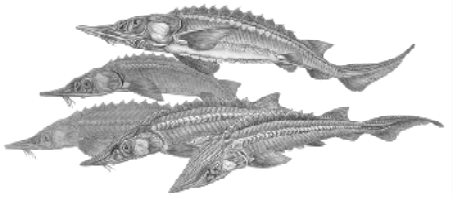

BACKGROUNDER
NECHAKO RIVER WHITE STURGEON

White sturgeon (*Acipenser transmontanus*) are Canada's largest freshwater fish and are only found on the West Coast of North America. They can exceed 600 kg in weight and 100 years of age. White sturgeon are an important component of the province's biological heritage and have historically supported valuable fisheries. Today, the catch-and-release sport fishery in the Fraser River continues to grow. In British Columbia, spawning populations of white sturgeon are known from the Fraser/Nechako, upper Columbia and Kootenay river systems. The Columbia and Kootenay sturgeon are transboundary populations, migrating between U.S. and Canadian waters.

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) has described white sturgeon as "vulnerable" (Lane, 1991)[1] and the B.C. Conservation Data Centre (CDC) has determined that the species should be red-listed in B.C. (Cannings and Ptolemy, 1998)[2]. This means that populations are considered imperilled and in danger of possible extinction if the reasons for population declines are not addressed.

In 1994, all harvest of sturgeon was halted in B.C. through the combined action of the provincial fisheries program, Fisheries and Oceans Canada, and First Nations. This action came after a number of large sturgeon died from unknown causes, accentuating the level of concern. In 1995, the province initiated an intensive five-year assessment program. The program was, by far, the longest-term and most comprehensive study conducted on this species in the Fraser system (Figure 1). The goals were largely aimed at gathering biological and stock status information that would enable us to better manage and protect this important species. This included gathering data on life history (growth, reproduction, age distribution etc.), habitat use, genetics (stock structure), movement patterns and population size. The study was co-ordinated by BC Fisheries with local leadership from four regional offices of the Ministry of Environment, Lands and Parks (Surrey, Kamloops, Williams Lake and Prince George). The program, largely funded by the Habitat Conservation Trust Fund and Forest Renewal BC, concluded this year and provides the basis for establishing credible conservation and restoration plans.

Among the significant findings of the study was a clear indication that there are at least five distinct stocks of sturgeon in the Fraser watershed (Figure 1). This conclusion was based on both genetic and life history data. The Nechako River population was found to be distinct from other Fraser populations and movement studies using both conventional tag-recapture techniques and radio-telemetry suggest that these fish do not migrate to the Fraser River system. Nechako sturgeon also grow more slowly than

[1] E. David Lane. (1991) Status of the White Sturgeon, *Acipenser transmontanus*, in Canada. The Canadian Field Naturalist 105: 161-168.
[2] S.G. Cannings & J. Ptolemy (1998) Rare Freshwater Fish of British Columbia. Province of British Columbia publication, 214pp.

most of the Fraser River populations with the exception of the “Upper Fraser” sturgeon found upstream of Prince George (Figure 2).

While the large amount of data collected over the five-year study is still being evaluated, some specific concerns have become evident for the unique Nechako population. The first indication that the Nechako population is at greater risk than other Fraser River stocks came from an analysis of the size and age structure. A significant proportion of the other Fraser stocks is made up of smaller (younger) fish, while the Nechako population is dominated by larger and older fish (Figures 3 & 4). This suggests either poor spawning success or high mortality rates for juveniles. Considerable effort was directed toward capturing juvenile fish in the Nechako River but few were found. In fact, most of the Nechako sturgeon are more than 30 years old (Figure 4). Comparing the data collected over the last five years to data collected in the early 1980s supports the conclusion that the Nechako sturgeon population is ageing and not adequately reproducing.

By marking every fish captured in the five-year study with a permanent electronic tag implanted under the skin, we can identify fish that have been captured previously. This ‘mark-recapture’ technique allows us to estimate the total population size for Nechako sturgeon at only 570 fish (the 95 percent confidence interval was 421-890). With about one third of the population now tagged, we found that 20 percent of the fish captured in the 1999 field season had been captured previously.

The situation for Nechako sturgeon parallels very closely what has been observed in the upper Columbia and Kootenay systems. Similar to the Nechako, these watersheds are regulated by major dams. Also like the Nechako, the sturgeon populations are failing to successfully reproduce. Without intervention, each of these populations is at a high risk of extinction. In response, the provincial fisheries program will lead or participate in the development of recovery plans for each population at risk. A recovery plan is already being implemented for the transboundary Kootenay white sturgeon population. The U.S. Fish and Wildlife Service developed this plan with the assistance of provincial and federal biologists from British Columbia. The provincial fisheries program will lead in the development of recovery plans for both Columbia and Nechako white sturgeon over the next year. These plans will identify risks and data gaps, define population recovery objectives and options, recommend adaptive management actions and monitoring requirements and, identify critical habitats for protection. This will be a unique undertaking and it is likely that these plans will serve as a template for the development of other species-at-risk recovery plans.

