
Nechako White Sturgeon Recovery Initiative 2010-2011 Annual Report



NECHAKO **WHITE STURGEON**



RECOVERY INITIATIVE



Adult sturgeon being assessed as potential 2010 broodstock.
From left to right: Zsolt Sary, MOE, Brett Tolton, BC Parks & Elizabeth Miller, MOE

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 extirpated from 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

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Messages from the Chairs

Technical Working Group

Recruitment restoration has been a significant focus for 2010-11. Much of the NWSRI-TWG's work this year has been expended on starting a multi-year project to experimentally restore sections of Nechako white sturgeon spawning habitat at Vanderhoof, BC. Funding of this multi-phase project has been a significant challenge, as the work starts in one fiscal year and ends in another. Our goal this year was to place two gravel pads in the spawning areas and monitor spawning activity and success as well as the physical attributes of each site, including rates of sedimentation. Unfortunately an early end to winter and unanticipated logistics prevented our first attempt for spring 2010. However, with financial and in-kind contributions from our partners, gravel was purchased and stockpiled in the fall with the goal to place this substrate in early spring. By late winter, a contractor in place and commitments for funding were acquired to allow biological and physical monitoring to take place. This project will be a major step in developing our tools to restore critical spawning habitat.



Cory Williamson, TWG Chair, releasing an adult Nechako White sturgeon during brood capture near Vanderhoof, BC.

We have also continued to work on other long term monitoring projects with financial and in-kind support for projects from the Carrier Sekani Tribal Council, Rio Tinto Alcan, the Ministry of Environment, Fisheries and Oceans Canada, and Freshwater Fisheries Society of BC. These include: brood capture and radio tagging; spawn monitoring; monitoring of juvenile recruitment; evaluating the success of pilot hatchery releases; and adult sturgeon harm reduction initiatives by the NWSRI-Community working group. An interesting finding of note for 2010-2011 was the capture of approximately 15 wild juvenile sturgeon of the same size and age during annual juvenile assessments. Although these fish have not been aged formally, comparison with juveniles caught in 2009 suggest that these fish may have recruited during the 2007 flood year- a more detailed analysis will be required to confirm these observations.

Efforts by our partners continue to find funding for the development of a conservation hatchery in Vanderhoof. A significant short term goal is to preserve the remaining genetic diversity in this critical endangered population. **A conservation hatchery has been identified as an immediate and critical need to prevent extinction of the Nechako white sturgeon.**

Cory Williamson, Chair
Technical Working Group
BC Ministry of Environment
March 31, 2011

Community Working Group

During the past the year, the Community Working Group (CWG) has worked diligently to inform the public of the dire situation facing the Nechako White Sturgeon. The Nechako White Sturgeon Recovery Initiative has become one of the biggest team endeavors ever undertaken, with First Nations, government - District, Provincial and Federal, businesses, local schools, Non Governmental Organizations and volunteers all working towards a common goal. If ever there was a group more deserving of recognition, it would be to those who have persevered in making this vision become a reality.

This past year brought the Technical Working Group (TWG) and CWG closer together, as a new co-coordinator was hired to assist and streamline the working groups, and to keep us moving forward. The CWG was also successful in obtaining funds to cover the costs associated with hosting events, such as River's Day and presentations within school District 91, as well as relaying information to the public. Major contributions came from the District of Vanderhoof, the Integris Credit Union, the Resources North Association and the Habitat Stewardship Program. The Vanderhoof and Prince George media have been major contributors in relaying our message of sturgeon conservation to the general public.

The CWG would like to thank our funding sources, media partners, as well as all the volunteers and staff who continue to work tirelessly to promote this very important endeavor. The chance of helping the Nechako White Sturgeon flourish and to have it removed from the endangered species list is within our grasp. The battle to succeed is constant but with the team that has been assembled, I am confident we will achieve our goals.

Brian Frenkel, Chair
Community Working Group
Avison Management Services Ltd
March 31, 2011



Brian Frenkel, CWG Chair



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 2010-2011

The members of both the Technical Working Group and Community Working Group represent a wide range of organizations. Those involved during the 2010-2011 fiscal year included:

BC Ministry of Environment
 BC Nature (Federation of BC Naturalists)
 Carrier Sekani Tribal Council
 City of Prince George
 District of Vanderhoof
 Fisheries and Oceans Canada
 Fraser Basin Council
 Fraser River Sturgeon Conservation Society

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

Nechako White Sturgeon

White Sturgeon are Endangered and protected under the Federal Species at Risk Act (SARA)

- The Nechako white sturgeon is unique to the Nechako/Stuart/Tekla System.
- White sturgeon have held importance to the Dakoht people for thousands of years.
- A large Nechako sturgeon can reach 3 metres in length and live to over 100 years old!
- The Nechako population has reached a critically low level - less than 30 adult fish remain. Recovery actions are needed to prevent extinction.

The CSTC has been a strong supporter of the NWSRI since its beginning in 2006.

- Research and planning.
- Assessment.
- Outreach.
- Recovery.

This area, located in Vanderhoof, is the only known spawning habitat for the Nechako White Sturgeon.

