



UPPER COLUMBIA WHITE STURGEON RECOVERY INITIATIVE

WHAT ARE WHITE STURGEONS AND WHERE ARE THEY FOUND?

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Juvenile White Sturgeon

Long-lived, great in size, unusual in appearance, the white sturgeon of the upper Columbia River is a unique and important fish. But without immediate action to restore its population, this remarkable member of the Columbia River basin's aquatic community will likely be lost forever.

Today, only about 1400 adult white sturgeon remain in the upper Columbia River, and young sturgeon have become scarce. We don't fully understand why this is so, but construction of hydroelectric dams, changes in river flow, and pollution may be responsible. If we do nothing, the white sturgeon will become extinct in the upper Columbia within 100 years.

White sturgeon live about as long as humans - some have been recorded at more than 100 years of age - and become sexually mature between 20 and 30 years of age. They are the largest freshwater fish in North America, commonly reaching two or three metres in length and able to double that. A large adult can weigh 500 kilograms or more. Fossils show white sturgeon have changed little in 175 million years, which places their ancestry among the dinosaurs. Found in many parts of the world,

they are native to British Columbia in the Fraser and Columbia river drainages and are historically important to native peoples.

Even though the white sturgeon of today resembles its dinosaur-era ancestor, isolation in various parts of the river systems has created distinct subpopulations. Sturgeon in the upper Columbia River, for example, differ in some ways from those in the Kootenay River. Each population is unique, and irreplaceable.

The largest populations of upper Columbia River white sturgeon are found in the Columbia River near the Waneta Dam, in the Kootenay River near Creston, and in Lake Roosevelt in Washington State. Smaller groups occur in the Arrow Lakes Reservoir, and unconfirmed sightings in other locations suggest small numbers of white sturgeon may occupy the Revelstoke, Duncan, and Kinbasket reservoirs.

The white sturgeon of the upper Columbia River is, for many reasons, a fish of special importance. But its numbers are below the danger zone, and steps must be taken to remedy that.

CONSERVATION AQUACULTURE UPDATE

How the public can help

- Report sightings
1-888-358-FISH (3474)
- Report illegal sturgeon capture
1-800-663-WILD (9453)
- Avoid dumping garbage or spilling fuels and other pollutants in streams and lakes

Conservation aquaculture, the production of white sturgeon in a hatchery for release into the wild, is fundamental to the recovery effort. Unlike production hatcheries, conservation aquaculture strives to preserve genetic diversity and to restore populations to self-sustaining levels. With so few young fish in the upper Columbia River, hatchery intervention, by injecting young fish into wild populations, is a necessity.

The hatchery program began in August 2000 with conversion of the Hill Creek Hatchery near Nakusp to a sturgeon facility. The target was to produce 12,000 juveniles per year.

In March 2001, captured adults were taken to Hill Creek, and from two spawning females and several males, eggs were collected and young sturgeon were raised.

In May 2002, about 7,000 finger-sized sturgeon were implanted with Passive Integrated Transponder (PIT) tags and released into the Columbia River between the Hugh Keenleyside Dam (near Castlegar) and the U.S. border. A few months later, 2,000 more were released. The PIT tag in every released sturgeon carries a unique identifier code that can be read by a hand-held scanner, so when any of these fish are recaptured, their *(continued page 3)*



RECOVERY PLAN

To ensure that efforts toward recovery of white sturgeon are applied in the best possible way, a plan was created that identifies goals and recommends methods for achieving them. This is the Recovery Plan.

The process began after a review of upper Columbia white sturgeon found that young fish were becoming alarmingly rare. In August 2000, Fisheries and Oceans Canada, British Columbia's former Environment and Fisheries ministries, and BC Hydro signed an agreement that led to the formation of the Upper Columbia White Sturgeon Recovery Initiative (UCWSRI).

The Initiative consists of two branches: an Action Planning Group, and a Recovery Team.

ACTION PLANNING GROUP

The action Planning Group's functions include developing a common vision and public support for sturgeon recovery, providing information and feedback on recovery operations, informing the public, and seeking funding for recovery projects. Members represent the B.C. Ministry of Water, Land and Air Protection, Fisheries and Oceans Canada, BC Hydro, industrial and environmental groups, and others.

RECOVERY TEAM

The Recovery Team is responsible for development and use of the Recovery Plan, and is composed of biologists, researchers, and other sturgeon experts from the provincial and federal governments, BC Hydro, the Bonneville Power Administration, the Spokane Tribe of Indians, and other groups. Recovery is a shared Canada-US goal, so the team includes members from Washington State.

RECOVERY PLAN

Written by the Recovery Team with considerable input from APG members, it is the operations manual for sturgeon

recovery. The Recovery Plan List a number of Targets, Strategies, and Expected Responses, which will guide the effort.

TARGETS

Targets will be used to gauge progress and success through the years of the program.

- At least 2,500 adults in each of two recovery areas. These numbers should protect genetic diversity.
- Sufficient juveniles in recovery areas so that adult populations will flourish in the future.
- Stable or increasing numbers of juveniles and adults.
- Stable numbers and ages typical of a normal population.
- Genetic diversity equal to that of today's populations. This protects the populations against a variety of threats, such as disease.
- Populations large enough to support some fishing - a long-term target.

View a video clip of
white sturgeon at
www.uppercolumbiasturgeon.org

STRATEGY

Strategies are general directions for Recovery efforts over the course of the program.

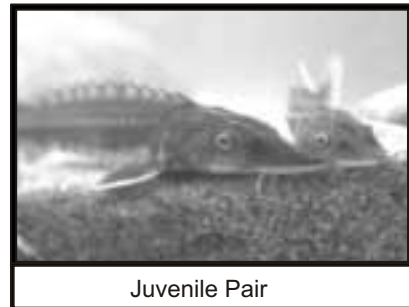
- Prevent unnecessary deaths, such as those by fishing, which must remain prohibited. The loss of even a few adult sturgeon could jeopardize recovery.

