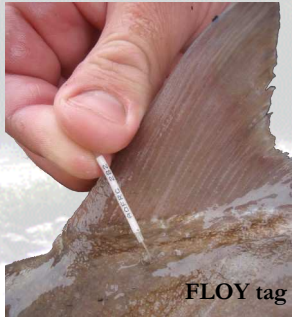


# Methodology

All LS in the previous studies were caught using large mesh gill nets, ranging from 6.5 to 12 inches. Nets are set over night at various times of the season depending on type of research taking place.

Sampling includes:

- Fork and total length
- Girth
- Weight
- Aging structures (fin ray)



FLOY tag



PIT tag



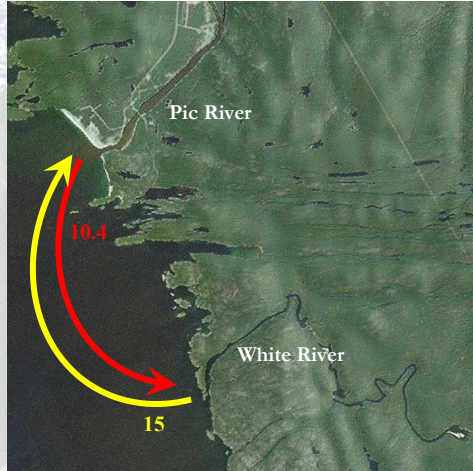
Radio tag

Plastic numbered tags that are anchored into

- Genetic samples (fin clip)

Passive Integrated Transponder is implanted under the second scute for identification purposes. A reader is passed over the head to reveal a unique numeric code

Captured LS are anesthetized in a large tub of water. Minor surgery is performed, and a radio tag is inserted into the body cavity. LS are sutured, monitored until recovery, and then released.



# Interesting Findings

LS in Northeastern Lake Superior have shown migratory patterns between tributaries. For instance, there was a 10.4% migration of radio tagged individuals into the White River and a 15% emigration rate of radio tagged LS from the White River into the Pic River system.

LS migration into the Pic River for spawning has been attributed to spring ice break up within the river

LS catches in the White River are above average for the region, indicating that the

White River is a Priority tributary for Lake Sturgeon rehabili-

Lake Sturgeon Characteristics		
	2011	2012
Average Weight	27.0 lbs.	17.7 lbs.
Average Length	4.0 ft.	3.7 ft.

2012 funding provided by the Ontario species at Risk Stewardship Fund  
tation in Superior



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## Eastern Lake Superior Sturgeon Research



2013

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# Lake Sturgeon: A Species at Risk

Often referred to as the living fossil, Lake Sturgeon (*Acipenser fulvescens*) date back to the Upper Cretaceous Period, 65-100 million years old, evident from Sturgeon fossils found in Alberta.



LS were once considered one of the Great Lakes most abundant and widely distributed fish species. These giants co-existed with Canada's aboriginal peoples. Spawning events would attract thousands of bands from across Ontario, marking important social gatherings where military and political discussions, religious ceremonies and traditional teachings would occur. In the mid-1800s a valuable market emerged driven by demands for fertilizer, isinglass, biofuels and in the 20th century, caviar. High harvest of LS promoted by profit and the lack of scientific knowledge on their life cycle quickly caused the collapse of stocks throughout the Great Lakes. Today, less than 1% of their historic population exists.

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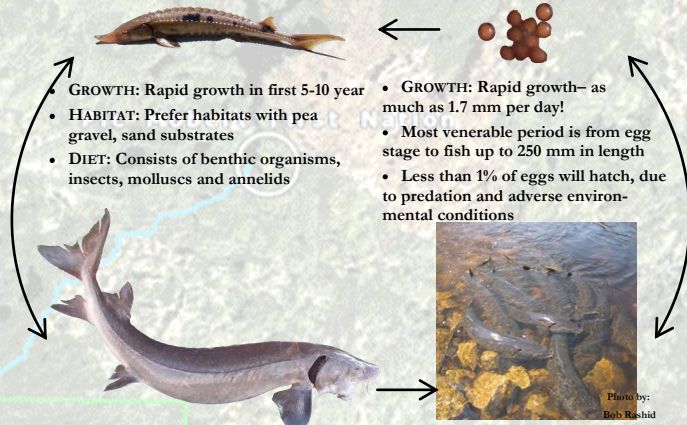
## Status in CANADA: A Species at Risk

Currently, the Lake Sturgeon is listed **THREATENED** in the Great Lakes-Upper St. Lawrence River area.



