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**Working towards harm reducing and  
selective fishing methodologies for  
Carrier First Nations within the  
Nechako River watershed**



***Carrier Sekani Tribal Council***

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Prepared Through Funding Assistance From The:



**2004/05 Habitat Stewardship Program**



*Canadian Wildlife Service*

Prepared By The:



**Carrier Sekani Tribal Council**

**2<sup>nd</sup> Floor, 1460 Sixth Ave.  
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**March 2005**



**Prepared in Partnership with the Nechako White Sturgeon Recovery Initiative**

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### **CSTC Overview**

The Carrier Sekani Tribal Council (CSTC) is an administrative, political and technical organization representing and supporting its' 8 affiliated member First Nation Communities. These include the communities of the Saik'uz First Nation, Nakazdli First Nation, Tl'azt'en First Nation, Nadleh First Nation, Burns Lake Band, Stelat'en First Nation, Takla Lake First Nation, and Wet'suwet'en First Nation. The Carrier Sekani Tribal Council's office is based in Prince George. With the exception of the Wet'suwet'en First Nation, all CSTC communities are situated within the Nechako River watershed. The Carrier Sekani Tribal Council is mandated to work to:

- Preserve and promote the Carrier & Sekani heritage and identity
- Improve the social and economic independence of Carrier & Sekani people
- Achieve a just resolution of land claims and aboriginal rights issues for Carrier & Sekani people
- Promote better understanding between First Nations people and the general public
- Advance and improve the standard of living of the Carrier & Sekani people
- Promote self-government for Carrier & Sekani people

We are governed by a Board of Directors who are the Chief Councilors from each member First Nation. We are led by an elected Tribal Chief and Vice-Tribal Chief. Our operations are carried out by a professional staff of 26 full-time personnel. Our objective is to help our Member Nations achieve self-reliance through the delivery of support services in the following areas; economic development, financial management, first nation community management and planning, technical services, education, and natural resources. We also assist our Member Nations in their collective effort to secure their rights to their traditional lands and resources. To further the work we do, we maintain political affiliations with the Assembly of First Nations and the First Nations Summit.

The Carrier and Sekani First Nations that occupy the area of the Nechako basin have historically utilized a diverse range of both resident and anadromous fisheries resources, including the white sturgeon, for a sustenance and economic base. Today however, very few sturgeon are harvested from the Nechako system, and those that are harvested are the result of by-capture during sockeye salmon or char gillnet fisheries. However, white sturgeon continue to be important to the Carrier

people, both as a cultural symbol and as an environmental indicator. The Carrier peoples' past and continued reliance on the natural environment surrounding them brings with it an inherent desire to contribute to the conservation and health of this environment and all species that contribute to its' diversity.

In addition to their inherent cultural linkage to these resources, the Carrier and Sekani First Nations possess Constitutionally Protected Rights to harvest and utilize (at their will) the fisheries resources of their Territories for Food, Social and Ceremonial (FSC) purposes. These Rights supercede all other uses of the resource with the exception of conservation. It should be plainly evident why Nechako basin First Nations are playing a major role in this and other stewardship and conservation-based initiatives... they have the most to lose.

### **Acknowledgements**

This work was funded through the Habitat Stewardship Program for Species at Risk (HSP) through Environment Canada's Canadian Wildlife Service. Without their support this work would not have been possible. Alan Charbonneau, A/Resource Mgr., Fisheries and Oceans Canada, B.C. Interior North, and Lisa De Goes, Regional Coordinator, Stewardship and Community Involvement, Habitat & Enhancement Branch, Fisheries and Oceans Canada (Vancouver B.C.) administered funding between HSP and the Carrier Sekani Tribal Council (CSTC). Margo French (CSTC Community Liaison), Jason Yarmish (Special Projects Biologist), Brian Toth (CSTC Fisheries Program Biologist) and Sharolise Baker (Fisheries Program Manager) all contributed to the materials developed for outreach purposes and participated in project delivery. CSTC Community Fisheries Liaisons (CLs) and Catch Monitors (CMs) [Betty-Lynn French (Takla CL & CM), Violet Kennedy (Stellat'en CL & CM), Ryan Tibbitts (Burns Lake Band CL & CM), Reg Ogen (Wetsuweten CL & CM), Robert (Bob) Antoine (Nakazdli CL) and Sandra Joseph (Nakazdli CM)] provided assistance in organizing community forums and were the central to promoting harm reduction. Assistance from other individuals in CSTC communities [Jim Webb (Tl'azt'en Fisheries Program Manager), Scott McIntosh (Saik'uz), Ricky Nooskie (Nadleh)], who assisted with the collection of information with respect to fisher/sturgeon interactions was appreciated. The Action Planning Group and Recovery Team of the Nechako White Sturgeon Recovery Initiative provided various sources of in kind support to this project. The assistance and participation of all of those who made this important endeavor a success is appreciated.

## **Executive Summary**

From May 2004 to March 2005 a technician from the Carrier Sekani Tribal Council, with the assistance of other technical personnel as required, has conducted numerous outreach meetings with First Nations communities situated within the Nechako basin. The focus of these sessions has been the distribution of information to these communities, and specifically First Nations fishers, regarding the status and plight of the Nechako sturgeon, the ongoing recovery initiative activities, and the role First Nations are playing within this process. Tools were developed and applied during these sessions to directly and indirectly facilitate fishing methods that would reduce the potential for harming sturgeon. Further, the initial stages of assessing the feasibility of a transition from existing non-selective gillnet fisheries for sockeye towards more selective means was initiated. This included assessments of community desire, site-methodology suitability, and related logistical considerations.

White sturgeon within the Nechako watershed have been identified as a genetically unique stock. Further, it has been documented that this stock has been suffering from a severe recruitment failure since the 1960s, which has resulted in a rapidly diminishing population of nearly exclusively older fish. The stock and all other white sturgeon have been designated as Endangered by the COSEWIC and may potentially be added to Schedule 1 of the Species at Risk Act in the near future. One of the remaining direct sources of human-caused mortality on the Nechako stock are non-selective First Nations Food, Social and Ceremonial (FSC) gillnet fisheries for sockeye salmon. Reducing the remaining direct sources of mortality on this stock was identified as a Priority 1 activity within the recovery plan developed for this population.