Given the status of Nechako white sturgeon and the requirement for a long-term recovery plan, it is necessary to eliminate all potential sources of mortality that can be controlled. This includes a restriction on sport fishing for sturgeon in the Nechako watershed. <u>As of September 7, 2000 angling for sturgeon is not permitted in the Nechako River or its tributaries, including the Stuart River.</u> This management action is consistent with the approach taken on the Kootenay/Columbia populations several years ago where the sport fisheries were closed after similar data became available.

While catch-and-release fisheries can be quite conservative, we also know that small populations can be subject to multiple recaptures. As noted above, in the Nechako study, 20 percent of the fish caught in the last year of the program had been captured previously. The additional stress and the potential for incidental mortality from multiple recaptures are not consistent with the management of a population in need of recovery. Given that the fishing techniques for sturgeon are largely different than the methods used to angle other species, - only fishing for sturgeon will be affected by this closure.

Recovery planning will be a scientifically based process to provide advice on the recovery options with the highest chance of success. However, the recovery planning process will also provide opportunity for First Nations and stakeholder participation. The timing for the first public meeting on Nechako sturgeon recovery planning will be announced later this fall. Members of the public who are interested in hearing more on British Columbia sturgeon programs should consider attending the B.C. Sturgeon Workshop Oct. 14 & 15 at Harrison Hot Springs. This meeting will provide a detailed series of reports on the findings of the Fraser/Nechako, Columbia and Kootenay research programs. Registration details for attending this workshop will be posted elsewhere on this web site.

Figure Legends.

(Note: Figures were prepared by R.L.&L. Environmental Services. RL&L also conducted a significant amount of the fieldwork and data analysis on which this report summary is based).

