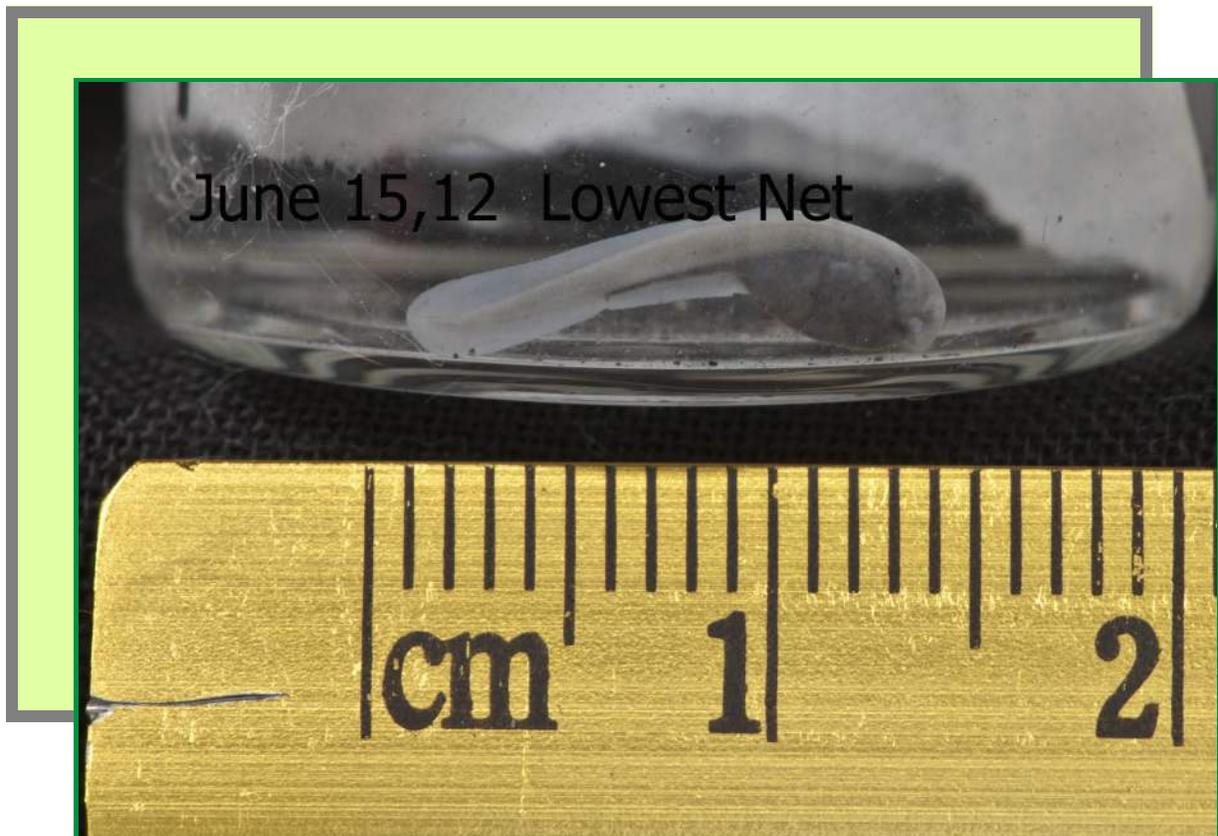


# Nechako White Sturgeon Recovery Initiative 2012-2013 Annual Report



NECHAKO **WHITE STURGEON**



RECOVERY INITIATIVE



This sturgeon was captured during the adult tag replacement, 2012. Biologist Neil Heron, Carrier Sekani Tribal Council and member of Stellat'en First Nation, is set to release her back into the Nechako River.

From 1994 to 1999, the Province of British Columbia coordinated an intensive study of white sturgeon in the Nechako River. The study came to an unwelcome conclusion - the Nechako white sturgeon are in a critical state of decline. Unless immediate action is taken these great creatures, survivors from the age of dinosaurs, will become extinct in the Nechako watershed.

With so many stakeholders involved along the entire length of the Nechako River, it was imperative that all interested parties gather together to begin working as a team in recovery planning efforts. This was the beginning of the Nechako White Sturgeon Recovery Initiative (NWSRI). The NWSRI is composed of two committees: the Technical Working Group (TWG), which is responsible for identifying the reasons for the decline of white sturgeon in the Nechako watershed, and for the design and implementation of habitat protection, restoration and management options; and the Community Working Group (CWG), which focuses on increasing the public's awareness and knowledge about the recovery process, as well as the ecological problems facing the Nechako white sturgeon.

The Nechako White Sturgeon Recovery Initiative is committed to ensuring that sturgeon, from juveniles to adults, continue to live in the Nechako River for many generations to come.

For more information on the NWSRI, and for detailed reports on projects outlined in this report, please visit our website:

**[www.nechakowhitesturgeon.org](http://www.nechakowhitesturgeon.org)**

Cover Photo: A rare Nechako White Sturgeon larvae collected during the egg mat and drift net sampling programs (2012). Photo by Wayne Carlton.

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## Messages from the Chairs

### Technical Working Group

Several important milestones were achieved by the NWSRI and partners in 2012. First, design of the Nechako White Sturgeon Conservation Centre was completed by FFSCBC in December 2012 and most of the capital funding was in place by that time. Negotiations around funding of operations are still ongoing as of the end of March. I am however very optimistic that a solution will be found early in the new fiscal year so that construction can begin this May!

Another important milestone for recruitment restoration was achieved in February. The NWSRI-Technical Working Group (TWG) gathered in Vancouver with a range of experts in physical geography of river (fluvial geomorphologists) for a one-day workshop on the physical processes in the Nechako River that affect spawning and recruitment. The main goal was to develop a 5-year plan that outlines physical research and monitoring priorities. Since, 2000 our efforts have focused on understanding the biology of Nechako white sturgeon including spawning locations and habits as well as egg and larval habitat requirements. The next major step is to implement the 5-year plan developed following the workshop and link this research with our understanding of biological needs so that recruitment restoration can begin.

I am ever hopeful that with continued funding of these important research projects, the hard work and dedication of our partners such as the Carrier Sekani Tribal Council and Freshwater Fisheries Society of BC, and with the eventual construction of the Nechako White Sturgeon Conservation Centre that these immense and magnificent fish will be on the road to recovery.

Cory Williamson  
Chair, NWSRI-TWG  
March 31, 2013



Cory Williamson, TWG Chair

## Community Working Group

During the past the year the Community Working Group has tirelessly worked to inform the public of the plight the Nechako White Sturgeon faces.

2012 brought the Technical (TWG) and Community Working Groups (CWG) closer together as we both focused our efforts on securing funding to build and operate a Nechako White Sturgeon Hatchery Facility. The goal of securing funding for a recovery facility kept our minds on track and kept us moving forward. The CWG was also successful in obtaining funds to cover our costs of events and costs associated with keeping the public informed of our outreach and harm reduction initiatives. We sincerely thank our funding sources.