Research has found that young fish are not surviving, which is believed to be the result of silt build-up in gravel.

Hatchery raised young white sturgeon were released into the Nechako in 2006, 2007 and 2008, and some appear to be surviving. Releasing hatchery raised fish is a necessary short-range recovery solution until habitat restoration is complete.

Proposed site of planned recovery facility, hatchery and interpretive centre.

Experimental habitat restoration is being attempted, to better understand egg and larval sturgeon habitat requirements. The experiment will involve placing clean gravel in this area of the river to provide interstitial hiding spots for eggs and larvae, thereby increasing the chances of survival and maximum growth.

Please live-release any white sturgeon you may encounter during your fishing activities, and encourage others to do the same. Let your leaders know these fish are important to you and to future generations; we are the responsible stewards of this resource.

How you can help PREVENT EXTINCTION

- Sturgeon are gentle giants - try not to harm, stress or harass them in any way.
- Returning a sturgeon to the water quickly is critical to its survival.
- Let your leaders know these fish are important to you and to future generations.
- Data collected from each fish adds to ongoing research and helps sturgeon recovery.

Lhecho sinlooh de, Provincial Government 'en bulh yaolhduk

If you encounter a sturgeon, please phone the Provincial Government at:
250-565-6135
 For more information please visit us at:
www.nechakowhitesturgeon.org

Carrier Sekani Tribal Council
 NECHAKO WHITE STURGEON
 RECOVERY PARTNER

This outreach & harm reduction poster was completed by the NWSRI and the Carrier Sekani Tribal Council (CSTC) as part of this year's Habitat Stewardship Program funding. It highlights the problem and outlines the conservation goals of the initiative as well as clearly providing the number to call if a sturgeon is encountered. Posters were distributed to First Nation communities within the Nechako watershed. The size of the poster is 24" X 36". Posters may be obtained from the CSTC in Prince George.

Project Updates for 2010-2011

Broodstock Capture

Project Lead: Ministry of Environment, Carrier Sekani Tribal Council

Funders: Funding applications were not successful; Program Not Funded

Year: 5 and ongoing

The broodstock capture work was not funded during the 2010-11 fiscal season and as a result we were unable to carry out this program. The proposed objectives of the broodstock program for this year were to capture 24 mature adults (12 pairs) in order to produce 12 family groups; and, to capture and radio tag additional mature adults to aid the spawn monitoring project. This program also provides valuable information because it allows us to continue to monitor the reproductive adults.

In past years a number of white sturgeon have been surgically implanted with radio tags that transmit a radio signal during the broodstock capture program. The tags' unique frequencies and codes can be detected using a receiver and antenna, allowing the locations of specific fish to be determined. Each tag's frequency and code can tell us when and where the fish was captured and the tag was implanted, and the specifics of the fish (whether it is a male or female, and its state of sexual maturity at the time of sampling). We use this information to infer whether or not the fish may be spawning in a given year and to track the movement of fish when not on the spawning grounds. For more information on tagging fish please refer to the Adult Spawn Monitoring section (page 9).

We will continue to apply for funding for this project this winter in hopes that our proposal for next year will be successful.



A beautiful day on the Nechako River, 2010.

Project Updates for 2010-2011

Juvenile Indexing Program

Project Lead: Carrier Sekani Tribal Council

Funders: Aboriginal Fund for Species at Risk \$20,900; Aboriginal Fisheries Strategy \$5,030; Carrier Sekani Tribal Council In-kind \$5,250

Year: 5 and ongoing

The 2010 Nechako White Sturgeon Juvenile Indexing program consisted of two phases; each phase lasted ten days and led to about 20,000 hook-hours of effort. Phase 1 occurred from August 30, 2010 to September 08, 2010 and the second phase occurred from September 27 to October 07, 2010. A crew of three technicians set six setlines at strategic locations between River Kilometre (rkm) 110 and 125 and also captured sturgeon by angling. Each setline included approximately 17 hooks which were left to fish for approximately 24 hrs. Smaller hooks were used in order to target juvenile white sturgeon (total length <1m). Data collected at each of sampling location also included water temperature, turbidity, depth, UTM's, time (pull time, set time), weather and any incidental catch data such as species, length and fate.

Captured juvenile sturgeon were analyzed to determine whether it was a recapture or not, if it was not a recapture then the following actions were taken: Insert PIT tag, 4 measurements for length (pre. orb., post. orb., fork and total), weight, scute and a DNA (fin ray clip). If the sturgeon was a recapture then just the lengths and weight are taken and PIT number recorded. This is to determine the rate of growth from the last time the sample was handled.

A total of 40 juvenile white sturgeon were captured between the two phases of the project: ten fish originated from the pilot hatchery program and represented four different brood years (2006 = six fish, 2007 = one fish, 2008 = one fish, and 2009 = two fish); 23 of the juvenile sturgeon were unmarked (neither previously captured or originating from pilot hatchery); and, 8 were wild captures that were caught in previous years. Growth rates for all sturgeon re-captures (both wild and hatchery) averaged about 12 cm/yr.



