

(Acipenser transmontanus)

by Christianne Wilhelmson

Here is a question for you: if you poked your head into the waters of the Fraser River 175 million years ago, what animals would you have seen? Well, it's likely that what swam before you would have been completely different than the animals we see today. Well, almost completely different. Looking back at you would have been a fish you can still see today very much as it was then: the white sturgeon. This dinosaur-like creature can tolerate both the salty waters of the marine environment, as well as the fresh water of rivers. Anadromous fish like the sturgeon are a great reminder of how the health of the Strait is connected to the health of the freshwaters that flow into her, and vice versa.



The white sturgeon, the largest freshwater fish in North America, is found in three major drainage systems on the west coast—the Sacramento, the Columbia and the Fraser systems. In BC, they live in the Fraser, Nechako/Stewart, Columbia and Kootenay rivers, as well as in some of their tributaries. The Fraser River stock of white sturgeon is the last remaining wild (not influenced by dams or aquaculture) population of white sturgeon in the world. The range of white sturgeon along our coast is quite large as they can be found from Ensenada, Mexico (just south of San Diego), all the way up to Cook Inlet, Alaska.

Unlike many fish, the sturgeon has no scales. Instead, these greenish-grey fish have five rows of bony plates (called scutes) covering its sides and back. These offer great protection from predators of all kinds. With no teeth and very tiny eyes, it's hard to know how they find their prey, but four highly-sensitive and efficient barbels in front of a strong, sucker-like mouth allow them to capture their food effectively. Among their favourite menu items are eulachon, sculpin, salmon and salmon roe, stickleback,

freshwater eels, lamprey and crayfish. Smaller sturgeons rely on chironomids, as well as insect larvae, mollusks and invertebrates. White sturgeon is often mistakenly grouped with sharks because like these animals, they have a cartilaginous skeleton.

An incredible characteristic of the white sturgeon is how long it can live. Individuals over 100 years old have been confirmed, while there is evidence that they can live up to and perhaps beyond 150 years. White sturgeon grow very slowly but eventually can reach lengths of 6 m and weigh over 600 kg. With such long life spans, it's not surprising that it takes them a long time to reach sexual maturity. Females don't spawn until they are at least 18 years old, some not until they are 26! Males need to be at least 14 years old to become sexually mature. This long sexual development means that their population is at greater risk of harm if too many individuals are fished out before they've had a chance to breed.

Not all white sturgeon spend time in the marine environment. Though they can tolerate both salt and fresh water, and stocks that have access to the ocean may (or may not) migrate to the ocean, other stocks, such as those in the upper reaches of the Fraser and Nechako/Stewart rivers, may never go to sea. It's difficult to learn about the life history of an animal that makes its home both in rivers and the sea, but we do know that the white sturgeon tends to move into large river systems in the spring months to spawn. They spawn in fast moving waters; however, the exact locations varies. They have been known to spawn in murky side channels, pebbly or sandy bottoms or in deeper, less murky main channels. Temperature, day length, strength of water current and riverbed material all affect when a fish spawns. Spawning may not be an annual event for each fish; some female white sturgeon may have gaps of 5 –11 years between spawning events. The infrequent spawning nature of white sturgeon is yet another reason why their population has trouble replacing individuals lost.

The history of the white sturgeon is eerily similar to many other species that are now at risk. Heavy commercial fishing in California, Oregon, Washington, and BC before the turn of the 20th century nearly wiped out all three major stocks of white sturgeon. Today, heavy harvesting restrictions have been placed on all white sturgeon stocks. In BC, a moratorium on all harvest and retention of white sturgeon was implemented in

1994. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) regards this fish as vulnerable, while the BC government has placed it on the “Red List” for species being considered for designation as endangered or threatened.

Recent estimates from a three-year tagging and recapture study conducted by the Fraser River Sturgeon Conservation Society (FRSCS) in 2002 indicate that there are approximately 50,000 adult and sub-adult white sturgeon (40-220 cm in length) living in the lower 130 kilometers of the mainstream Fraser River (Steveston to Yale). These numbers are promising since a high proportion of juveniles in a population, as is the case here, indicate the population is in rebound mode and starting to recover. However, because estimates show that likely only 5.5% of the population is sexually mature and that older fish over 200 cm long probably represent less than 2% of the population, there is still a long way to go. Also, the current status of the fish is not as positive on the Nechako, upper Columbia and Kootenay, where populations are declining and unable to replace those individuals that die.

There are many pressures on this species: creation of hydro-electric dams, as well as diking and drainage projects which change their habitat; human competition for food such as salmon; introduced species; and dredging. Although there are still no clear connections between sand and gravel removal and the impact on white sturgeon, there is evidence that the few remaining side channels in the mid-Fraser Valley provide key habitat for spawning sturgeon; these side channels are some of the top targets for the gravel industry. We also know that young sturgeon like to live near sand, along with their food sources, and it is possible that increases in dredging to maintain shipping channels and provide sand for development may be removing more key habitat and putting further pressure on this species.

The good news is that there is recognition that work needs to be done to help this fish that has already survived so much, and for so long. Recovery plans are in place on both the Nechako and Columbia River; a similar plan for the Fraser River is under development. The goal of these plans is to identify all threats and risks to these populations, stabilize the current populations, and hopefully see them through to

recovery. There are also continuing efforts by conservation organizations to learn more about this species so we can better protect it.

But new risks loom for this species. The provincial government is pushing ahead with plans for a sturgeon aquaculture industry. To date, the Ministry of Agriculture, Food and Fisheries has permitted the sale and live transport of cultured fish. As with the salmon aquaculture industry, there is a great deal to be concerned about. There is no evidence that risks to the wild population of sturgeon have been properly assessed or that appropriate safeguards are being incorporated into the industry's development. This species that has survived for millions of years still has a few more hurdles to get over if it's going to be around for a few million more.

HOW CAN YOU HELP?

- Avoid polluting streams and lakes.
- Report any illegal white sturgeon fishing, captures, or sales to the Ministry of Environment (phone 1-800-663-9453).
- If you have any recent and historical information about the white sturgeon, report it to the Fraser River White Sturgeon Conservation Society. Any information you have, including photographs and memories, can help researchers better understand the fish.