**Brian Frenkel, CWG Chair**

Piloted in 2011 and becoming a full NWSRI program in 2012, a new tool kit in our aid to help the sturgeon is the boat kits. These boat kits were developed for First nation fisher family's that were accidentally catching sturgeon in their salmon nets. These kits enabled the fisher families to help release the sturgeon unharmed. The CWG had created 20 boat release kits and saved 11 sturgeon this year.

The Nechako White Sturgeon Recovery Initiative has become one of the biggest team efforts that I have ever witnessed. First Nations, Local , Provincial and Federal governments, businesses, local schools, NGO's and volunteers are all pulling in the same direction.

We are in sight of helping the Nechako White Sturgeon come back from its status as endangered. It is a tireless fight but with the team that has been assembled I am confident that we will succeed.

Brian Frenkel, Chair  
Community Working Group  
Avison Management Services Ltd  
March 31, 2013



## The Teams

### Technical Working Group

The Technical Working Group (TWG) was formed in September 2000, and is made up of private sector, federal and provincial biologists as well as First Nations and industry experts. Each member has specific qualifications, including a working knowledge of white sturgeon biology, expertise in streamflow management/hydraulic engineering or experience in other animal recovery initiatives. Some members have a regulatory role with regard to the protection of fish and their habitats in the Nechako watershed.

This team of scientists is responsible for investigating *why* the Nechako white sturgeon population is in decline, and then developing an effective plan to help restore the fish to a self-sustaining population. These strategies are based on the best-available science, local, and traditional knowledge.

### Community Working Group

In April 2001, the Community Working Group (CWG) was assembled. Composed of some 20 individuals that represent First Nations, non-government environmental organizations, industry, local and regional governments, and affected public, the group was created to provide input from river stakeholders, and to act first and foremost as a public advocate for Nechako white sturgeon and the Recovery Initiative.

The CWG provides an opportunity for key groups essential to the success of the Nechako white sturgeon recovery plan to become involved in the process. The group focuses on increasing the public's awareness and knowledge about the recovery process, as well as the ecological problems facing the Nechako white sturgeon. It is also concerned with building and maintaining community support for the recovery plan and communicating progress back to their respective organizations.

Together the TWG and CWG work towards a common vision of sturgeon recovery. The TWG works to develop and oversee implementation of the Nechako White Sturgeon Recovery Plan. This includes designing and carrying out the projects that are described in this Annual Report. The CWG is the communication and extension arm of the Initiative, and assists the TWG by garnering public and financial support for sturgeon recovery within the Nechako watershed. By sharing a common coordinator, the two groups maintain a continual flow of information and are able to support each other on projects as needed.



## NWSRI TWG & CWG Partnerships

### *Partners Involved During 2012-2013*

The members of both the Technical Working Group and Community Working Group represent a wide range of organizations. Those involved during the 2012-2013 fiscal year included:

BC Ministry of Environment  
BC Ministry of Forests, Lands & Natural Resource  
Operations  
BC Nature (Federation of BC Naturalists)  
Carrier Sekani Tribal Council  
District of Vanderhoof  
Fisheries and Oceans Canada  
Fraser Basin Council  
Fraser River Sturgeon Conservation Society

Freshwater Fisheries Society of BC  
Lheidli T'enneh First Nation  
Rio Tinto Alcan Inc.  
Sports Fisher representative  
Spruce City Wildlife Association  
Nechako River Alliance  
Nechako Watershed Council  
Tl'azt'en Fisheries Program



This large male Nechako White Sturgeon was used as the picture for the NWSRI display tent's back wall. The image features a measuring tape so people can see how they measure up to a real Nechako white sturgeon. This male sturgeon was 81.3 kg (179 lbs) and measured 252 cm in length. Once implanted with a tracking device he was successfully released back into the Nechako River. Chris Pharness and Neil Heron from the CSTC check the sturgeon prior to release. Photo by Ty Roberts of the College of New Caledonia at the request of the NWSRI.

## Project Updates for 2012-2013

### Broodstock Capture

**Project Lead:** Carrier Sekani Tribal Council

**Funders:** Aboriginal Funds for Species at Risk \$42,130; Ministry of Environment \$38,000; Ministry of Forests, Lands and Natural Resource Operations \$10,000 for tags

**Funding Note:** the combined AFSR (\$42,130) and MOE (\$38,000) was used to fund the Adult tag replacement and the adult spawn monitoring work. Because work was often carried out simultaneously between projects the funding split could not be accurately determined.

**Year:** 7 and ongoing

The Broodstock capture program has three main objectives:

- 1) To capture of brood fish for hatchery purposes;
- 2) To place more tags and replacement of tags; and,
- 3) To continue the monitoring and collection of biological data.

However, funding applications to build the Nechako white sturgeon recovery facility were not successful last fiscal and as a result there was no need to obtain eggs and milt for the production of juvenile sturgeon. At the end of last fiscal the Technical and Community Working Groups of the NWSRI decided that their efforts would focus on securing funding for the Recovery Facility and that this would occur at the expense of some of the research programs and as a result funding for the purpose of broodstock capture was not sought this year.

**Adult Tag Replacement:** The primary purpose of the capture program research conducted this year was to replace radio tags that were implanted in fish in 2007 and 2008. Being 4 to 5 years old those tags were nearing the end of their life span. Adult tag replacement started 21 September through 10 October, 2012 and 5 days of sampling effort were applied. Sites were set in the overwintering areas. Sixteen adult sturgeon were captured. The recapture rate was very high: 5 were fish that had not been previously radio tagged and 11 fish were recaptures. Thirteen new radio-tags were applied including 3 tag replacements. The majority of the fish were large adults. Only one fish was not large enough to hold a radio device. Three of the fish were female, 10 were male, and for 3 fish gender was not determined.



CSTC's biologists get set to release an adult Nechako white sturgeon caught for tag replacement , 2012. This male fish weighed 92.6 kg (203.7 lbs) and was 252.5 cm long. Photo by Ty Roberts of the College of New Caledonia.

## Project Updates for 2012-2013

### Juvenile Indexing Program

**Project Lead:** Carrier Sekani Tribal Council

**Funders:** Aboriginal Fund for Species at Risk \$22,200; Aboriginal Fisheries Strategy \$4,775

**Year:** 9 and ongoing

The 2012 Nechako White Sturgeon Juvenile Indexing program occurred from 18 to 27 September. Sampling began at Vanderhoof river kilometer (rkm) 110 and covered to 132.7 rkm. Sampling occurred at the same areas as past indexing because that is where the prime habitat for juvenile sturgeon was previously identified. The water temperature was approximately 15 degrees. Setlines were deployed with baited small fine-wire circle hooks specifically used to target smaller/juvenile sturgeon and limit the catch of adults. Sets were deployed overnight but never remained fishing for >24 hours.