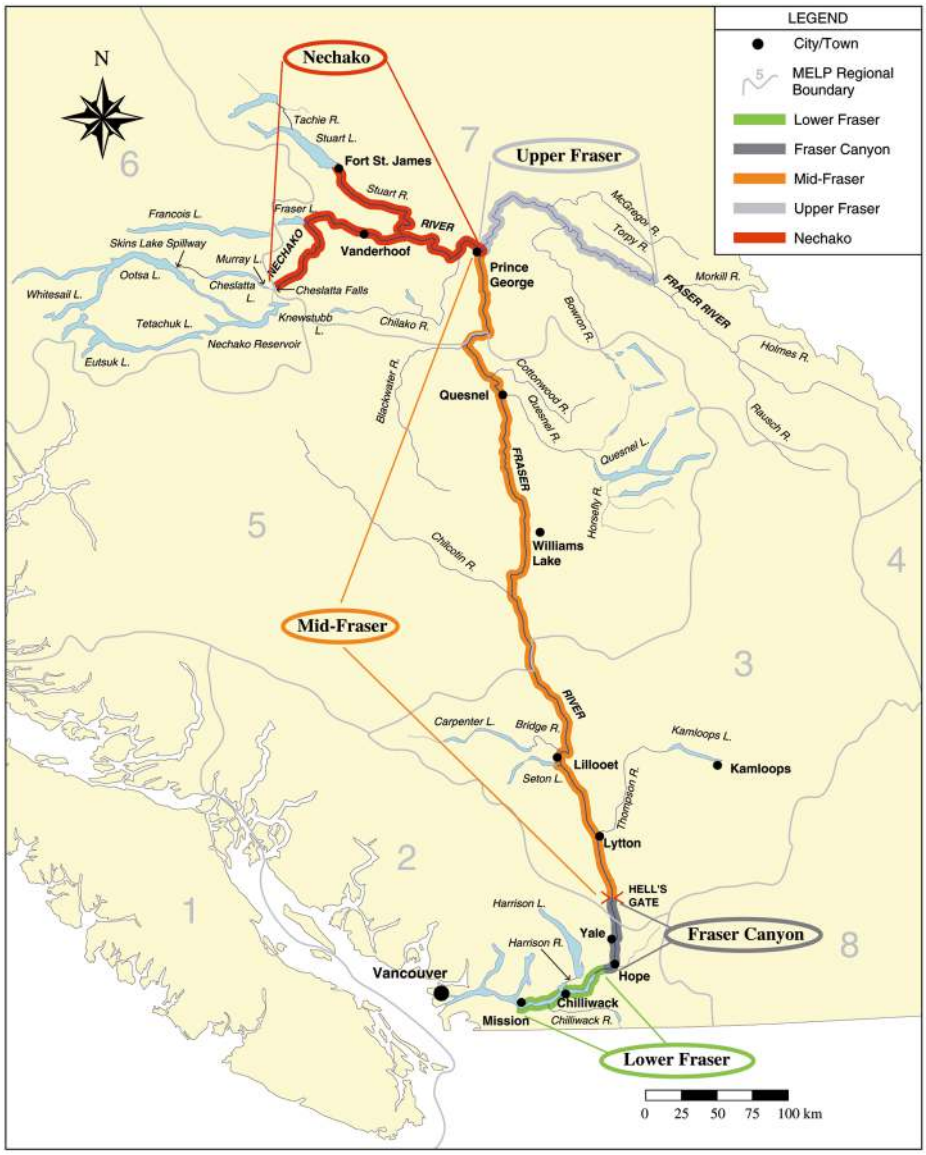

Figure 1- Map of the Fraser/Nechako study area showing boundaries for the various white sturgeon stock groups.

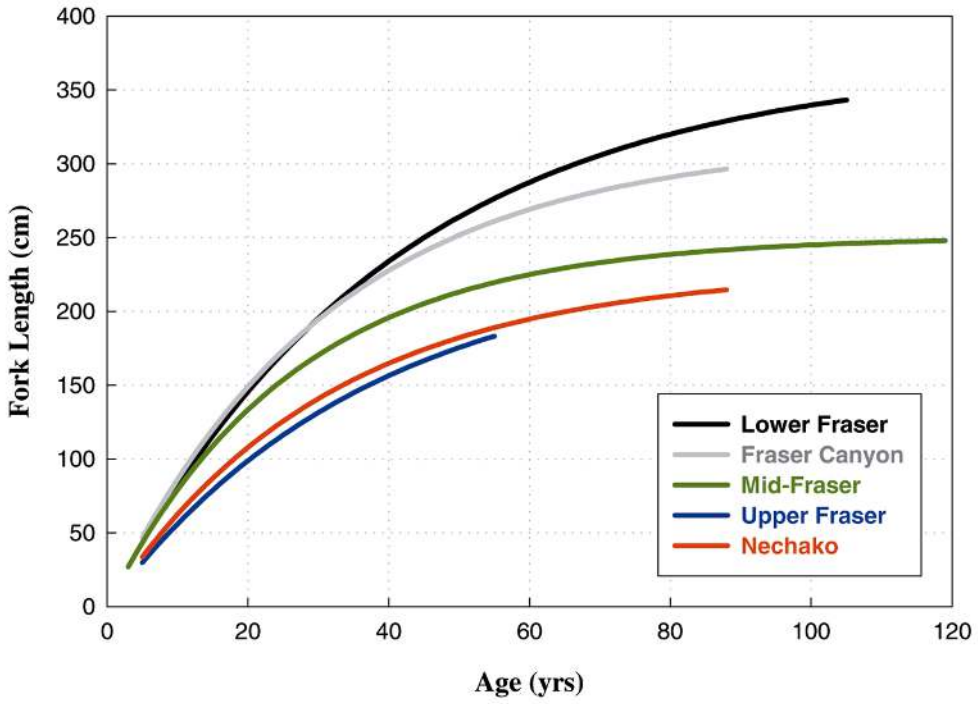

Figure 2- Growth characteristics for Fraser/Nechako white sturgeon stocks.