Activities undertaken in 2004 have been largely successful in furthering communication between the CSTC and its member and non-member communities within the Nechako watershed regarding the plight of the Nechako sturgeon. As well, as evidenced by only a single reported FSC-sturgeon mortality in 2004, there appears to have been a reduction in the number of sturgeon mortalities from previous years, based on anecdotal reporting. There appears to be support for the development of selective means of sockeye harvesting, and preliminary investigations and a single trial indicate there are a number of sites that could be suitable for such an initiative. Recommendations for further outreach-related work and harm-reducing selective fishery development have been developed.



## **Introduction**

Originating from the eastern aspect of the Coastal Mountains in Tweedsmuir Provincial Park, the Nechako River flows east to Prince George where it joins the Fraser. An earthen-fill dam (Kenny Dam) was erected on the system in the 1950s, significantly altering aspects of the Nechako's flow patterns. The Stuart watershed is the largest tributary to the Nechako River, with a watershed area of approximately 15,600km<sup>2</sup>, and is unregulated. Biogeoclimatic zones within the basin area are dominated by Sub-Boreal Spruce (SBS) in southern portions and Engelmann Spruce Sub-Alpine Fir (ESSF) in northern areas (Hickey et al. 1997).

The streams and lakes of this system support a diverse array of resident and anadromous fish stocks including coho (*Oncorhynchus kisutch* - Endangered Interior Fraser stock), sockeye (*Oncorhynchus nerka*), chinook (*Oncorhynchus tshawytscha*), rainbow trout (*Oncorhynchus mykiss*), bull trout/char (*Salvelinus confluentus*), lake trout/char (*Salvelinus namayucush*), lake whitefish (*Coregonus clupeaformis*), mountain whitefish (*Prosopium williamsoni*), burbot (*Lota lota*), kokanee (*Oncorhynchus nerka*), and white sturgeon (*Acipenser transmontanus*), as well an array of non-sport fish species.

First Nation communities that occur within the Nechako basin or possess Territories that are comprised of a portion of the area include the Lheidli T'enneh, Yekooche, Saikuz, Nak'azdli, Tl'azt'en, Takla, Stelat'en, Wet'suwet'en and Burns Lake First Nations. Of these, the latter 7 are members of the Carrier Sekani Tribal Council based in Prince George. The Skin Tyee, Cheslatta and Nee-Tahi-Buhn First Nations also occur within this watershed.

Industrial development within the basin is dominated by agriculture and forestry, with development occurring throughout the vast majority of the watersheds that drain into the basin (Hickey et al. 1997). Additionally, the area is heavily utilized by B.C residents for the purposes of recreational angling and hunting. The First Nations within the basin rely heavily upon the fish, including resident and anadromous stocks, and wildlife of the area for sustenance purposes.

Until approximately 1910, First Nation's within the Nechako watershed utilized an intricate system of weirs to selectively harvest returning sockeye salmon

and other fish species. The success of this system of selective terminal harvest is evident in its historical support of human populations that were far in excess of what presently reside in the central interior, as well as its support of an extensive trade system that spanned the entire province. The sustainability of this system is evident in its establishment for thousands of years. Early in the to 20<sup>th</sup> century, this weir system, thought to be a detriment to the mixed stock commercial fishery being established on the coast, was outlawed and First Nations were subsequently ordered to utilize gillnets as a means of harvesting. This decision continues to have consequences for fisheries resources throughout B.C.

## **Background**

The white sturgeon within the Nechako River have been assessed over the last several decades (Dixon 1986; RL&L 1996, 1997, 1998, 1999 & 2000a). Works by Dixon (1986) and subsequent investigations into the Nechako white sturgeon populations by RL&L Environmental Services (*now* Golder Associates Ltd.) between 1995 and 1999 identified a number of issues with regards to this population, the most remarkable of which was the fact that the population had been receiving negligible levels of juvenile recruitment for several decades (RL&L 2000b). Similar white sturgeon assessment work conducted throughout the Fraser River watershed over the same general time period resulted in the identification of at least four genetically distinct stock groupings that reside within geographically bounded portions of the watershed, including the lower, middle, and upper Fraser, and Nechako (Nelson et al. 1999; Pollard 2000; Smith et al. 2002).

Subsequent to the conclusion of RL&L's work on the Nechako in 1999, the Ministry of Environment, Lands and Parks (*now* Ministry of Water, Land and Air Protection-MoWLAP) initiated a recovery planning process for the Nechako sturgeon stock. This *Nechako White Sturgeon Recovery Initiative* (NWSRI) parallels similar recovery planning processes implemented on the Columbia and Kootenay rivers, where sturgeon populations within these regulated systems have also experienced recruitment failures (Golder 2003). The NWSRI Recovery Team produced a Recovery Plan for the Nechako White Sturgeon (Golder 2003).

The population of white sturgeon within the Nechako are presently "red listed" or considered "critically imperiled" by the BC CDC (2002), inferring that this unique stock is facing imminent extirpation without intervention. More

recently, the Committee On the Status of Endangered Wildlife In Canada (COSEWIC) has designated all white sturgeon populations within Canada as Endangered. This “listing,” if accepted by the Canada’s Minister of Environment, may lead to white sturgeon being added to Schedule 1 of the Species At Risk Act (SARA). SARA includes components that may result in forced alterations to the manner in which activities in and about a stream are managed. This will include First Nations activities, including the Right to conduct fishing activities.

In 2000 it was estimated that the Nechako sturgeon population would approach an overall mean age and size (i.e. numbers) whereby, due to diminishing reproductive potential and effective population size, the recovery of the stock would not be possible by 2020. This analysis did not consider what is now known to be the additional substantial mortalities incurred in the First Nations food fishery. As well, First Nations’ food fishing nets target sturgeon in the 1-2.5 meter range (large fish tear their way out of the nets) and are therefore harming the most reproductively viable portion of the population.

### **Purpose**

By-catch and mortality of white sturgeon during First Nation’s gillnet fisheries for sockeye salmon and resident species is the remaining direct anthropogenic source of mortality on the Nechako population. This project was intended to work towards reducing by-catch of non-target<sup>1</sup> species, primarily white sturgeon, and related sources of mortality on white sturgeon within the Nechako drainage. Reducing by-capture and potential sturgeon mortalities will assist in the maintenance of the most important portion of this Endangered population, and increase the potential of its eventual recovery.