Kirby Johnnie, Tl'azt'en Nation, with a juvenile Nechako White Sturgeon, 2010.

Project Updates for 2010-2011

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

Project Lead: Carrier Sekani Tribal Council

Funders: Aboriginal Fund for Species at Risk \$41,550; Aboriginal Fisheries Strategy \$5,030; Prince George Nechako Aboriginal Employment and Training Agency \$9,643; Ministry of Environment \$1,550 and \$23,360 In-Kind; \$4,000 Rio Tinto Alcan Inc.; and, Carrier Sekani Tribal Council \$5,300 In-Kind

Year: 7 and ongoing

Telemetry (Adult Monitoring)

During spring tagging activities in 2010 twenty-nine sturgeon (28 adults and one juvenile) were captured between April 26th and May 1st. Of those, 16 were 'new' sturgeon (not previously tagged or caught) and 13 were recaptures. Of the 28 adults, 13 were male and 15 were female. Seven males and three females were reproductively mature. A total of 10 radio tags were applied to sturgeon meeting the right sex and maturity criteria.

Radio tracking started on April 26th to monitor the sturgeon's migration from over-wintering sites, and determine their movements towards the spawning grounds located in the Vanderhoof area (River km 132-139). Understanding the timing of spawning related movements provides important information regarding other environmental factors that affects the timing of spawning (e.g. water temperature) and also indicates the timing for the initiation of egg mat sampling. The subsequent capture of eggs then provides more specific information about the locations and timing of spawning events.

Radio telemetry surveys continue until the fish have left the spawning area and for some time afterwards to make sure they do not return to the spawning grounds. A total of 54 tags were encountered between rKm 91 and 157 (measured from the confluence of the Stuart and Nechako rivers).



MOE staff, Zsolt Sary, Cory Williamson, and Elizabeth Miller holding an adult sturgeon captured during the 2010 radio tagging program (April 28, 2010).

Project Updates for 2010-2011

Adult Spawn Monitoring Continued

Reproductively mature males began to move upstream towards the spawning area around May 10th. One male was encountered twice above the Vanderhoof bridge between May 28 and June 2. Of two (known) reproductively mature females, one moved to the staging area between May 1 and May 14. The second female appeared to remain downstream by rKm 125. By June 10, most mature males had begun moving downstream to (rKm) 125 and 116, indicating that the spawning window was likely complete for the year and fish were returning to summer feeding areas.

During one exciting telemetry survey a large female was located upstream from the Vanderhoof Bridge between rKm 136 and 141. This was the largest sturgeon tagged and captured in 2007, which was used as a brood fish for the pilot hatchery that year. When she was released in 2007 she was nicknamed Anna and a special event for the public was held when she was returned to the river. She was also featured in a past newsletter and in local newspapers. Up until her detection in 2010, she had not been seen since her release.



The release of the sturgeon named Anna in 2007. Anna was located by her telemetry device to return to the spawning grounds surrounding Vanderhoof in 2010!

Egg Mat Program

Egg mats are metal structures with coarse filter material attached to them. They are designed to lay flat on the bottom of the river. The coarse filter material provides a surface area with a high potential of intercepting a drifting egg, which are typically sticky. Normally 30-50 or more egg mats are deployed in the spawning reach. The timing and locations of their deployment are informed by the radio telemetry program and the locations where eggs have been found, or where spawning fish have been seen to be holding in past years. The egg mats are checked on a four to two day rotation all depending on the presence of sturgeon in the spawning reach.

Project Updates for 2010-2011

Egg Mats Continued

The Egg mat portion of the spawn monitoring overlapped the telemetry portion of the project, which ensures that the sturgeon are near their spawning grounds before egg mats are deployed. Egg mats were placed in a number of key locations in the Nechako River's known spawning reach to monitor any spawning occurring during May and June. We placed up to 25 sets of mats in the river, each set having two mats attached to a buoy line.



We recorded the time, location, number of eggs found and condition of the mat. This year we found two eggs on a set of mats below the Vanderhoof Bridge. Mats were first set May 16, and were pulled out on June 22, 2010. The first egg was collected on May 25. Finding eggs confirms that spawning occurred and provides information regarding the timing and location of spawning.

Neil Heron, checking egg mats.

Drift Net Program

After egg mats were placed in the river and eggs were detected a drift netting program was conducted to catch sturgeon larvae emerging from spawning locations (near where eggs were detected). Hatch occurs in about two weeks (depending on temperature) after eggs are deposited. Very fine mesh funnel-like nets were deployed in three locations, approximately 100 meters below the Vanderhoof Bridge. The drift nets were put in the river (May 31) following the time line of potential spawning events. The nets were set and anchored in the river for two hours at a time and we completed two to three sets a day. This was repeated six times over a ten day period (May 31 - June 9, 2010). No sturgeon larvae were caught.



Sturgeon larvae. Photo: Steve McAdam, BC MoE.

Spawn monitoring efforts in 2010 were conducted on a very tight budget, however, we were largely successful in continuing to build on the information related to the spawning characteristics of the Nechako white sturgeon.