A total of 27 individual juvenile sturgeon were caught, with one individual being captured twice (28 captures). Seven sturgeon were wild origin recaptured fish while 13 were wild origin new fish. Seven of the 27 sturgeon captured were hatchery fish: 1, 2008 hatchery release which is the first ever caught for that year; 4 were 2006 releases and 2 were 2009 hatchery fish. No 2007 hatchery fish have been caught to date. Recapture rates were ~50%, which is similar to the last few years. The recapture rate of hatchery fish is increasing each year.

This year some of the sturgeon sampled were close to the smallest that has ever been previously captured. The average length was 73 cm (range 50.5 to 94). The wild origin new fish captured were 15-20% smaller than the other fish. Juveniles are defined as fish under a total length of 1 meter and due to recruitment failure are rare in the Nechako River.



Chris Pharness, CSTC contractor, weighs a juvenile Nechako white sturgeon, 2012.



Ashley Raphael, CSTC employee and Saik'uz Band member gets set to release this rare juvenile Nechako white sturgeon, 2012.

## Project Updates for 2012-2013

### Adult Spawn Monitoring (Telemetry, Egg Mats and Drift Net Sampling)

**Project Lead:** Carrier Sekani Tribal Council

**Funders:** Aboriginal Funds for Species at Risk \$42,130 (split adult capture & tagging); Ministry of Environment \$38,000 (split adult capture & tagging); Aboriginal Fisheries Strategy \$4,775; Canadian Forest Products Pulp Division \$10,000 (fixed station telemetry).

**Year:** 9 and ongoing

#### Telemetry (Adult Monitoring)

Sturgeon were monitored from their over-wintering sites and followed to their spawning grounds located at the Vanderhoof reach area (River km 132-139). Similar to previous years the primary purpose of using radio-telemetry to monitor fish was to determine the timing and duration of spawning activities. Radio-tracking to determine fish movement patterns began on 8 May and concluded 21 July, 2012. During this time fish were monitored for a total of 18 days. On May 17<sup>th</sup> fish had moved above river km 131. By May 21, six fish were located above rkm 131. The majority of fish came to the spawning grounds on the 30 and 31 May. Spawning fish continued to be monitored above and below the bridge at Vanderhoof to determine the duration of spawning.

The information gathered was used to detect and track sturgeon migration routes for the purpose of protecting these habitats in the future. Understanding the timing of spawning related movements provides important information regarding factors that may affect the timing of spawning activities, such as water temperature and flow rates. The information gained through tracking sturgeon also helps to determine the most efficient times to conduct other spawning related sampling activities, particularly sampling for sturgeon eggs on placed egg mats.

Fixed Station Telemetry: In order to augment the information collected from periodic boat and aerial surveys, stationary or fixed shore-based telemetry receivers were established at key points along the river. Fixed station telemetry receivers log the date and time radio tagged fish migrate past the station. Fish tracking is normally conducted by boat which is time consuming and ultimately provides an incomplete examination of fish movement because there cannot be a boat on the river every day or during the winter or peak-flow conditions. Further, the Nechako to Upper Fraser area is large and fish movements can be extensive.

There are five fixed shore-based telemetry stations on the Nechako River (Nechako-Fraser confluence, Stuart-Nechako confluence, Vanderhoof, Nautley-Nechako confluence, Stuart River near outlet from Stuart Lake). These fixed stations provide an important mechanism for documenting movements of fish between the upper Fraser River and Nechako River, which is otherwise difficult to observe as mobile (boat-based or aerial) telemetry surveys of each area rarely overlap. Understanding the timing and duration of movements provides some indication of the purposes (life history and/or biological) of fish movements.

Monitoring and maintenance activities associated with the 5 fixed telemetry stations commenced on May 19 and concluded on Nov 14, 2012. During that period a total of 22 visits were made to the fixed telemetry sites. Data that was downloaded from these sites is being incorporated into the Fraser River White Sturgeon Database. The goal for this winter will be to permanently install a fixed station telemetry receiver at the lower Nechako station (confluence of the Fraser and Nechako Rivers) so it is ready for next spring (2013).

## Project Updates for 2012-2013

### Adult Spawn Monitoring Continued

#### Egg Mat Program

Twenty-seven large and small mats were deployed on May 12 and sampling ran to June 27<sup>th</sup>, 2012. Site placement was similar to previous years with mats being strategically placed above and below the bridge (rkm 141 to rkm 135.7). The first eggs were caught on May 23<sup>rd</sup> below the bridge. In total, 1,890 eggs were collected off the egg mats. The majority of those eggs, 1,422 (75%), were collected below the bridge. One large larva was found and some eggs were noted to be hatching on the mats. Most of the eggs were not viable due to being covered in silt.

Biological Monitoring of Gravel Pads: Sampling for eggs and larvae included sampling on the placed gravel pads. Downstream of the bridge where the majority of eggs were gathered this year the substrate was found to be poor incubating and rearing habitat and contained a lot of sand. Upstream of the island the substrate was in pretty good shape and did not contain a lot of fines. Overall, eggs and larvae seemed to correlate nicely with substrate conditions; most samples were obtained closest to shore with the fastest moving water.

#### Drift Net Program

Similar to previous years, drift nets were deployed at the sites that eggs were previously detected in hopes of capturing larvae. Crews sampled between June 11 and July 9<sup>th</sup> in an attempt to detect larvae and then 15 day olds. Overnight sampling was also conducted. Unlike last year when no larvae were caught this year the first larvae were found June 12, 2012. In total, 15 larvae were caught! Similar to the egg mat program for this year, the majority of the larvae were caught downstream of the bridge. During the last day of sampling a spawning was detected and it occurred quite a bit later than has been detected ever before; one day olds were detected during the 15 day old sampling period. None of the fish sampled were older than 3 or 4 days, which means that there was a spawning event in late June as well. The large number of samples, and the various developmental stages indicated that there was a spawning window of more than a month and potentially up to four spawning events. Monitoring was extended to July 9<sup>th</sup> because larvae continued to be found throughout June into early July. More larvae and eggs were sampled this year than have been found in one year ever before. Larvae were preserved in ethanol and photographed.



A Nechako white sturgeon egg covered in sand and silt and larvae collected during the egg mat and drift net sampling programs (2012). Photos by Wayne Carlton.

## Project Updates for 2012-2013

### Spawning Habitat Manipulation Gravel Placement Project

**Project Lead:** Ministry of Forests, Lands and Natural Resource Operations

**Funders:** Fisheries and Oceans Canada via Species at Risk Committee \$33,500

**Year:** 3 and ongoing

In 2011, two pads of cleaned and sorted gravel substrate were placed in two sections on the bed of the Nechako River near Vanderhoof, BC. This year the biological and physical monitoring programs were continued. Biological monitoring of the placed gravel pads occurred during the wild spawn and consisted of monitoring egg production, incubation and early larval rearing success. The results of the biological monitoring are discussed under the Egg Mat Program on page 10. Physical monitoring consists of monitoring the sediment infilling rates as it relates to the ability of the pads to provide spawning, incubation and rearing platforms for Nechako white sturgeon.