One of the “Priority 1” Recovery Activities identified within the recovery plan for the Nechako sturgeon is to “protect existing sturgeon stock using available regulatory mechanisms and planning processes.” The education of First Nation fishers with respect to the safe release of sturgeon was identified as an action to be continued. As well, the CSTC recognizes that the existing gillnet-based food fishery inherently holds some threat to the stock, and there is a desire to reduce that threat.

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<sup>1</sup> Nechako First Nations, as well as all Fraser First Nations, have voluntarily complied with a 1994 “agreement” to not direct harvest effort on white sturgeon, and to release incidentally captured white sturgeon when possible.

## **Objectives**

The broad objectives of this project entailed outreach-education with First Nation fishers regarding the plight of the Nechako sturgeon, the Nechako White Sturgeon Recovery Initiative, the impact of First Nation fisheries on this stock and available methods of harm reduction and selective fishing. More refined objectives of the work were as follows:

1. Reduce and eventually eliminate mortality of white sturgeon resulting from First Nations gillnet fisheries.
2. Ensure all desirable information possible is collected from white sturgeon (released and harvested) during First Nations fisheries in the Nechako watershed.
3. Monitor the impact of the food fishery on the sturgeon population.
4. Assess the plausibility and feasibility of developing completely selective food fishing mechanisms (i.e. community desire and/or acceptance, plausible methodologies, site locations, logistics).

## **Activities**

Core activities that were implemented in relation to the objectives above included the following:

1. Development of a power point presentation for delivery to First Nation communities explaining and describing the plight of the Nechako white sturgeon and the ongoing recovery process.
2. Delivery of the presentation to each community on several occasions (Nadleh, Nak'azdli, Saikuz, TI'az'ten, Takla, Yekooche, Stellako).
3. Providing fishers with actions/mechanisms to reduce harm to by-captured sturgeon when gill netting.
4. Development of protocols with fishers and individual community catch monitors to record specific information regarding sturgeon encounters and mortalities and having the information reported back to the CSTC fisheries program.

5. Providing community catch monitors with required materials and training to collect relevant information from any captured sturgeon.
6. Conducted periodic outreach visits to First Nation communities to assess fishing activity throughout season (May-October).
7. Assessed the feasibility and plausibility of implementing completely selective sockeye food fishing methodologies within each community's territory.
8. Completion of this report summarizing activities and results and recommendations for further work.

### **Project Results**

It was intended that this proposed initiative would work to reduce by-catch of non-target species, such as white sturgeon, within the Nechako drainage through four primary means:

1. Educating First Nation fishers regarding the plight of the Nechako sturgeon
2. Disseminating the objectives and activities of the Nechako White Sturgeon Recovery Initiative, and First Nations role in the initiative
3. Highlighting the potential impact of First Nation fisheries on this stock
4. Describing available methods of harm reduction and selective fishing

To these ends, appropriate informational/educational materials were developed, and several outreach sessions were held.

### **Materials**

Activities related to this initiative were initiated in May of 2004 and continued into March of 2005. The presentation (Power Point) developed for the purposes of the outreach component of this work is provided in Appendix 1. Further, general informational handouts for distribution in communities were developed, information kits for community catch monitors were assembled and posters describing the purposes of the outreach work were prepared (Appendices 2, 3 and 4 respectively). Ensuing discussions following outreach presentations included the description of procedures for freeing captured sturgeon from gillnets in the most harmless manner, and other aspects of fishing activities that can be altered to reduce the potential for sturgeon by-catch and harm.

## Outreach Activities

Outreach activities were initiated in May of 2004 and continued until the time of the writing of this report. They included the presentation of the Power Point Presentation developed specifically for this program and the distribution and discussion of the other materials developed. Attempts were made to attend all functions where the target First Nations audience would be in attendance and focus on opportunities with groups of fishers and youth. Meetings attended/outreach sessions are outlined in the table below.

Dates, locations and subject matter at outreach sessions attended.

<b>Date:</b>	<b>Place:</b>	<b>Attended By:</b>	<b>Purpose:</b>
May 26/04	Stellaquo BC	MF	Meeting with Community Liaison/Catch Monitor regarding sturgeon and other issues.
May 27/04	Nak'azdli BC	MF	Meeting with Community Liaison/Catch Monitor regarding sturgeon and coho.
May 31/04	Ft St James BC	MF	Bi Centennial day celebration; setup sturgeon display and information materials
June 23/24	Ft St James .BC	MF	Nak'azdli AGA; planning for setup of sturgeon display and information materials
June 25/04	Takla Landing BC	MF	Meeting with Community Liaison/Catch Monitor regarding sturgeon and sturgeon protocol.
July 6/04	Stellako	MF, JY	General community meeting and meeting with Community Liaison/Catch Monitor regarding sturgeon and sturgeon protocol.
July 7/04	Nakazdli FN	MF, JY	General community meeting and meeting with Community Liaison/Catch Monitor regarding sturgeon and sturgeon protocol.
July 8/04	Tlazten & Middle river	MF, JY	General community meeting and meeting with Community Liaison/Catch Monitor regarding sturgeon and sturgeon protocol.
July 13/04	Nadleh FN	MF, JY	General community meeting and meeting with Community Liaison/Catch Monitor regarding sturgeon and sturgeon protocol.
July 14/04	Nakazdli AGM	MF, JY	Setup of sturgeon display and distribution of information materials
Aug 5 & 6/04	Tlazten FN AGM	MF	Setup of sturgeon display and distribution of information materials, delivery of sturgeon ppt presentation
Aug 10 to 13/04	All Stuart/ Nechako First Nations groups	MF, SB, DFO staff	Community visits and updates/meetings with Community Liaisons and Catch Monitors
Aug 18 & 19/04	Takla First Nation	MF, BS	Updates/meetings with Community Liaisons and Catch Monitors
Aug 30 -Sep 01, 2004	Nadleh FN / Nautley River	SB & volunteers	Conducted selective seine fishery Total Fish sox caught: 744 Number of volunteers: 26 Fishing Hours: 21 Chinook released: 2

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Dates, locations and subject matter at outreach sessions attended.