Project Updates for 2010-2011

Spawning Habitat Manipulation Gravel Placement Project

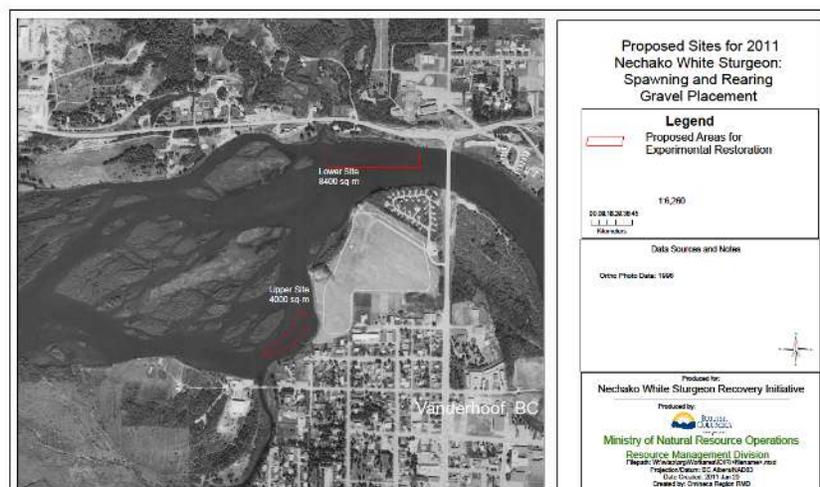
Project Lead: Ministry of Environment

Funders: Fisheries and Oceans Canada *via* SARCEP \$54,900; Rio Tinto Alcan \$55,200; Ministry of Environment \$18,000

Year: 1 and ongoing

The Nechako white sturgeon population has not produced an adequate numbers of juveniles since about 1967. The NWSRI believes that spawning success may be impaired by an excess of fine sediments that have accumulated in present substrates of the known spawning areas at Vanderhoof BC. White sturgeon spawn by broadcasting their eggs over coarse river substrate. Eggs and larvae are thought to occupy the spaces in the substrate until the end of the larval hiding phase (20-25 days after spawning) to reduce predation. The addition of clean substrate is therefore planned, as part of the research into the cause of spawning failure, and to develop rehabilitation measures. The spawning habitat gravel placement project will place two pads of cleaned and sorted gravel in two sections on the bed of the Nechako River near Vanderhoof, BC. The objective of the gravel pad placements will be to serve as temporary spawning, incubation and rearing platforms for the endangered Nechako White Sturgeon. Upon completion these gravel pads will be monitored by the NWSRI to evaluate white sturgeon spawning, egg incubation and early larval rearing success (biological monitoring) as well as sediment infilling rates (physical monitoring).

The project was not able to be carried out this spring as originally planned due to planning and approvals still being obtained. Water Act and Transport Canada for Navigable Waters approvals were obtained for this project in late 2010 and early 2011. An open competitive bid process was initiated for the gravel placement project in February 2011. Our initial budget was insufficient to cover costs in the successful proposal. Rio Tinto Alcan stepped forward to contribute additional funds to allow the project to proceed in addition to purchasing 2,100 m³ of gravel that is being stockpiled in Vanderhoof awaiting placement in early spring 2011.



Project Updates for 2010-2011

Effects of River Substrates on Larval White Sturgeon Behaviour

Project Lead: Ministry of Environment, University of British Columbia

Funders: This project was funded using carryover from last year

Year: 4 and ongoing

Investigations of the role of substrate in the recruitment failure of Nechako River white sturgeon have been ongoing since 2004. As part of that work recent findings have identified that substrate condition, and in particular the spaces present within gravel substrates, may play an important role in the survival and development of larval white sturgeon.

During 2010 further investigations of the effects of both substrate condition and temperature on larval development were conducted by Marcus Boucher as part of his M.Sc. research project at the University of Northern BC. In 2010, more detailed investigations of the physiological mechanisms of this response were conducted. These studies examined the effects of substrate conditions on the stress response of larval sturgeon and also provided detailed insights into why larvae show greater growth when reared in the presence of gravel. The results of this research project will benefit both hatchery and habitat programs by providing further investigations into determining which rearing conditions could provide improved growth and survival. Marcus aims to defend his thesis in the 2011-12 fiscal year.



Development of white sturgeon larvae subjected to different substrate and temperature conditions. Photo: Marcus Boucher.