## Sturgeon Biology

The Lake Sturgeon is Canada's largest and longest lived freshwater fish species. LS are known to grow up to 3 m long, weigh 180+ pounds and can live to be 150+ years.

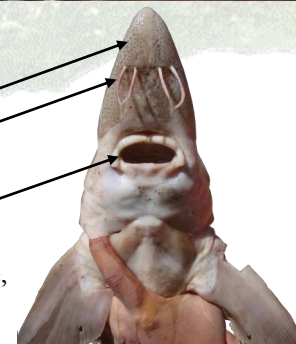
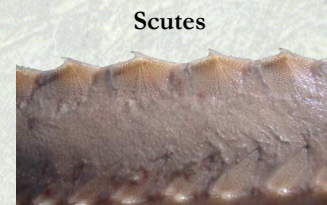


- **GROWTH:** Rapid growth in first 5-10 year
- **HABITAT:** Prefer habitats with pea gravel, sand substrates
- **DIET:** Consists of benthic organisms, insects, molluscs and annelids
- **GROWTH:** Rapid growth— as much as 1.7 mm per day!
- Most venerable period is from egg stage to fish up to 250 mm in length
- Less than 1% of eggs will hatch, due to predation and adverse environmental conditions

- Males mature ~12-20 years and spawn every 2-3 years
- Females mature ~14-33 years and spawn every 4-9 years
- **HABITAT:** Feed over areas with sand, gravel and/or detritus. Areas are shallow with moderate flows
- **DIET:** Opportunistic feeders consuming almost any living organism on the substrate such as molluscs, small fish, benthic insects, algae and occasionally plants
- Spawning occurs in the spring when water temperatures reach 13°-18° C.
- **HABITAT:** Clean, coarse substrate such as gravel, typically in shallow areas with fast flowing water
- Spawning is known to take place at the base of dams or impassible barriers
- Females broadcast adhesive eggs over rock and rubble substrate
- Eggs incubate for 5-14 days
- Typically move downstream after spawning

## Anatomy

LS contain prehistoric armor, created by bone plates. Young possess 5 rows of sharp armored scutes that gradually flatten out as they age.



- **Sensory Pits**
- **Barbels**
- **Suctorial Mouth**

These organs allow LS to sense, detect and sift out prey in soft bottoms of mud sand or gravel

## Research

### Pic River—Ojibways of the Pic River



Extensive research has been completed by the AOFRC in partnership with the Department of Fisheries and Oceans Canada, OMNR, and Pic River Hydro. Research has included spawning assessments, adult LS assessments, telemetry/movement and habitat utilization studies. In total, 247 Lake Sturgeon have been captures, with 48 individuals radio tagged.

### White River—Pic Mobert First Nation



Research on LS in the White River has been occurring since 2010. The LS was once considered extirpated from the river, however, 2011 and 2012 studies have indicated a high abundance of LS within the White River. Evidence suggests the Chigamiwinigum Falls may be an important Sturgeon spawning site. Overall, 144 LS have been captured with a total 45 radio tagged and monitored for movement/habitat utilization.

### Michipicoten River—Pic Mobert First Nation



The most recent Lake Superior tributary understudy by the A/OFRFC is the Michipicoten River. A 2012 has revealed the presence of LS within the river. On-going and future studies will examine the effects of hydroelectric generation facilities on LS movements and habitat utilization within the Michipicoten River.