<b>Date:</b>	<b>Place:</b>	<b>Attended By:</b>	<b>Purpose:</b>
Sept 13/04	Fort St James	MF	Planning for Bi-Centennial Day (2006) and inclusion of sturgeon-related display
Sept 15/04	Yekooche FN	MF	Community science fair; provided and occupied display materials on sturgeon
Sept 26/04	Prince George	MF, AG, BA	BC Rivers Day; provided display materials and occupied sturgeon information booth
Sept 29 to Oct 2/04	Middle River Camp	Sturgeon crew	Assistance to sturgeon sampling crew and discussions with Community Liaisons/Catch Monitors in Middle River and Takla.
Oct 15/04	Burns Lake BC	MF	Burns Lake FN AGM; delivery of sturgeon ppt presentation and related outreach discussion
Oct 21 & 22/04	Stellako River	MF, BS & crew	Assist Stellako crew with take down of sockeye fence and updates/meetings with Stellako/Nadleh Community Liaisons and Catch Monitors
Oct 25 to 27/04	Takla Lake	MF	Takla AGM; delivery of sturgeon ppt presentation and related outreach discussion
Nov 9/04	Prince George	CSTC Staff	PGNAETA (training funding agency); meeting to petition for further funding for outreach related training
Nov 15 to 19/04	Takla	MF	Communities of Takla and Bulkley House; Discussions with Community Liaisons/Catch Monitors in Middle River and Takla.
Jan 28/05	Moricetown	MF, & Elders	First Nation Elders gathering; delivery of sturgeon ppt presentation and related outreach discussion
Feb 3/05	Pr George	MF, BA	Delivery of sturgeon ppt presentation and related outreach discussion at College of New Caledonia.
Feb 11/05	Fort St James	MF, JP, PF	Visit to former SEP hatchery facility in Ft St James in relation to Nechako sturgeon culturing needs
Feb 17/05	Fort St James	MF, SB, KA	Nakazdli open forum meeting; facilitated outreach discussion; discussions with Community Liaisons/Catch Monitors in Nakazdli
Feb 23/05	Stellako	MF, BA	Meeting with School District 57 & 91 regarding permission to do ppt presentation and discussion in their schools
Feb 24/05	Pr George	MF, BA	Role models in Education & Natural Resources Program; delivery of sturgeon ppt presentation and related outreach discussion
Mar 9/05	Pr George	MF & BCRD Comm Members	BC Rivers Day for 2005; planning for inclusion and sturgeon display and outreach materials at next Rivers Day Celebration
Mar 14/05	Takla FN	MF and Comm members	Delivery of sturgeon ppt presentation and related outreach discussion
Mar 15/05	Nakazdli FN	MF and Comm members	Sturgeon Protocol discussion and ppt presentation

Dates, locations and subject matter at outreach sessions attended.

<b>Date:</b>	<b>Place:</b>	<b>Attended By:</b>	<b>Purpose:</b>
Mar 18/05	Vanderhoof	MF	Provincial Trappers AGA; Presentation of Power Point Presentation
Mar 30/05	Pr George	MF	Sturgeon Protocol ppt at the Aboriginal Youth Conference in Prince George
Apr 4 to 6/05	Pr George	MF, & CSTC Staff	All clans gathering & Youth Conference Sturgeon ppt on Apr 5/05

### **Reporting Protocol**

Attempts were made to establish reporting and communication protocols with Community Liaisons and Catch Monitors (sometimes the same individual within a community fulfills both roles) within each relevant First Nation community. This individual was provided with the “sampling package” and the biologist and/or technician attending provided a brief training session on the information required using the directions provided. Limited feedback was received via these means, but CSTC contact-staff were notified on several occasions throughout the summer/fall with respect to observations and concerns.

In general, feedback received in 2004 indicated that there was a single sturgeon captured in the vicinity of Nadleh, which had been captured in a gillnet targeting sockeye. The sturgeon subsequently died and was retained for food. Rudimentary measurements were collected prior to the processing of the fish, and tissue/DNA samples are presently being pursued. Further, an individual from the village of Takla provided a well documented sturgeon sighting observed while fishing for char (October). Others observations and encounters were also provided. In general the Catch Monitors indicated a “sense” that outreach efforts had been effective and individuals, while possibly hesitant to report sturgeon encounters, had become more cognizant of the dangers of leaving nets unattended and repetitively fishing areas where sturgeon were frequently captured, and they were therefore capturing and harming fewer sturgeon.

### **Selective Fishing**

As a portion of this project a preliminary assessment of the feasibility of establishing selective harvesting methodologies for First Nations food fisheries for sockeye stocks within the Nechako drainage was undertaken. This included informal questioning of community desire and/or acceptance of the prospect of pursuing communal-type selective methods. Discussions



included plausible methodologies, site locations, and logistics from historical and modern perspectives. In many cases, given the knowledge of the large-scale sockeye enumeration programs that are annually conducted within these areas many individuals could see the value in weir-type fisheries from a conservation and scientific perspective.

As part of the dialogue with people in the communities of Stellako, Nadleh, Nakazdli, Tlazten and Takla in the summer of 2004 regarding the conservation and protection of white sturgeon, the subject of (re) establishment of traditional weir-type fishing methodologies for sockeye salmon was broached. In all cases the response was favourable. On hand were photographs of weirs historically operated on the Nautley and Stuart rivers, and persons attending seemed encouraged by the idea of their re-establishment at the aforementioned locations. As well, there was a desire to re-establish selective fishing traps within the Tachie River outlet and potentially in the Takla region. The inherent benefits in the re-establishment of a culturally significant communal activity were immediately recognized. Also immediately understood were the benefits of weirs for their selectivity, both in the harvest of food fish and protection of endangered or threatened species such as sturgeon and bull trout. The weirs of the Nautley and Stuart rivers are well documented, and in discussions with the Tl'azt'en and Takla Nations, weirs and/or traps were common within their Territories as well. Records found within the Pacific Salmon Commission Library indicated the Federal Government, following establishment of the Barricade Treaties, destroyed weirs and traps within the Tachie River and Takla regions.

The various communities recognized that the construction and operation of these weirs was somewhat of a "lost art," and that funding and technical support would likely be required in order to re-establish this practice. Though discussed to some degree without any conclusion, ideas such as building materials (traditional versus modern), specific sites, operation and other logistics were touched on with varied responses. One note of caution; gillnetting is now well engrained within the communities, and any selective harvesting means must operate successfully in order for individuals to see the benefits.