Community Education, Outreach & Harm Reduction Programs for 2010-11

Elementary and High School Presentation in the Nechako River Watershed

Project Lead: NWSRI Community Working Group

Funders: Habitat Stewardship Program \$10,000, Resources North Association \$2,500; Carrier Sekani Tribal Council \$5,120 In-Kind

Year: 6 and ongoing

"Increase[d] stakeholder and general public awareness of white sturgeon and its conservation needs" is a Primary Priority in the draft SARA Recovery Strategy for White Sturgeon (May 2007, Draft Section 11 Approaches to Meeting Recovery Objectives). We delivered 12 school presentations to 7 schools within the Nechako watershed reaching >175 students (class size ranged from 15-25 students per class):

- W.L. McLeod Elementary School located in Vanderhoof BC. Completed to all Grade 4 and 5 students (Feb. 18, 2011).
- Nak'albun Elementary School (Nakazdli) located in Fort St. James, BC. (March 1, 2011).
- Tlazt'en Elementary located in Tlazt'en First Nation Community, BC. (March 9, 2011). (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. (March 10, 2011). Presented to two classes of science students.
- Fraser Lake Elementary and High School (March 11, 2011). Three presentations total - one was to a grade 10 science class.
- Nechako Valley Secondary School in Vanderhoof, BC (March 17, 2011) two presentations.
- Takla lake First Nation Community (March 17, 2011)

The presentations were targeted towards Grades 4 and 5 elementary school children and Grade 10 high school students. We designed the presentations to increase awareness regarding the decline of the Nechako white sturgeon population, habitat loss, and recovery activities in hopes that these children will grow up to be our future white sturgeon ambassadors and promote stewardship of sturgeon within their communities. Cora McIntosh delivered the majority of the presentations and is a member of the Saik'uz First Nation Band, which is one of the five Bands within the NWSRI's target white sturgeon areas.



Outreach and Harm Reduction Programs, 2010-2011

First Nations Outreach (harm reduction brochure and poster)

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

Funders: Habitat Stewardship Program \$6,750; Carrier Sekani Tribal Council \$500 in-kind; NWSRI CWG \$500 in-kind

Year: 1 complete

We produced a First Nation targeted brochure that includes Dakelh (Carrier First Nation language). This brochure will be distributed during the 2011 salmon fishery because this fishery is known to result in the by-catch of mature, breeding sturgeon. Reducing anthropogenic harm and mortality is identified as a Priority 1 Activity: Reducing by-capture, harm and mortality of individuals of the endangered population (Draft Recovery Plan). The educational components within the brochure also increase all stakeholders awareness of the conservation needs of sturgeon and the Recovery Initiative. Communicating the need to avoid harm to sturgeon for the foreseeable future is necessary to decrease incidental mortalities of sturgeon.



The brochure is 12" x 9" folded to a finished size of 4" wide by 9" high

We also aided CSTC in completing a White Sturgeon Poster aimed at First Nation communities and including some Carrier First Nation language (Dakelh). The poster is directed at increasing stakeholder knowledge of the initiative and reducing direct anthropogenic harm and mortality to sturgeon. The poster identifies the problems facing the Nechako white sturgeon and outlines the conservation goals of the initiative. A copy of the poster can be found on page 6 of this report. We also finalized our CWG Communications Plan which is available for download from our website (www.nechakowhitesturgeon.org).

Outreach and Harm Reduction Programs, 2010-2011

By-Catch Monitor

Project Lead: Carrier Sekani Tribal Council

Funders: Fisheries and Oceans Canada \$3,713; Carrier Sekani Tribal Council \$5,120 In-Kind; NWSRI CWG \$4,250 In-Kind

Year: 4 and ongoing

Although funding for a by-catch monitor was not secured for this fiscal discussions with the 2009-10 by-catch monitor and community catch monitors revealed that some of the sturgeon caught as by-catch in the First Nation Food, Social and Ceremonial (FSC) fishery were not being released alive. The monitors reported that the FSC gill net salmon fishery was inadvertently targeting sturgeon in the 1-2.5 meter range and therefore harming the most reproductively viable portion of the population. When we enquired as to why sturgeon were not being live released we were most commonly told that the fisher families did not know how to live release sturgeon, or that they did not have the tools necessary to live release, or they did not want to damage their nets, which can be associated with live releases if the sturgeon has to be cut out of the net. Based on this information and our Communications Plan the NWSRI set out to examine innovative ways to effectively reduce sturgeon by-catch. The result was the Emergency Sturgeon Release Boat Kit which contains all the tools the monitors, CSTC and the NWSRI CWG deem as necessary for the live release of a sturgeon caught in a gill net while also being small enough to remain in the boat at all times. The objective of the Boat Kit program is to provide the knowledge and the tools necessary for an immediate reduction in the harm and deaths of sturgeon in the Nechako-Stuart-Takla system as a result of the gill net salmon fishery by promoting stewardship at the individual and community levels. Funding for the materials provided in the kits was supplied by Fisheries and Oceans Canada. The program is currently under development and the NWSRI hopes to have it in place in time for next year's (2011) gill net salmon fishery. Reducing by-capture and potential sturgeon mortalities will assist in the maintenance of the population, maintaining genetic viability, and increasing the potential for its recovery.



Cora McIntosh, 2009 by-catch monitor and Saik'uz First Nation Councilor, with Gerald Mole, Saik'uz First Nation member, pulling gill nets set for the FSC fishery.