*Physical Monitoring of the Gravel Pads:* for the second year in a row sediment infilling rates were monitored to evaluate the quality of the substrate over time. Of particular interest was whether interstitial spaces between the stones still existed enough to provide refuge for sturgeon eggs and larvae. Secondary objectives were to evaluate the condition of the substrate where a large number of eggs were found at a downstream site in the spring of 2012 as well as to evaluate the condition of the substrate at an upstream site that was historically used for spawning.

Physical monitoring of the gravel pads occurred over four days from 24-27 September, 2012. The program conducted this year was expanded to monitor two natural sites in addition to the two placed pads. One additional natural site was downstream of the bridge where a fair amount of spawning activity had been detected, while the other was an upper most site where water velocities are highest (upstream of the bridge and island). Similar to last year the sites were monitored using freeze cores and underwater imaging. Warmer water temperatures this year meant that more nitrogen was required to freeze the cores resulting in a total of 20 cores taken across the sites. More underwater camera work was conducted this year than the past and better spatial coverage was obtained.



The substrate of the Upper Site is pictured on the left. The freeze core is one method used to obtain a sample of the substrate. The freeze core sample on the right was taken from the Upper Site, 2012. Photos by NHC.

## Project Updates for 2012-2013

### Spawning Habitat Manipulation Gravel Placement Project Continued

Upper Site Natural Substrate: This site was the only location where naturally occurring cobble substrate existed; however, the substrate was quite overlapped. Good quality substrate for spawning existed. The river flow does not appear to be fast enough to move these cobbles.

Upper Site Placed Gravel: Good quality substrate for spawning existed. Although some infilling has occurred on the patch the downstream portion remained free of fines and was functional. The upper site remained in good shape for spawning!

Lower Site Natural: This site had a lack of cobble substrate and the substrate was of marginal quality. Some interstitial spaces existed between the gravel, but the size of the spaces were smaller than the other three sites.

Lower Site Placed Gravel: The lower patch was in better condition than expected and some good quality substrate for spawning existed. A large proportion of the placed substrate along the left bank side of the channel was free of fine sediment and the placed substrate remained functional. The right bank side of the placed material had areas that were extensively in-filled with fines. This site was predominantly gravel and had more sand than any of the other sites, and as such it had the poorest substrate quality.

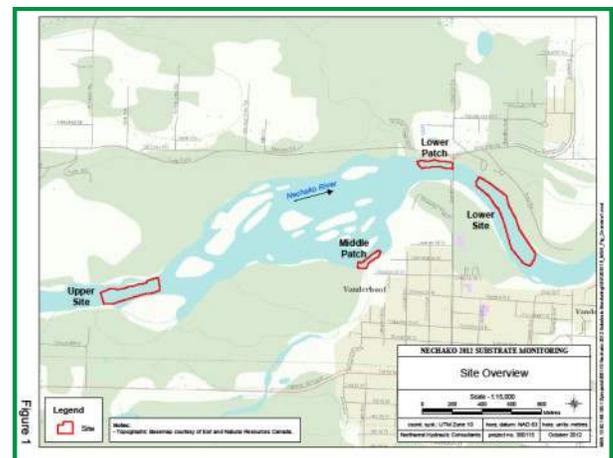
For more information on the physical monitoring component of this project please download the 2012 Nechako Sturgeon Spawning Gravel September 2012 Substrate Assessment produced by Northwest Hydraulic Consultants by clicking on this link:

[http://nechakowhitesturgeon.org/uploads/files/300115\\_Nechako\\_Freeze\\_Core\\_2012\\_Final.pdf](http://nechakowhitesturgeon.org/uploads/files/300115_Nechako_Freeze_Core_2012_Final.pdf)

NHC. 2012. *Nechako Sturgeon Spawning Gravel September, 2012 Substrate Assessment*. Prepared for Ministry of Forests, Lands and Renewable Resources. February 27, 2013.



Liquid nitrogen is being poured into a funnel that has an outlet 10–30 cm above the bottom of the core, 2012. Photo by NHC and can be found in their 2012 report.



Location of the substrate monitoring pads in the Nechako River at the white sturgeon spawning grounds. Photo by NHC and can be found in their 2012 report.

## Project Updates for 2012-2013

### Biochronology of Juvenile Recruitment

**Project Lead:** Ministry of Forests, Lands and Natural Resource Operations

**Funders:** Land Based Investment Strategy \$19,932

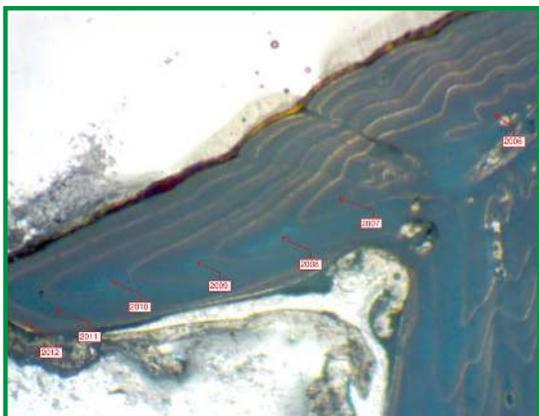
**Year:** 1 and complete

Biochronology refers to the dating of biological events. The biochronology work conducted this year utilized the available finrays and otoliths samples obtained from fish less than 45 years of age (i.e. recruited since the 1967 recruitment bottleneck) from the Nechako to determine estimated fish ages using standard protocols. This project had four main objectives:

- (1) Identification of the correlation between environmental variables relative to recruitment trends;
- (2) Identification of periods when recruitment pulses occurred or was non-existent;
- (3) Gain knowledge to mitigate the threat of continued recruitment failure; and,
- (4) Contribute to scientifically-based habitat restoration plans.

The birth year is used to identify periods when recruitment occurred (pulses) or was non-existent. Measurements of the width of fin ray annuli allows the growth of fish to be evaluated. Correlating environmental factors such as river flow and temperature and sockeye escapement may then be related to fish growth. Estimating the age and birth year of juvenile fish relative to environmental conditions provides the best means to identify factors contributing to their recruitment and subsequent growth. This information will aid in identifying the habitat restoration needs and furthering the development of detailed habitat restoration plans.

EDI Environmental Dynamics Inc. conducted the aging work. They provided fish ages for 65 previously un-aged pectoral fin ray structures and re-examined the ages for 59 structures. For the recruitment analysis they examined 189 fish with birth years ranging from 1967 to 2009. Ageing methods were corroborated with the structures from hatchery raised fish of a known age. The main finding of this project was that a pulse of juvenile fish were confirmed to be from 2007, which was the year that the Nechako River flooded its banks. The report states “Although speculation, the extreme discharge event of 2007 in combination with the notable recruitment event may suggest the possibility of threshold requirements.” Once the report is finalized it will be available for download from the NWSRI web site: <http://www.nechakowhitesturgeon.org/research/reports> Funding is being sought for the second half of this project which examines growth analysis.