- Use hatcheries to supplement white sturgeon numbers, because there are few young sturgeon in the wild to replace old fish when they die.
- Improve critical habitats. Fix the places where they live, especially spawning and rearing habitats, to enhance survival of young fish.
- Be adaptable. Since white sturgeon recovery is a relatively new science, much is not known. The recovery program needs to be flexible in order to apply fresh knowledge.
- Build in safety factors. These could include opening an additional hatchery, possible located in the U.S., and establish separated "failsafe" populations.

EXPECTED RESPONSES

Expected Responses are the anticipated results of recovery work over many years. For example, because there are few young white sturgeon in the wild, adult numbers are expected to decline for about 30 years as old fish die, and finding mature fish for spawning and hatchery production will become increasingly difficult. After 30 years, as hatchery-released sturgeon mature, adult numbers should rise sharply. For the next 40 - 50 years, as old fish die and more young are released from hatcheries, upper Columbia River sturgeon populations will become "youth oriented".

In 50 years, mature sturgeon should be producing more naturally-spawned young, allowing hatchery production to decrease. A good, stable mix of ages should be present in the wild habitats - the ultimate goal of the recovery initiative.



Juvenile Pair



RECOVERY PLAN CONSERVATION AQUACULTURE RELATED MEASURES

Among the measures adopted by the UCWSRI Recovery Team, several components are related to fish culture and stocking.

1. Hatcheries will produce young sturgeon from wild parents, for release into natural habitats.
2. Hatchery operations will strive to preserve genetic diversity among white sturgeon populations.
3. Fish from hatcheries will be used for research to improve recovery efforts.
4. Since hatcheries produce more fish than are needed for release, "surplus" fish will be used to develop "failsafe" populations in special areas.
5. All hatchery-reared fish scheduled for release will be marked, currently with Passive Integrated Transponder (PIT) tags and scute (bony plates) removal patterns, for future monitoring purposes.
6. Released fish will be monitored in order to evaluate and improve the hatchery program.
7. The Initiative will seek the development of hatchery operations in U.S. Locations associated with upper Columbia River white sturgeon.
8. Hatchery operations will be continually refined. Because sturgeon conservation is a new science, other methods for collection, rearing, feeding, controlling disease, and other operations will be explored.
9. The potential for freezing sperm will be investigated in order to assure a supply if availability of natural sources becomes limited.
10. A health plan for white sturgeon will be developed, to limit the risk of disease.

CONSERVATION AQUACULTURE UPDATE (CONTINUED)

history will be known.

Meanwhile, more adults were collected in the early spring of 2002. In the hatchery, eggs from two of these females were fertilized by five males, producing thousands more hatchlings.

The Hill Creek Hatchery was a good start, but subsequent review found it insufficient for a full aquaculture program. In February 2003, the Initiative closed it and moved some 16,000 juvenile sturgeon to the Kootenay Sturgeon Conservation Hatchery near Cranbrook, a larger, better-equipped facility. The UCWSRI hatchery program continues there; many of these young fish, and the captured adults, will be released into the Columbia River.

With young sturgeon in the river again, scientists with the Recovery Initiative began exploring ways to monitor these fish. Tests in the fall of 2002 showed that underwater video was effective in finding them, scuba

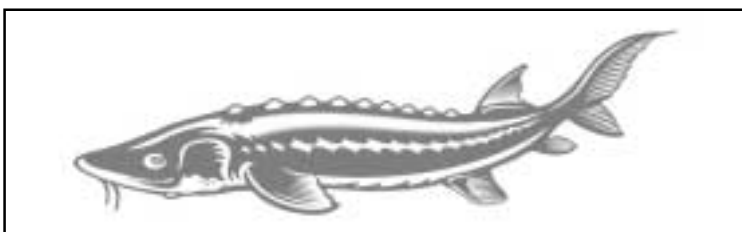
divers and closely monitored tangle nets showed merit in capturing them for study purposes.

Some 30 to 40 yearling white sturgeon were collected. PIT tags proved they were from the hatchery and measurements indicated high growth rates.

Although risks are inherent in the aquaculture program, ongoing evaluation and the long lifespan of white sturgeon provide some safeguards. It takes roughly 25 years for a sturgeon to mature, so new information may be put to use before released juveniles mature and reproduce. And by putting large numbers of juvenile sturgeon into the upper Columbia River today, the UCWSRI conservation aquaculture program ensures that in future years there will be enough sturgeon for the recovery program to carry on toward a successful conclusion.



Releasing adult white sturgeon



Report illegal sturgeon capture
1-800-663-WILD (9453)



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How can the public help

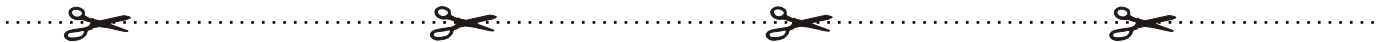
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- Report illegal sturgeon capture 1-800-663-WILD (9453)
- Report dead sturgeon hotline 1-888-358-FISH (3474)
- Share information with your community

Contribute to research or communications efforts by donating to the Habitat Conservation Trust Fund on the Upper Columbia White Sturgeon Recovery Initiative's behalf - Tax receipt will be issued for contributions received.

WIN AN UPPER COLUMBIA WHITE STURGEON RECOVERY T-SHIRT

Send us your comments on the newsletter to be eligible for a draw for an Upper Columbia White Sturgeon Recovery T-Shirt. Just fill in the form below and we will enter your name in the draw to be held December 31, 2003


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