A number of historical/potential sites for selectively harvesting sockeye were assessed via field visits in the summer of 2004. Issues related to potential site-suitability and logistical considerations were noted. As well, a single test

was conducted in the community of Nadleh (Nautley River) using a beach seine and community volunteers.

#### Stuart River – Selective Potential

The Stuart Lake outlet weir is by far the best documented within the Stuart watershed. In *Restoring Fraser River Salmon* (Roos, 1991), there are photographs of both the weir and associated traps in the wide, shallow outlet of the Stuart River. The weir appears to span the entire river, a distance which possibly exceeds 300m. The re-introduction of a weir at this location is possible, however, the Navigable Waters Act and large amounts of boat-traffic may pose large problems. That is not to say a partial weir couldn't be established or other options explored. The locations proximity to Fort St. James, the historic Fort, and the community of Nakazdli make it an ideal location for a functioning, "demonstration weir." The ability to access the site for both the purposes of construction and maintenance make it highly feasible. As the river is very wide at this location and buffered by Stuart Lake, water level and velocity fluctuations due to rain/melt events would be negligible. Woody debris at this location would be minimal in the summer months, and could likely be removed prior to becoming problematic. Water temperatures at this location could be potentially high during extended periods of high air temperature, as surface water temperatures on Stuart Lake can exceed 25°C during such occasions. Mixing in the river quickly decreases this to about 21°C within a relatively short distance from the outlet.

There are a wide range of benefits which could be achieved through the re-establishment of this weir. For the community of Nakazdli, this could re-introduce a well documented cultural activity and provide fishing opportunities not presently realized. As well, it could provide economic opportunities related to tourism and potentially through fish sales. In addition to eliminating sturgeon by-capture, there are a wide array of biological, research and conservation benefits that could also result from the establishment of this weir. Juvenile chinook are regularly encountered within the Stuart watershed as far upstream as the Takla Lake region, and coho have also been noted in the past, yet little is known of recent adult escapements, migration timing or spawning locations. A weir could allow for refinement of escapement estimates and migratory behaviour of sockeye, chinook and coho. Other threatened stocks such as bull trout could be avoided or released unharmed through the use of a weir at this location.

### Tachie River – Selective Potential

It is known that a salmon weir operated on the Tachie River in the past, and discussions with residents indicated it may have been operated at one of two different locations, both in the lower portion of the Tachie River. An additional possible location noted is at the confluence of Kuzkwa Creek in the upper Tachie River, where it is shallow enough to establish and operate a weir, and a community existed in the past. Logistically, the sediment fan created by the Tachie River inlet to Stuart Lake is the best location to construct a weir due to the presence of the Tl'azt'en community, the existing use of this area for fishing, and the presence of a boat launch, road access and the historical presence of a weir at this location. Due to its width and shallowness (summer depths less than 1m), water velocities are very low and variations in flow would have little impact at this location. The Tachie River is only 26km long and is buffered by Trembleur Lake. All of these factors minimize the risks of stream fluctuations due to unpredictable weather events, increases in flow and associated woody debris which may impede operations. Temperatures are significantly lower during extended warm periods, as this site is not influenced by the large surface area of Stuart Lake. As with the Stuart site, this location could provide culturally significant opportunities along with employment for the Tlazten community. As with the Stuart outlet site, sturgeon are often encountered in gillnets at the Tachie River inlet to Stuart Lake, and in some cases results in incidental harvests. A selective fishing mechanism at this location could eliminate sturgeon mortalities due to FSC fishery impacts, and, working in conjunction with the Stuart River weir, could greatly refine sockeye, chinook, and coho migration timing and other population characteristics.

While there was limited discussion with the community of Middle River (at the Middle River's inlet to Trembleur Lake), this area may also provide a suitable location for a weir. It is relatively shallow (2m depth in the thalweg), laminar, very slow, receives few woody debris throughout the summer months, has road access, and is in close proximity to a First Nations community who actively exercise their rights to harvest fish. Again, this location could serve as a salmon escapement monitoring/management tool.

In the Takla region, there is a potential to establish weir type fisheries, however, locations and methodologies need to be further researched. Community members did express an interest in this subject. One obvious constraint would be its relatively remote location, and possible access to

potential sites (not yet identified). That said, a weir in this area may provide for a culturally significant activity, some valuable escapement data, and permit selective fisheries to occur in situations where more invasive methods such as gillnets are problematic.

#### Nautley River – Selective Potential

A large-scale selective harvesting site (weir) previously existed on the Nautley River (see photo on front cover). This weir provided harvesting opportunities for Stellako and Nadina sockeye and a number of Chinook stocks. The nature of this site has been altered by physical changes made to the Fraser Lake outlet-Nautley River channel required to compensate for the lower than normal Nechako mainstem flows that occurred post-Kenny Dam. The nature of the low-level Nechako flows would have resulted in a seasonally altered level to Fraser Lake. However, the site still maintains many characteristics that make it a suitable selective site, including:

- It possesses characteristics that would make it a good weir site (shallow, stable channel, limited fluctuations)
- A large numbers of FSC fishers still congregate in the area (presently site of selective “snag” fishery)
- It is in the area where sturgeon are most commonly harvested in the FSC fishery
- Good foot and boat access to the river and lake in the area, and nearby vehicle access
- Community infrastructure present
- Apparent community willingness directly onsite

The area does experience high seasonal temperatures but fish quality at the location is generally very good. A weir (counting fence) is presently operated on the Stellako River (Fraser Lake tributary) to enumerate sockeye. This fence has been used to some extent for selective harvesting but information has indicated that sockeye can be delayed from 8-10 days in Fraser Lake and their condition at the Stellako fence is noticeably poorer than from the Nautley River. Any weir structure on the Nautley River could also be used as an escapement tool, eventually replacing the Stellako fence.

#### Nautley River - Test Case

The bridge over the Nautley River provides an excellent platform from which to deploy a large seine net. With very little pre-planning on a single weekend in 2004 the project coordinator and one technician garnered enough community participation to conduct a number of seines for Stellako sockeye at



Above: Volunteers of Nadleh are in the process of completing a seine for migrating sockeye. This photo is taken from the bridge crossing of the Nautley River.