This image is from the draft EDI White Sturgeon Recruitment Biochronology report. It shows the annuli increments of a hatchery fish born in 2006 and captured in 2012.

## Project Updates for 2012-2013

### Geomorphology Workshop

**Project Lead:** NWSRI Technical Working Group

**Funders:** Fisheries and Oceans Canada via Species at Risk Committee \$46,500

**Year:** 1 and complete

The Technical Working Group of the NWSRI hosted a geomorphology workshop on February 28, 2013, at the downtown SFU campus in Vancouver, BC. Geomorphologists and Hydrologist with expertise in the Nechako River were invited to participate. The all-day workshop brought together 13 River Experts along with 7 NWSRI TWG members to discuss ways for the NWSRI to monitor and better understand the geological and hydrological processes of the Nechako River. The main objective of the workshop was to develop the foundation for a research program in the area of physical habitat/fluvial geomorphology to assist sturgeon habitat restoration in the Vanderhoof Reach of the Nechako River. The timeline identified was within the next 5 years. The meeting was facilitated by Chris Ritchie of MFLNRO.

*The Key Points for Restoration:* Restoration for the Nechako must consider adult habitat choice (multiple locations, imprinting, hydraulics) and substrate quality (egg/yolk sac larvae, interstitial habitat). Restoration needs to consider both egg and larvae stages. Eggs located below the substrate surface (e.g. between substrate grains) likely have the highest survival. Yolk sac larvae survival depends on the availability of interstitial habitat to decrease predation and drift. The key challenges for restoration of the river are matching the location of restoration with the location and timing of spawning and maintaining suitable substrate quality through the spawning window.

The group identified 7 main research topics to be investigated over the next five years:

- (1) Extend the specific gauge analysis for the Vanderhoof WSC gauge;
- (2) Review spawning telemetry data using a 2D hydrodynamic model;
- (3) Examine timing of agricultural development and conduct a desktop study to assess potential sediment loading from agricultural lands;
- (4) Flush fines – Consider flushing opportunities and if fines can be washed out of the main channel during high flows, how much water do we need to flush the system;
- (5) Investigate the rates and timing of sediment transport in the Vanderhoof Reach and specifically assess the substrate condition during high flows (i.e., where is the sediment going);
- (6) Conduct a sediment budget for the Vanderhoof Reach that includes quantifying the primary sediment sources and sinks upstream; and,
- (7) Assess the longer term trajectory of the river (50-300 years) in terms of substrate and stability (i.e., work with where the river channel wants to go and in doing that create habitat that is good for sturgeon).



A document that summarizes the main points of the workshop, and a final report prepared by NHC Consultants are available from the Recovery Coordinator ([info@nechkowhitesturgeon.org](mailto:info@nechkowhitesturgeon.org)).

This map shows the distribution of the Nechako White Sturgeon, First Nation records of sturgeon, and areas that are known to be infrequently used by Upper Fraser sturgeon. It was updated by C. Williamson, TWG Chair, in 2012.

# Community Education, Outreach & Harm Reduction Programs for 2012-13

## Elementary and High School Nechako White Sturgeon Presentations

**Project Lead:** NWSRI Community Working Group

**Funders:** Habitat Stewardship Program \$8,210.50; Carrier Sekani Tribal Council \$3,000 In-Kind; Nechako White Sturgeon Recovery Initiative \$1,800 In-Kind

**Year:** 7 and ongoing

During the winter of 2012-13, we delivered 16 school presentations to 7 schools within the Nechako watershed reaching approximately 429 students (98 elementary, 336 high school). The following schools received presentations:

- W.L. McLeod Elementary School located in Vanderhoof BC.
- Tlazt'en Elementary located in Tlazt'en First Nation Community, BC. (note: high school students from Tlazt'en First Nation attend Fort St. James Secondary School).
- Fort St. James Secondary School located in Fort St. James, B.C.
- Fraser Lake Elementary and High School.
- Nechako Valley Secondary School in Vanderhoof, BC.
- Takla lake First Nation Community School.
- Ebus On-line Elementary and high school for Northern BC.

Two presentations were developed that were targeted towards grades 4-6 elementary school children and grades 10-11 high school students. Past presentations were updated based on the most current white sturgeon research knowledge and were designed to increase awareness regarding the decline of the Nechako white sturgeon population, habitat loss, and recovery activities. These children are growing up to be our future white sturgeon ambassadors and promote stewardship of sturgeon within their communities. Presentations were delivered by Cora McIntosh who is a member of the Saik'uz First Nation Band, which is one of the Bands within the NWSRI's target white sturgeon areas.

Sturgeon information and/or presentations were also provided at the following events during 2012:

- Home Show with BC Parks (27-29 April) in Prince George headed by Kevin Gedling, Parks Canada & CWG member and Freshwater Fisheries Society of BC summer students.
- National Aboriginal Day (21 June) and Fort St. John's Salmon Days (July 16) at Fort St John National Historic Site Park headed by Kevin Gedling, Parks Canada & CWG member and Freshwater Fisheries Society of BC summer students.

Students were treated to a PowerPoint presentation and in-depth discussions on the ecology and biology of the Nechako White sturgeon.

### Why is the white sturgeon special?



- Been around since the dinosaurs , 175 million years ago
- Can live to be over 100 years old
- Can grow to be over 6 m in length and up to 1800 lbs
- It is the largest fresh water fish in British Columbia.
- Genetically distinct; no other species are the same
- Very slow to reproduce. Females start spawning between age 15 to 30, and spawn every 5-10 years after maturity

## Outreach and Harm Reduction Programs, 2012-2013

### EVERY FISH COUNTS – The Emergency Sturgeon Live Release Boat Kit Program

**Project Lead:** Nechako White Sturgeon Recovery Initiative and Carrier Sekani Tribal Council

**Funders:** Habitat Stewardship Program \$6,110.50; Carrier Sekani Tribal Council \$5,500 In-Kind; Nechako White Sturgeon Recovery Initiative \$1,800 In-Kind.

**Year:** 2 and ongoing

The *Emergency Sturgeon Live Release Boat Kit Program* is new being in its second year in 2012. The idea for the program began when the NWSRI and CSTC became aware that a number of sturgeon were by-caught in association with the First Nation Food, Social and Ceremonial fishery. The Boat Kit program has three main components: (1) a kit small enough to remain in the boat at all times and contain all of the tools necessary for a successful live release; (2) a video, *Every Sturgeon Counts: Live Release of Gill Netted Sturgeon* (<http://www.youtube.com/watch?v=YhrEJUEi-ow&feature=colike>), and (3) an on-site community wide assembly that fully explains the program and why participation is critical to the future survival of the Nechako white sturgeon.