Outreach and Harm Reduction Programs, 2010-2011

River's Day in Vanderhoof

Project Lead: Community Working Group

Funders: District of Vanderhoof \$5,000; Integris Credit Union \$1,000; NWSRI Community Working Group \$2,600 in-kind; Carrier Sekani Tribal Council \$1,000 in-kind

Year: 1 and ongoing

Due to funding restraints and the lack of a hatchery we did not have any juvenile sturgeon to release this year, however, we still wanted to celebrate sturgeon and keep the plight of the sturgeon in the minds of the community. This year the Nechako White Sturgeon Recovery Initiative hosted the first ever BC River's Day celebration to be held in Vanderhoof at Riverside Park. Riverside Park is adjacent to the only known Nechako white sturgeon spawning grounds. Approximately 125 people visited the NWSRI display booth which we used as an opportunity to increase awareness regarding the decline of the Nechako white sturgeon population, habitat loss, and recovery activities. The NWSRI sends our sincere appreciation to our funders and also volunteer artist Annerose for making a truly amazing paper mache sturgeon that children painted throughout the day. We also used the funds to purchase NWSRI outreach material which allows us to keep our cause visible to the public throughout the year wherever our logo is worn.



Artist Annerose, assists children in painting a paper mache white sturgeon at River's Day, 2010.

NWSRI Management & Conservation Goals

NWSRI Coordination and Data Management

Project Lead: Lana Ciarniello—NWSRI Coordinator

Funders: Department of Fisheries and Oceans via SARCEP \$18,500

Year: 10 and ongoing

Due to a lack of funding the NWSRI was not able to support a coordinator position until the end of August 2010 (funded \$18,500 of \$30,000 requested). In August 2010 a new Recovery Coordinator, Lana Ciarniello, PhD, RPBio., was hired replacing Carla Wainwright who served as the NWSRI coordinator for the last 9 years. Carla moved along to pursue her yoga and homeopathy careers but remained to act as back-up during the transition period. We wish Carla the best of success with her new careers!

The Nechako White Sturgeon Recovery Initiative Coordinator ensures that all aspects of NWSRI technical and community outreach projects are carried out with effective coordination and communication within the NWSRI and with sturgeon stakeholders. She works cooperatively and with the involvement of NWSRI members by providing coordination between and within working groups as well as providing 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 project proposal development and Terms of Reference for projects; assistance in the development of funding proposals; assistance in the development of outreach materials, such as brochures and posters, 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.

This year we continued to deliver factual information in as many forms as possible to keep the plight of sturgeon in the mind of stakeholders and to decrease white sturgeon by-catch associated with the First Nation's fisheries. The by-catch and catch monitors reported that sturgeon were being incidentally caught during the First Nation Food, Social and Ceremonial salmon fishery so this winter's funding proposals focused on developing an Emergency Sturgeon Release Boat Kit which we aim to be operational by next year's fishing season. Our immediate goal is to maintain the number of breeding adults by reducing by-catch, increasing releases of live sturgeon, and promoting the stewardship of sturgeon.

Lana Ciarniello, NWSRI Recovery Coordinator, with a Nechako white sturgeon. As normal, this fish was released after data were gathered and tags applied.



NWSRI Management & Conservation Goals

NWSRI MS Access Database Upgrades

Project Lead: Ministry of Environment

Funders: Department of Fisheries and Oceans \$4,000 via SARCEP

Year: 1 and complete

The Nechako White Sturgeon Database was updated to include all of the sampling, biological, tagging and radio telemetry data collected during the 2010 projects. A major review of the MS Access database was undertaken to improve the database which also allows us to work effectively with partners on new projects. Sampling, biological and telemetry data were checked and the most up-to-date river kilometer locations based on on-site GPS locations were applied. Data entry rules were developed and incorporated into the database that immediately flag potential errors at the time the data is being entered. Data entry forms for sampling, biological and telemetry data were also updated to ensure the continuation of high data quality.

New fields were added to data tables to incorporate certain types of data that were not being collected when the database was first constructed, for example the telemetry table was updated to include acoustic radio tag data. Edits were made to existing data queries and new queries were built to facilitate extraction of specific datasets from the database. Reports, detailing previous capture and tagging events, were updated to facilitate ease of use when in the field. The database was updated by Jessica Courtier of the British Columbia Conservation Foundation.

Capture Locati...	Method	Personnel	River Kilometre	Channel Location	Set Date
1	Setline (Med)	CW MK RE	122.4	R	2006-05-09
6	Setline (Short)	CW RE MK	125.6	L	2006-05-09
8	Setline (Med)	CW RE MK	124.9	R	2006-05-09
10	Setline (Med)	CW RE MK	125.4		2006-05-09
11	Setline (Med)	CW MK RE JB	122.4		2006-05-10
12	Setline (Short)	CW RE RM	126.8		2006-05-10
13	Setline (Short)	CW RE RM	124.9		2006-05-10
14	Setline (Med)	CW JT D	122.4	M	2006-05-11
15	Setline (Short)	CW JT D	124.9		2006-05-11

The Nechako White Sturgeon's new database forms in MS Access



Jessica Courtier, BCCF, with a conservation fish culture program (hatchery) recapture. This fish was released in 2006 and recaptured in 2010!