Below: The results of a successful seine. There was a good turnout of volunteer participation for this event.



this site (bottom photo on cover). Up to 275 sockeye were captured in a single set and all fish were distributed to community members. Volunteer participation was sufficient to operate the seine and deal with fish distribution. Community support for this type of communal selective fishery was evident and the site lends itself well to a selective seine fishery.

### **Conclusions and Recommendations**

Nechako First Nations have become generally well adapted to harvesting sockeye with gillnets since their imposition approximately 100 years ago. Gillnets are a nonselective means of capturing sockeye and are evidently impacting non-targeted species. Gillnet catch-success is abundance based, meaning that reduced sockeye presence leads to increased effort and inherent increases in by-catch. In recent years the trend has been for decreasing sockeye abundance, particularly in the Stuart system, which has likely seen a significant increase in the by-catch of sturgeon and other species. If these trends continue, impacts to resident stocks will become more threatening. Considering the recruitment failure the sturgeon population is suffering, this prospect has alarming implications.

The Federal Minister of Environment will be reviewing COSEWIC's recommendation of an Endangered status for white sturgeon within the next 18 months. The inclusion of Nechako white sturgeon as Endangered under Schedule 1 of the Species at Risk Act will necessitate an "Allowable Harm Assessment," which shall dictate what activities that pose a potential threat to sturgeon can continue under the authority of an "Incidental Harm Permit." This assessment will include the determination of the level of risk that First Nations FSC activities pose to the recovery of Nechako stock, and has the potential to partially or completely limit non-selective fishing activities. In anticipation of this process, Nechako First Nations, in partnership with the Federal government, should continue to take the lead in pursuing harm reducing alternatives.

Activities undertaken in 2004 have been largely successful in furthering communication between the CSTC and its member communities within the Nechako watershed regarding the plight of the Nechako sturgeon. As well, as evidenced by only a single reported FSC-sturgeon mortality in 2004, there appears to have been a reduction in the number of sturgeon mortalities from previous years, based on anecdotal reporting. There appears to be support for the development of selective means of sockeye harvesting, and

preliminary investigations and a single trial indicate there are a number of sites that could be suitable for such an initiative.

For the purposes of maintaining the momentum developed in 2004, sturgeon-related outreach activities with Nechako First Nations should be at least partially integrated into the CSTC's ongoing fisheries program. In addition to harm reduction, a focus should be applied to furthering the communication protocol between Community Liaisons/Catch Monitors and CSTC contact staff. All attempts possible should be made to further the transition from gillnet fisheries to selective harvesting methods for sockeye. There are a considerable number of logistical and practical considerations that require redress before the true feasibility of communal selective fisheries can be established. These include:

1. Further evaluation of establishment of community support for such a transition
2. Further evaluation of sites and methodologies
3. Assessment of sites and methodologies
4. Linkage of selective fishing opportunities, sites and methodologies with existing or planned stock assessment needs
5. Establishment and trials of communal-community fishery management and distribution mechanisms and structures

Funding to continue the pursuit of these issues should be sought in 2005.

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**Appendix 1 – Power Point Presentation for Outreach Sessions**  
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## **Appendix 2 - Handouts for meeting attendees and general community distribution**



**Fisheries Program, Carrier Sekani Tribal Council**  
**2<sup>nd</sup> Floor, 1460 Sixth Ave.**  
**Prince George, B.C.**  
**V2L 3N2**

White Sturgeon within the Nechako Basin are known to be “Endangered.” The Carrier Sekani Tribal Council is participating in ongoing recovery efforts, including research and population assessment activities, and promoting white sturgeon “harm reduction” within Carrier First Nations’ food fishing activities. First Nations fishers are requested to take steps to minimize harm to white sturgeon when they are captured during fishing activities.

- ✓ Avoid gillnetting in areas where sturgeon are frequently captured.
- ✓ Check gillnets with increased frequency to minimize harm to entangled sturgeon.

**If you capture a white sturgeon during your food fishing activities, you are requested to do the following:**

- **If it is alive;**

Attempt to release the fish without harming it. Do not remove the fish from the water or into your boat, and do not touch the fish’s gills. Please take note of the approximate length of the fish and any tags. Report the time, date, and location of the encounter, and specifics of the fish, to your community’s catch monitor (listed below).

- **If the fish is dead or cannot be released successfully when you encounter it;**

Please contact one of the people identified below as soon as possible. We wish to collect specific measurements and samples from the fish. If it is possible, please do not process (gut, dress, or cutup) or dispose of any portion of the fish until one of the individuals below has sampled the fish. If this is not possible, please retain the fish’s head and front fins for pickup by one of the persons below.

- **If you observe a sturgeon (not captured) during your activities, please report the date, time and location to one of the individuals below.**

***If you would like further information with respect to this issue, contact Margo French 250-613-5000.***

**Jason Yarmish, CSTC, 250-960-9641**  
**Jim Webb, Tl’azt’en, 250-648-3224**  
**Betty-Lynn French, Takla, 564-3704**  
**Sandra Joseph, Nak’azdli, 996-0321**

**Ricky Nooskie, Nadleh, 690-7156**  
**Violet Kennedy, Stellat’en, 699-7771**  
**Margo French, CSTC, 250-613-5000**  
**Scott McIntosh, Saik’uz,**

**Appendix 3 – Sampling and reporting directions for community  
catch monitor and/or fisheries liaisons**



Carrier Sekani Tribal Council  
 2<sup>nd</sup> Floor, 1460 Sixth Ave.  
 Prince George, B.C.  
 V2L 3N2



**Nechako White Sturgeon Outreach and Harm Reduction**  
**Handout for Carrier First Nations FSC Fishery Monitors,**  
**Liaisons and/or Representatives**

The Carrier Sekani Tribal Council is promoting the conservation of white sturgeon in the Nechako and Stuart watersheds. We are requesting that First Nations fishers release white sturgeon captured whenever possible. We are also initiating a monitoring program to document observations of, and encounters with white sturgeon in the Nechako and Stuart watersheds. Your assistance to these ends is greatly appreciated. Reporting and information collected will be shared with all Carrier First Nations.