*\*\*The goal of this pilot program is an immediate reduction in the harm and deaths of sturgeon in the Nechako-Stuart-Takla system in the First Nation gill net salmon fishery.\*\**

2012 was a challenging year, particularly with distributing the kits to the fisher families in remote communities and also monitoring their use. Despite the inevitable learning curve associated with any new program the boat kit program once again exceeded our expectations by having a direct measurable positive impact on this endangered population.

### *Every fish counts! Preliminary Pilot Program Results*

We are extremely pleased with the results of this pilot program! In 2011, 12 sturgeon were live released by two of the participating bands (Saik'uz and Tl'azt'en) and this year 11 sturgeon were live released by 3 of the 6 participating bands (Saik'uz, Tl'azt'en, and Lheidli T'enneh First Nations). That totals **23 sturgeon live released over two years** using the 'Emergency Sturgeon Release Boat kit'. There was one sturgeon mortality reported which resulted in an educational opportunity to stress the need to regularly check gill nets when they are fishing.

As an in-kind courtesy to the program the Carrier Sekani Tribal Council hired Cora McIntosh (bycatch monitor and Saik'uz First Nation member) to hold a community meeting that was attended by Saik'uz fishing members. She played the boat kit video and discussed the importance of live releasing sturgeon. Also as an in-kind courtesy to the program by CSTC a fisheries technician spent two days in Nakazdli to talk with fishers, explain the project, and meet with the bycatch monitors.

The Emergency Sturgeon Boat Kit provides all of the materials necessary to live release sturgeon bycatch. This sturgeon was being checked over for existing tags and/or injuries prior to its live release.



# Outreach and Harm Reduction Programs, 2012-2013

## Promoting Harm Reduction and Monitoring By-catch in the Nechako Watershed FSC Fisheries

**Project Lead:** Carrier Sekani Tribal Council

**Funders:** Habitat Stewardship Program \$10,000 to CSTC (In-Kind to NWSRI); Aboriginal Fisheries Strategy funding for salmon catch monitoring also in-kind to NWSRI.

**Year:** 4 by-catch monitors (year 8 First Nation outreach & harm reduction programs) and ongoing

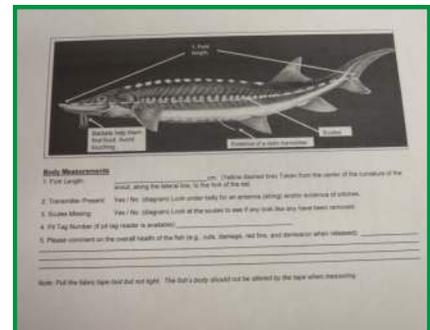
The Carrier Sekani Tribal Council (CSTC) hired two Sturgeon By-Catch Monitors for Saik'uz and Nak'azdli First Nations. These individuals were First Nations members of the band they were monitoring. They were responsible for directly interacting with the First Nations fishers in order to increase fisher-peoples' knowledge and awareness of the plight of the Nechako White Sturgeon. Although not directly related to sturgeon CSTC also hired catch monitors during the salmon season for Nak'azdli, Saik'uz and Stellako.

Prior to the beginning of the First Nation Food, Social and Ceremonial Fishery (FSC) by-catch monitors held a community meeting to discuss and secure support for releasing sturgeon by-caught as a result of the fishery. They promoted the Emergency Sturgeon Release Boat Kit Program and showed the video. On-site monitoring responsibilities included collecting FSC catch numbers of Sockeye and Chinook by person and day. They were responsible for monitoring nets set in their territories and were to be present when fishers retrieved their nets each morning. If a sturgeon was by-caught they assisted with live releasing the sturgeon from the net and documenting biological data. The by-catch monitor in Nak'azdli did not report any sturgeon encounters. Saik'uz by-caught one sturgeon on Aug 28, 2012. This sturgeon was live released from the gill net using the tools contained within the Emergency Boat Kit.

By working with the CSTC we are reaching out to more community members, fishers and their families. Ongoing education of fishers and community members about how changing their fishing practices can help maintain the Nechako white sturgeon and its genetic diversity is critical to restoring this species to a naturally sustainable population.



Cora McIntosh, 2012 by-catch monitor and Saik'uz First Nation Councilor.



Emergency Sturgeon Live Release Boat Kit Program data form that is filled in by the bycatch or catch monitors. We work closely with CSTC's bycatch and catch monitors to increase the success of the program and promote live releases.

## Outreach and Harm Reduction Programs, 2012-2013

### River's Day Celebrations in Vanderhoof and Prince George

**Project Lead:** NWSRI Community Working Group and Carrier Sekani Tribal Council

**Funders:** Habitat Stewardship Program \$2,500; Integris Credit Union \$2,500; Carrier Sekani Tribal Council \$1,000 In-Kind; College of New Caledonia \$750 In-Kind; NWSRI Community Working Group \$2,500 In-Kind (all outreach events); Rio Tinto Alcan \$1,110.44 In-Kind NWSRI hats.

**Year:** 3 and ongoing

Each year on the last Sunday of September, local community groups come together to celebrate our province's spectacular river heritage by hosting a public Rivers Day event. In 2010 the NWSRI along with the Carrier Sekani Tribal Council hosted the first River's Day event ever held in Vanderhoof at Riverside Park. Riverside Park is adjacent to the only known spawning grounds of the Nechako white sturgeon. Since 2011 the District of Vanderhoof has hosted the event and the NWSRI remains a featured participant. This year we were fortunate to be able to celebrate the Rivers Day events in Prince George and in Vanderhoof because they were scheduled for different days.

*Prince George* – Rivers Day in Prince George was held at Fort George Park on 23 September 2012. Our event booth was hosted by the Carrier Sekani Tribal Council (CSTC) in partnership with the NWSRI. Information was provided on the decline of the Nechako white sturgeon population, habitat loss, and recovery activities including our Emergency Sturgeon Release Boat Kit Program. Kids were treated to an activity table that featured sturgeon colouring sheets, connect the dots, and NWSRI tattoos. This large, city-wide event was our first opportunity to feature our new NWSRI display tent that was funded through a grant supplied by the Habitat Stewardship Program (HSP) and Integris Credit Union.

*Vanderhoof* – Approximately 300 people came to celebrate Rivers Day at Riverside Park in Vanderhoof on the 30<sup>th</sup> of September 2012, which was double the attendance of the first event in 2010! The NWSRI display booth continued to raise public awareness and knowledge regarding the decline of the Nechako white sturgeon population, habitat loss, and recovery activities in order to promote the stewardship of sturgeon throughout the watershed. We featured our usual display table but also included a sturgeon biology table where we presented sturgeon foods and river bugs that were collected that morning from Murray Creek. CWG members provided information on the unique body parts of the sturgeon and the role those parts played in the evolution of sturgeon. We also featured a sturgeon life cycle display and hands-on vials that showed the developmental stages of sturgeon eggs. Two interpretive walks (13:00 and 14:30) were provided by the CWG and included information on the importance of river cleanliness and sturgeon spawning, with participants able to view the location of the spawning grounds from the bridge that crosses the Nechako River. With aid from CNC we played our Every Sturgeon Counts video and displayed an example boat kit.