NWSRI Management & Conservation Goals

Conservation Fish Culture: Construct and Operate a Permanent Production Facility

Project Lead: Freshwater Fisheries Society of BC

Funders: Funding applications were not successful; Program Not Funded

Year: 1 of 25

In 2010 a proposal for funding to build a new state-of-the-art fully Recirculating Aquaculture System rearing facility was submitted to the Western Diversification (WD) under the Western Economic Partnership Agreement. The FFSBC partners in the proposal were formed from all aspects of the community: First Nations, the District of Vanderhoof, the University of Northern British Columbia, the College of New Caledonia, Rio Tinto Alcan, various fish and wildlife organizations, the School District and many other community interest groups.

The structure of the application is to use dedicated funds from the Province for the express purpose of construction of a recovery facility and have WD match these funds. The District of Vanderhoof has donated the one acre site above the floodplain of the Nechako River and will be responsible for site preparation and utility access. Operational funding is to be a new funding model coordinated by the Province and to include various partners from within the project. The FFSBC is to operate the facility with the local support.

WD has accepted the proposal and it has progressed to the due diligence stage of review. In this stage the capacity of the project team to deliver on the proposal is evaluated along with the various regulations that come into play with such a proposal. An environment assessment process has been initiated and will be considered by the review panel. Should the proposal be successful, construction of the facility would begin in the spring of 2011.

The Nechako White Sturgeon Recovery Facility has the primary purpose of assisting in the recovery of the Nechako sturgeon. Of major importance to the community is the creation for jobs through construction, material supply, local contracting, ongoing maintenance and skilled labour. The objective of the Facility is to be the hub of not only white sturgeon recovery and local employment, but to assist in watershed stewardship. The facility will provide space for fish culture, community education, research, equipment storage and a permanent place to continue exploring the intricacies of the Nechako watershed ecosystem.



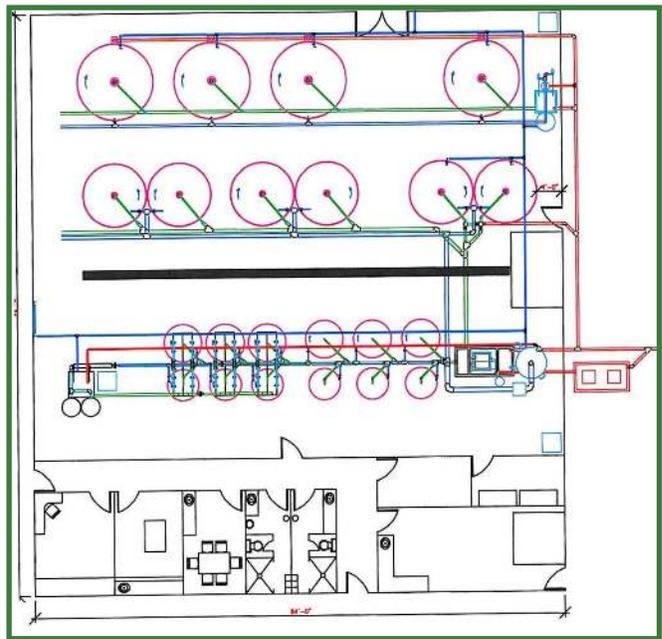
NWSRI Conservation Goal: Construct and Operate Facility

Conservation Fish Culture: Permanent Production Facility

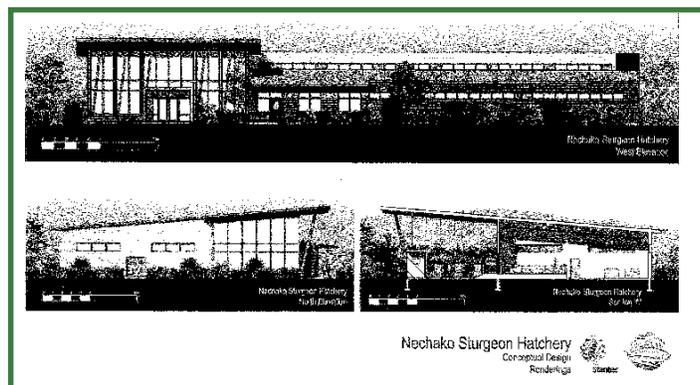
The facility itself is both a hatchery for eggs and larvae for return to the river and a nursery for juvenile sturgeon that are returned to the river in either the fall or the spring of the following year. The design was driven by the Nechako white sturgeon recovery plan and has the capacity to hold up to 20 broodstock fish for spawning. Up to 12 individual maternal families can be held separately until they are large enough to receive a PIT tag, be scute marked and returned to the river.

As a recirculating aquaculture system, the facility uses only a small amount of Nechako river water supplied through an infiltration gallery located near the river. Because the fish culture water is recirculated, only a small amount of river water - less than 5% of the total volume - is needed to service the culture tanks. This system solved a big problem of how not to divert river water, keep the unique chemical signature of the water, reduce pumping costs, ensure supply during the winter and limit water discharge.

The Technical Working Group is optimistic about the current proposal. This facility represents a turning point in the recovery initiative and will fuel employment and research opportunities for many years to come.