Your name and contact information has be distributed to fishers in the area. If you are contacted by a someone that has encountered or observed a white sturgeon, please collect the following information.

**1. If the sturgeon was only observed or the fisher(s) were able to release it successfully (alive):**

- a. The date and time the sturgeon was encountered.
- b. The location where the sturgeon was observed and the nature of the observation (what the sturgeon was doing, what the observers or fishers were doing.)
- c. The general length of the sturgeon.

**2. If the sturgeon reported is dead:**

- a. Please try to get to the fish as soon as possible and request that the individuals in possession of the fish do not process (gut or cut up) or dispose of any part of it.
- b. Please collect the measurements identified on the attached Reporting Form.
- c. Please collect the samples and info identified on the attached Reporting Form

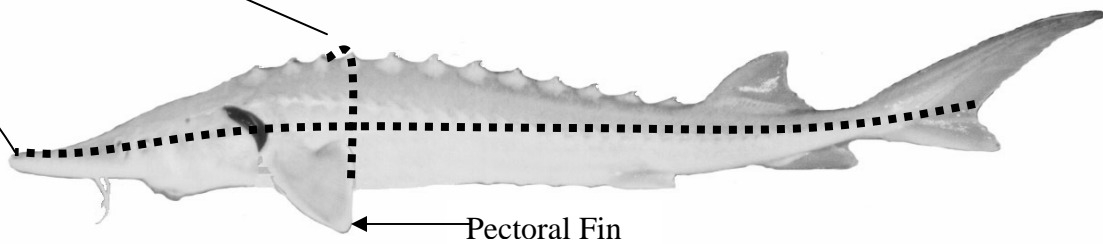
**3. If a sturgeon is reported alive and still entangled in a net:**

- a. Please attend the site if possible and assist with the safe removal and release of the fish.
- b. If it is not possible to attend the site yourself, please inform the individuals how to safely release the fish and request that they inform you if attempts are unsuccessful.

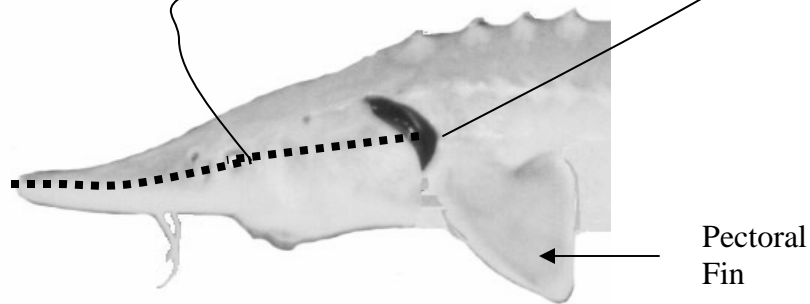
NOTE: Please ensure that if multiple persons are reporting the same sturgeon capture, encounter, and/or observation, that the reporting records indicate this.

Margo French, CSTC Community Liaison Tech. 250-613-5000	Sandra Joseph, Nak'azdli Contact, 250-996-0321
Jason Yarmish, CSTC Sturgeon Recovery Biologist 960-9641	Ricky Nooskie, Nadleh Contact, 250-690-7156
Jim Webb, Tl'azt'en Fisheries Manager, 250-648-3224	Violet Kennedy, Stellat'en Contact 250-699-7771
Betty-Lynn French, Takla Contact, 250-564-3704	Scott McIntosh, Saik'uz Contact 250-

Measurement	Specific Technique For Measurement
Fork Length	From the center of the curvature of the snout, along the lateral line, to the fork of the tail.
Post Opercular Length	Place tape at the center of the curvature of the snout and measure around to the posterior edge of the opercular plate. In the case of a gap between the operculum and the bony structure located posterior of the opercular plate, the gap should be included in this measurement.
Post Orbital Length	Place tape at the center of the curvature of the snout and wrap around to the back of the eye socket.
Girth	Taken as the circumference of the fish's body on the posterior side of the pectoral fins. Wrap tape around body directly behind pectorals.



Note: in the case of all measurements, pull the fabric tape taut, but not tight (e.g. in the case of a girth measurement, the form of the fish's body should not be altered by the tape when measuring.)



Place head and pectoral fins in one plastic bag labelled with you name and the date.  
Place all entrails from the body cavity into another plastic bag labelled in the same manner. Freeze both bags as soon as possible.

Additional Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Nechako White Sturgeon Outreach and Harm Reduction**  
**Sturgeon Observation, Encounter and/or Capture *Reporting Form***

*Refer to the rear of this form for specific directions and additional space for comments*

**1. A sturgeon was observed or released successfully (alive):**

Date and time of report: \_\_\_\_\_

Date of observation or encounter: \_\_\_\_\_

Location of Encounter: \_\_\_\_\_

Nature of Encounter: \_\_\_\_\_

Approximate Fish Size: \_\_\_\_\_

**2. If the sturgeon reported is dead, please contact the CSTC, in addition to recording:**

Date and nature of report (who and when reported, how captured): \_\_\_\_\_

\_\_\_\_\_

Where and when the fish was captured and died/killed or when and where it was found dead: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Nature of your report (where, when, how you attended): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Check for tags and evidence of previous tagging (Floy and radio): \_\_\_\_\_

Fork Length (cm or inches): \_\_\_\_\_ Post Opercular Length (cm or inches): \_\_\_\_\_

Girth (cm or inches): \_\_\_\_\_ Post Orbital Length (cm or inches): \_\_\_\_\_

Samples: Collect, label and freeze the following in the plastic bags provided:

- a. Both pectoral fins (remove with a knife or saw as close to the body as possible)
- b. The head
- c. All innards (all guts including all gonad material)

**3. If a sturgeon is reported alive and still entangled in a net:**

Depending on outcome, complete either 1 or 2 above.