Engaging children in the river finds, Vanderhoof, 2012. Photo by K. Gedling, Parks Canada and NWSRI CWG member.



The NWSRI display tent, 2012. Photo by M. Roberge.

# NWSRI Management & Conservation Goals

## NWSRI Coordination and Data Management

**Project Lead:** Lana Ciarniello—NWSRI Coordinator

**Funders:** Department of Fisheries and Oceans via SARCEP \$30,000

**Year:** 11 and ongoing

This year since there was no Recovery Facility to produce larvae and raise juvenile sturgeon so the CWG decided to refocus their efforts away from the popular SOS sturgeon release event towards ways to secure funding to build the hatchery. The TWG decided similarly and cut-back on some aspects of the research projects. As a result the Nechako White sturgeon was in the local, national and international news and there were a lot of highs and lows as funding applications were rejected and revised. As coordinator I strived to assure that each working group had the most up-to-date knowledge of the sturgeon recovery process so factual information could be presented to the multitude of stakeholders involved in this process using as many forms as possible.

As working group members continued to work towards securing funding for the facility I also focused on how to distribute the *Emergency Sturgeon Live Release Boat Kit Program* when the money for the project had been delayed due to the Federal election. The program is very important for the maintenance of genetic diversity and mature breeding stock and is therefore fundamental to recovery.

Although I was not as successful as I would have liked in getting the kits to all of the fisher-families this year, overall the Program produced another year of amazing results. In just two years 23 sturgeon have been live released! I continue to be surprised by the number of sturgeon that are by-caught during the gill net fishery. Those 23 fish inspire me to continue to work towards more active and voluntary participation by First Nation fisher-families and their communities; if we are able to secure funding to build the Recovery Facility thousands of hatchery-born sturgeon will be put into the Nechako River and will be subject to by-catch during the gill net FSC fisheries.

As Coordinator I strive to ensure that all aspects of NWSRI technical and community outreach projects are carried out with effective coordination and communication within the NWSRI and sturgeon stakeholders. I work cooperatively and with the involvement of NWSRI members by providing coordination between and within working groups as well as administrative and technical support. The coordination and administrative support involves the following services: organizing meetings; tracking action items; completing technical tasks assigned by members of the Recovery Initiative; assisting in or leading project proposal development and Terms of Reference for projects and the development of funding proposals; assisting in the development of outreach materials and the coordination of public events; website maintenance and updating; and, where necessary, assisting team members with their assigned tasks. Technical support is provided to ensure scientific accuracy and technical expertise in planning and executing of recovery tasks.

Together in Conservation! Lana Ciarniello



Recovery Coordinator Lana Ciarniello with a Nechako White sturgeon.

## NWSRI Management & Conservation Goals

### Conservation Fish Culture: Construct and Operate a Permanent Production Facility

**Project Lead:** Freshwater Fisheries Society of BC & NWSRI

**Funders:** Rio Tinto Alcan \$246,000 for facility design

**Year:** 3

At the end of last fiscal year (31 March 2012) the hope of building a Recovery Facility in Vanderhoof was looking bleak; the WED application had been rejected and working group members were feeling frustrated as decades of hard work was not resulting in securing the funding required to build the facility; all the while the Nechako white sturgeon was steadily moving closer to the brink of extinction. Despite the frustrations the NWSRI together with the FFSSBC continued to advance the building plans and search out alternative funding sources. During this time the Nechako Environmental Enhancement Fund (NEEF) management committee was concluding their meetings on the allocation of funds available through the 1997 Agreement. In 1997, as a continuing partnership between the province and Alcan, Alcan committed up to \$50 million dollars (on a matching funds basis) that was to be used for river enhancement downstream of the Kenney Dam. This led to the formation of the NEEF in an agreement between the province and Alcan to determine the best use of those NEEF funds.

In March NEEF approached the TWG and requested a presentation on the Nechako white sturgeon and the Recovery Initiative. The TWG and CWG Chairs provided a presentation to NEEF's board on 15 March 2012. Don Peterson of the Freshwater Fisheries Society of BC (FFSSBC) also presented some options on how to support sturgeon recovery. The working groups were optimistic that when NEEF's report became available there would be a recommendation to support Nechako white sturgeon recovery. It was anticipated that by June NEEF would be able to provide direction on the funding.

Another surprise came in early June when we were informed that building costs had increased by 50% and that comes to more than 50% in our budget which is now projected at >\$6 million. The working groups began looking at options for reducing costs. To reduce the cost of the building it was decided that the juveniles would be maintained inside the building but the adults would be held outside. This design reduced 46% of the inside floor area resulting in a significant reduction in costs bringing us once again inside the realm of the budget. The design also continues to maintain the goals and outputs of the breeding plan.

By early July the NEEF committee had developed draft recommendations which stated that sturgeon receive \$400,000 a year for 10 years for hatchery operations. These funds could then be matched by the Province or another entity. The final NEEF report, however, was delayed until the end of July. Since we still did not have operational funding in place we still could not build. It was now the end of July and the opportunity to begin the production of larvae in spring 2013 was still looking bleak. Throughout the remainder of the summer the building engineers (mechanical, electrical, civil) continued to complete their designs. The final NEEF recommendations still had not been announced.

# NWSRI Conservation Goal: Construct and Operate Facility

## Conservation Fish Culture: Permanent Production Facility

On 12 September 2012, the NEEF recommendations were announced! There was \$800,000 a year allocated to fund sturgeon recovery focused on the recovery centre; \$500,000 a year to run the hatchery and \$300,000 a year to run programs. However, the catch was that it is based on us finding matching dollar contributions. We began by approaching the Province but at that time they said that they were unable to contribute. And as a result it was the end of October and the building of the Recovery Facility was once again sitting on the shelf. Some of the partnerships that had been secured, such as the invaluable donation of the land for the Facility from the District of Vanderhoof, were considering pulling out and using their funds and efforts elsewhere. Frustrations were running high and the working groups began to discuss what the future would look like in the absence of a hatchery – do we continue to work on the habitat side of things or do we step down?

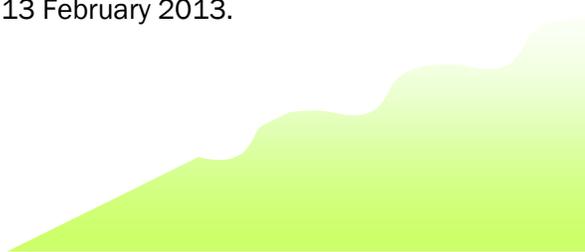
The FFSBC and DOV wanted 10 years of operations funding secured in some format before construction, which is estimated at approximately \$800,000 per year. Recommendation 5 under NEEF had \$400,000 available on a matched funding basis. By the end of November we had secured some of the matching funding but not enough for the operations dollars. The working groups decided that a recovery facility was paramount and took precedent over any other course of action. They decided that if a facility did not become a reality in the next few years the Recovery Team could no longer function; this messaging was brought forward to the highest levels of government as well as the media. The lack of funding for Nechako white sturgeon recovery made international news (see web site for some news articles).