Schematic of the Recirculating Aquaculture System for the proposed Nechako White Sturgeon Hatchery.



Conceptual design rendering for the proposed Nechako White Sturgeon Hatchery in Vanderhoof. (Courtesy of Stantec)

Financial Summary for 2010-2011

During the 2010-2011 fiscal year, project funding was \$321,282 (\$267,886 and \$53,396 in-kind) which is \$149,847 less than last year’s budget and \$650,510 less than the 2008-09 budget. Financial and In-Kind contributions increased from 2006-07 to 2008-09 but have severely declined for the last two fiscal years (Figure 1). Project dollars came from a variety of sources including industry, government, environmental funding sources, and volunteer hours. The following is a breakdown of both financial and in-kind contributions to the NWSRI for 2010-2011:

BC Ministry of Environment (MOE)
\$19,550 and \$23,360 In-Kind

Carrier Sekani Tribal Council
\$22,290 In-Kind & \$82,153 from:

Aboriginal Fisheries Strategy –
\$10,060

Aboriginal Fund for Species at Risk – \$62,450

Prince George Nechako Aboriginal Employment and Training Agency – \$9,643

Donations and Sales—\$120

District of Vanderhoof - \$5,000

Fisheries and Oceans Canada –
\$3,713 and \$896 in-kind

Fisheries and Oceans Canada via Species at Risk Committee (SARCEP) - \$77,400

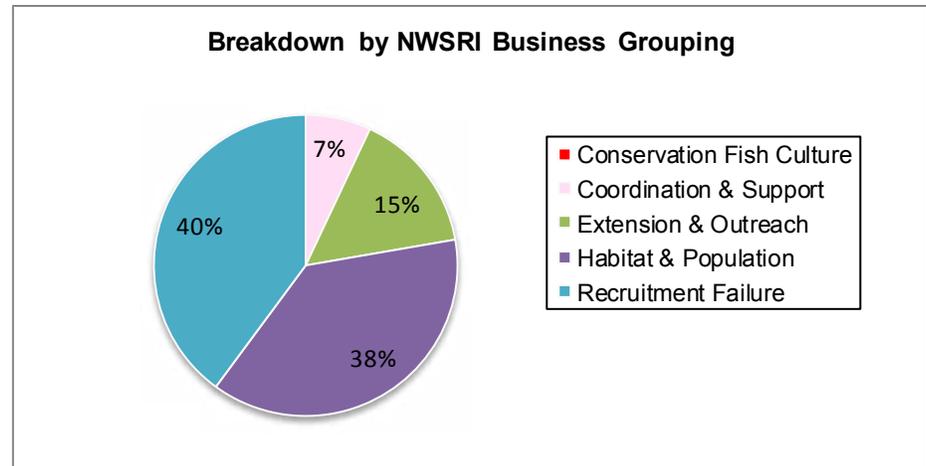
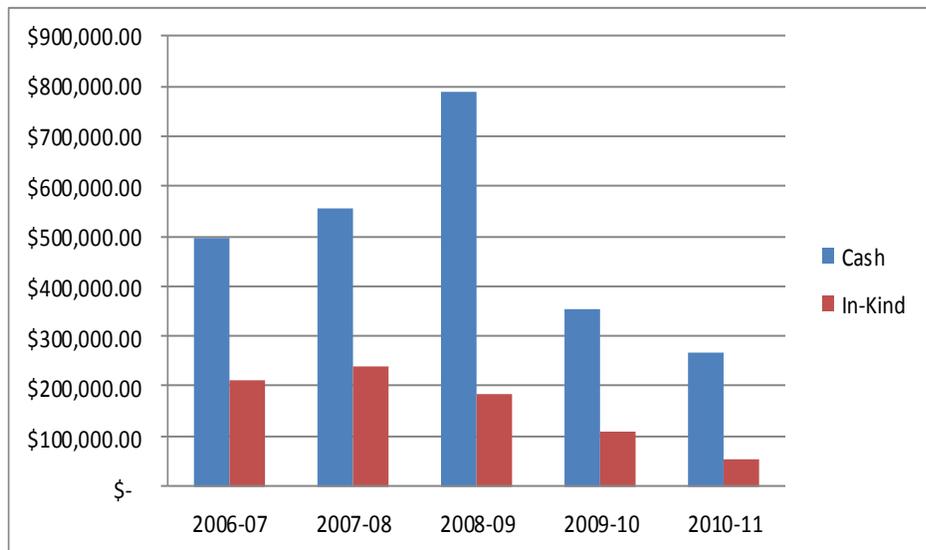
Habitat Stewardship Program –
\$16,750

Integris Credit Union – \$1,000

NWSRI Community and Technical Working Groups - \$500 and \$6,850 In-Kind

Resources North Association – \$2,500

Rio Tinto Alcan Inc. – \$59,200



The NWSRI would like to extend 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 organizations:

- Carrier Sekani Tribal Council
- Freshwater Fisheries Society of BC
- BC Ministry of Environment
- Marcus Boucher, UBC
- Ty Roberts, CNC
- Nechako White Sturgeon Recovery Initiative



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