Report (date, time, etc.): \_\_\_\_\_

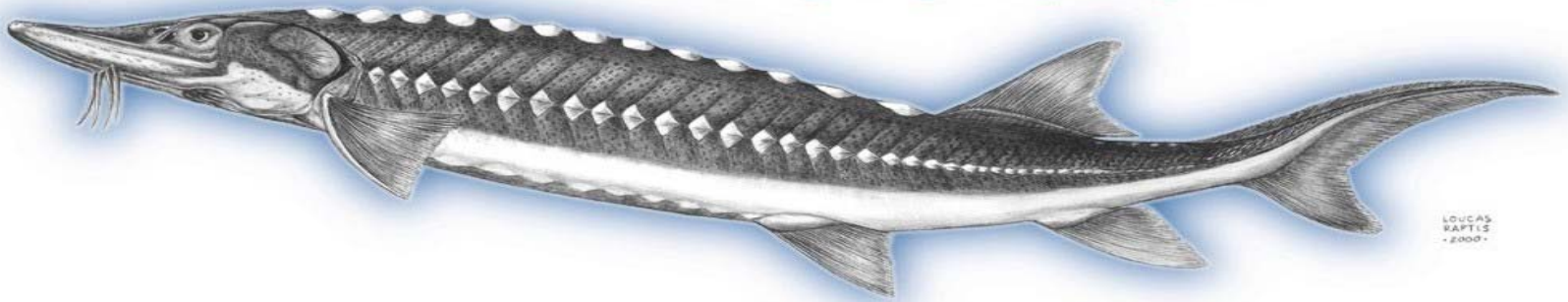
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## **Appendix 4 - 11x17" Posters created and posted within First Nations Communities**

NECHAKO  
RIVER

# WHITE STURGEON



## RECOVERY INITIATIVE

***White Sturgeon within the Nechako Basin are known to be “Endangered.” First Nations fishers are requested to take steps to minimize harm to these fish when they are captured during fishing activities.***

***If you encounter a white sturgeon during your food fishing activities:***

- If it is alive, attempt to release the fish without harming it. Take note of the general length of the fish and any tags. Report the time, date, and location of the encounter, and specifics of the fish to your community’s catch monitor.***
- . If the fish cannot be released successfully and/or is dead when you encounter it, please contact one of the people identified below as soon as possible. We wish to collect specific measurements and samples from the fish.***

***If you would like further information with respect to this issue, contact Margo French 250-613-5000***



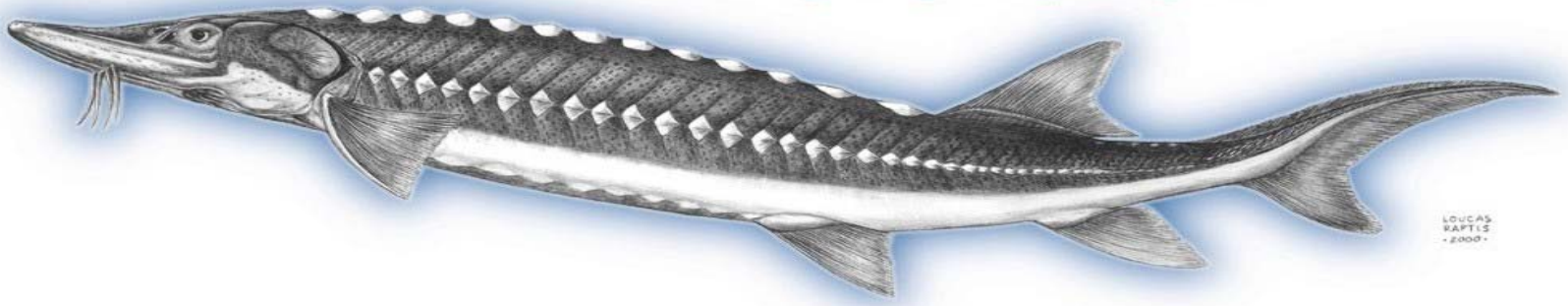
**Carrier Sekani Tribal Council  
2<sup>nd</sup> Floor, 1460 Sixth Ave  
Prince George, B.C.  
V2L 3N2**

#### CONTACTS

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Jason Yarmish, CSTC, 250-960-9641  
Jim Webb, Tl'azt'en, 250-648-3224  
Betty-Lynn French, Takla, 564-3704  
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Ricky Nooskie, Nadleh, 690-7156  
Violet Kennedy, Stellat'en, 699-7771  
Scott McIntosh, Saik'uz, 567-

NECHAKO  
RIVER

# WHITE STURGEON



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**First Nations fishers are requested to take steps to minimize harm to white sturgeon when they are captured during fishing activities.**

**If you encounter a white sturgeon during your food fishing activities, you are requested to:**

**• If it is alive;  
Attempt to release the fish without harming it. Do not remove the fish from the water and do not touch the fish's gills. Please take note of the approximate length of the fish and any tags. Report the time, date, and location of the encounter, and specifics of the fish, to your community's catch monitor (listed below).**

**. If the fish is dead or cannot be released successfully when you encounter it;  
Please contact one of the people identified below as soon as possible. We wish to collect specific measurements and samples from the fish. If possible, please do not dress, cut up or dispose of any portion of the fish.**

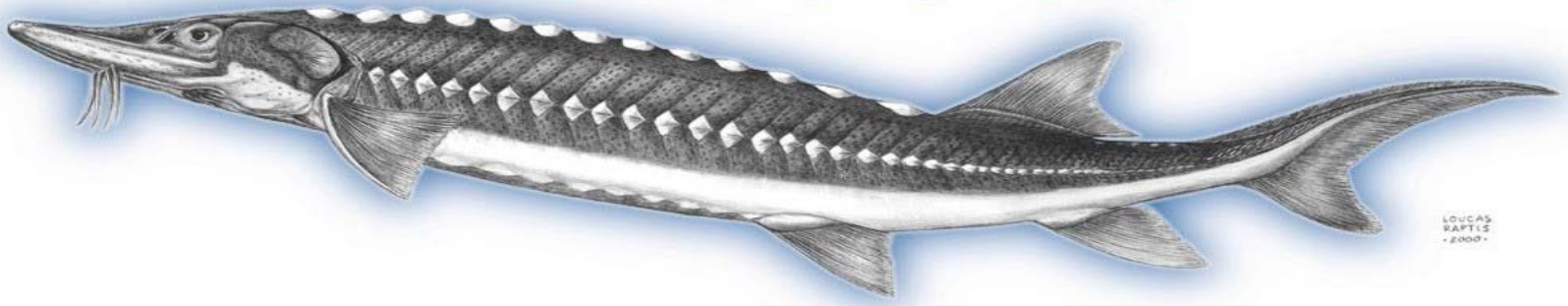
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RIVER

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