The Chair of the TWG spent a considerable amount of time examining the process of leveraging funding under NEEF for the hatchery operations. Following the direction of the NWSRI, he moved forward on the premise that the recovery facility takes priority over the other projects. He determined that using funding from different partners collectively (DOV, CSTC, etc.), and leveraging NEEF with those, we would have 4 to 5 years of operations funding. However, once we leverage those funds we cannot return from that position.

*The TWG decided that although the approach to recovery is still two pronged, and the habitat component is very important, if funding is limited the hatchery will be the priority for the NEEF funds. They will, however, continue to fund raise for the habitat work.*

In Jan/Feb 2013, important news arrived—the Province had stepped forward with an additional \$1.2 million for capital. The operations costs were recalibrated for the next 10 years and were estimated at \$450,000 per year. By mid-February 2013 we were only \$288,000 away from securing all of the funding. If the NEEF proposal is accepted we would have approximately 7.3 years of operation funding. This means that it is possible that the Recovery Facility could be built in 2013. The next step was to send a proposal to NEEF to understand the possibilities. The proposal was submitted by FFSBC on the 13 February 2013.

Fingers crossed!



## Financial Summary for 2012-2013

During the 2012-2013 fiscal year, project funding was \$555,044 (\$527,583 cash and \$27,461 in-kind) which is \$76,933 less than last year’s budget, and was the result of cutting back on research and outreach programs to focus on securing funding for the recovery facility. In-Kind contributions increased from 2006-07 to 2008 but have been steadily declining for the last four fiscal years (Figure 1). Project dollars came from a variety of sources including industry, government, environmental funding sources, and volunteer hours. The following provides a breakdown of financial and in-kind contributions to the NWSRI for 2012-2013:

**BC Ministry of Environment—**  
\$38,000

**BC Ministry of Forests, Lands & Natural Resource Operations—**  
\$40,000

**Canfor Pulp Products Inc.—**\$10,000

**Carrier Sekani Tribal Council**  
\$19,500 In-Kind & \$73,880 from:

**Aboriginal Fisheries Strategy —**  
\$9,550

**Aboriginal Fund for Species at Risk —** \$64,330

**College of New Caledonia -** \$750 In-Kind

**Fisheries and Oceans Canada —**  
\$80,000

**Habitat Stewardship Program —**  
\$16,821 to NWSRI

**Integrus Credit Union —** \$2,500

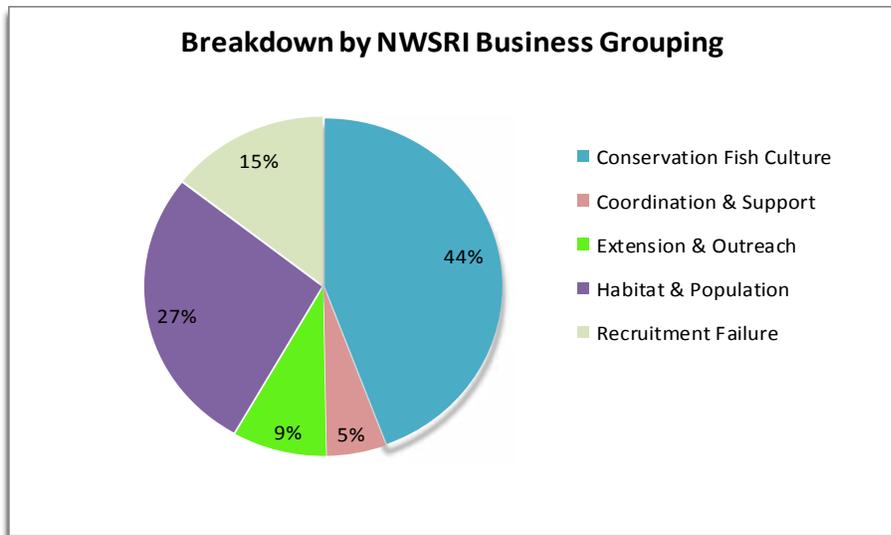
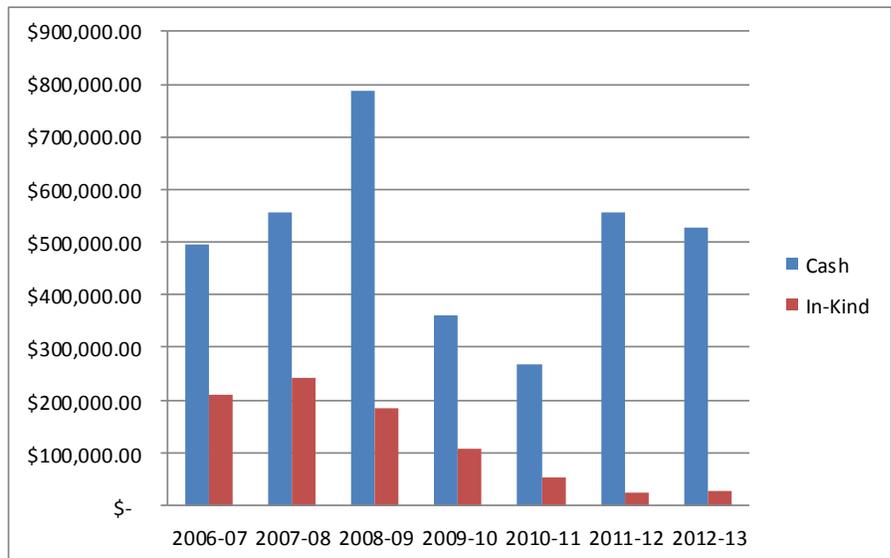
**Land Based Investment Strategy —**  
\$19,923

**NWSRI Community and Technical Working Groups -** \$6,100 In-Kind

**NWSRI Sales—**\$300

**Rio Tinto Alcan Inc. —** \$246,000 & \$1,110 In-Kind

**UNBC Fish & Wildlife Club—**\$150 donation



*The NWSRI extends a sincere thank you to all of the groups and individuals who have contributed funds, time and/or other in-kind contributions. This support is essential to the success of the Initiative and the recovery of white sturgeon in the Nechako watershed.*

## Photo Credits:

We gratefully acknowledge the use of photos for this annual report from the following individuals and/or organizations:

- BC Ministry of Environment
- Carrier Sekani Tribal Council
- EDI Environmental Dynamics Inc.
- Freshwater Fisheries Society of BC
- Kevin Gedling, Parks Canada
- Nechako White Sturgeon Recovery Initiative
- Northwest Hydraulic Consultants (NHC )
- Ty Roberts, CNC
- Wayne Carlton
- Zsolt Sary, MFLNRO



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