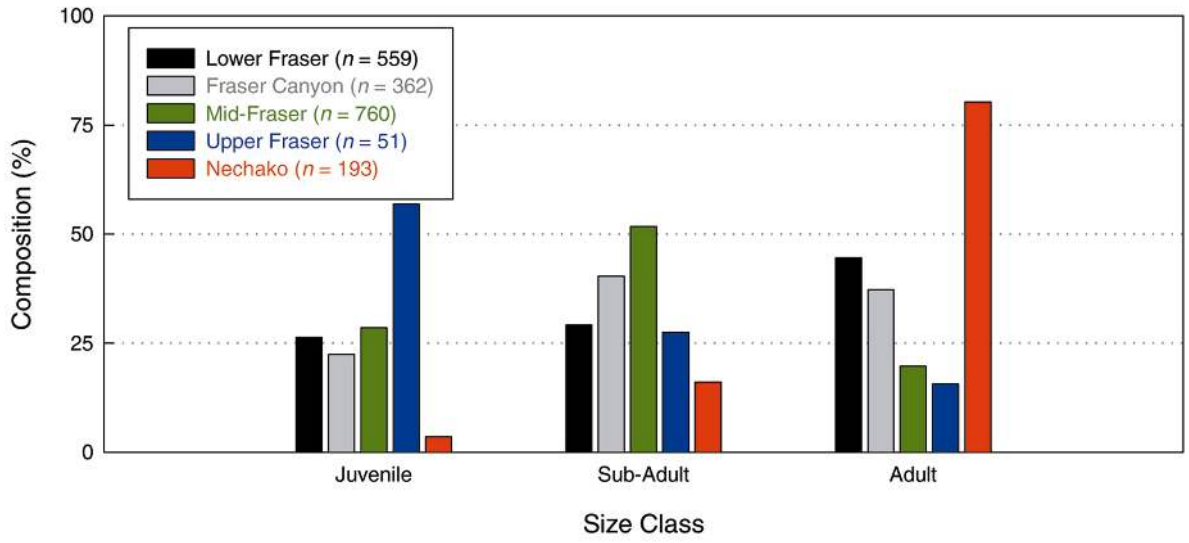

Figure 3- Size distribution for Fraser/Nechako white sturgeon stocks. Working definitions for each of the size classes are as follows: **Juveniles** are immature fish under 100cm total length; **Sub-adults** are fish between 100 and 150 cm in total length, some of which may be maturing; **Adults** are fish over 150cm and are thought to be capable of spawning.

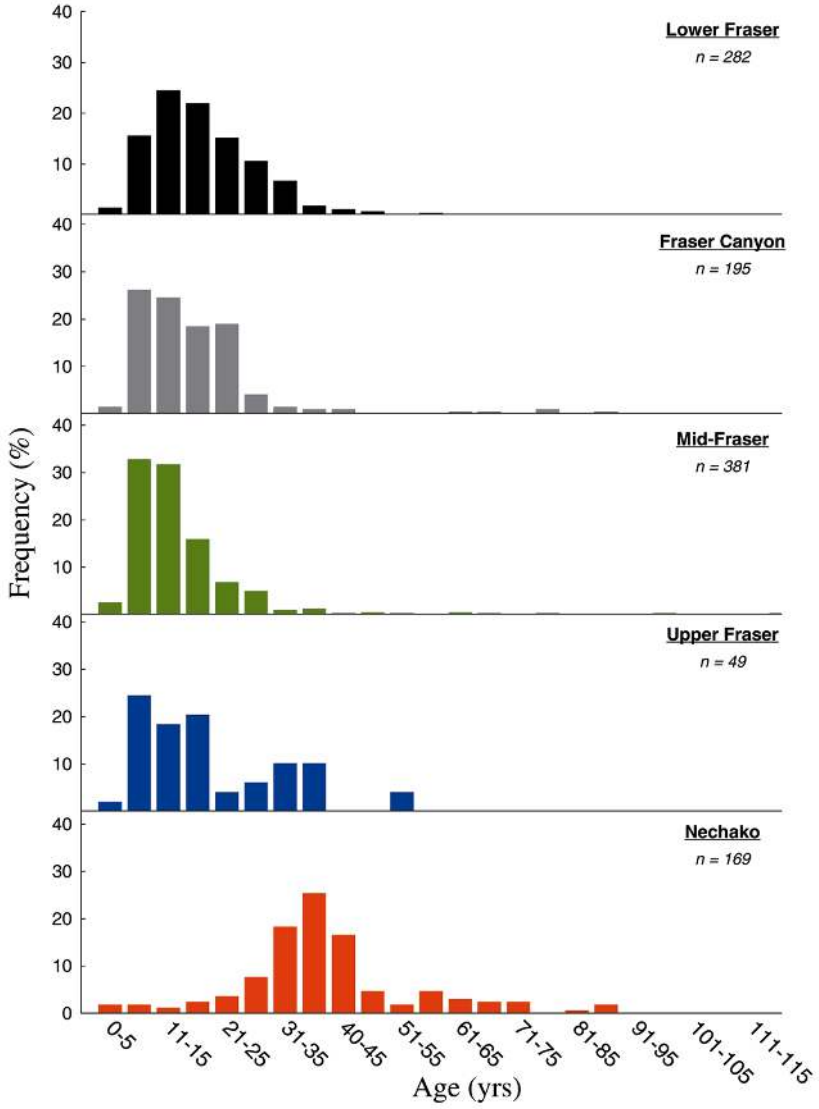

Figure 4- Age distribution for Fraser/Nechako white sturgeon stocks.