

NECHAKO FISHERIES CONSERVATION PROGRAM

A Joint Program of the Government of Canada, Alcan and the Province of British Columbia

TECHNICAL COMMITTEE DECISION RECORD

DATE: March 28, 2003

Decision Record (2002/03-06)

6. This Decision Record summarizes discussions of the NFCP Technical Committee on proposed changes to the 2003/04 Residence Time Study which is part of the Spawner Enumeration Monitoring Project..

The review of the Nechako Chinook Residence Time Study focused on two elements:

- a technical review of the data collected to date; and,
- a health and safety review.

Technical Review

As a result of the review of technical data for all NFCP Projects undertaken from 1988 to 2000 (NFCP 2002, Draft Technical Data Review), an opportunity was identified to possibly achieve some cost savings by reducing the number of sites used in the annual Chinook Residence Time Study. To address the issues, a technical review of the residence time study was undertaken to determine the effect on the resulting estimate of the size of the annual spawner escapement of removing one of the two data collection sites from the study. The results of this technical data review are presented in the attached graphs and tables:

- Figure 1 presents the total sample size for each year, along with a breakdown of the contribution from the upper and lower sites. In 12 of the 14 years that the project has been run, data has been collected at both the upper and lower sites. In these years, the upper site has consistently contributed more data than the lower site, ranging from 61% to 81% of the total number of fish observed.
- Figure 2 presents the mean residence time of the fish observed at all sites combined, the upper sites only and the lower sites only, for each year the project has been run. In 9 of the 12 years where data

has been collected at both sites, the 95% confidence bars overlap, indicating that there is no significant difference between the residence time of the fish observed from the upper sites vs. those observed at the lower sites. In the 3 years (1998, 1999, 2000) when the confidence bars do not overlap, the mean residence time at the upper sites was significantly lower than the lower sites.

- Figure 3 presents the escapement estimate for each year, calculated using the mean residence time from all sites and from the upper sites only. In all years when data were collected at the upper sites, the 95% confidence intervals overlap. The difference in the estimates ranged from 15 fish in 1995 and 2001 (0.9% and 0.3%, respectively) to 170 fish in 1998 (9.2%). For the 12 years where data was collected at both sites, the average percentage difference using the mean residence time from the upper sites only vs. both sites is 1.38%.

Although there were differences in mean residence time observed at the upper and lower sites in some years, due to the distribution of the sample, this did not translate into a significant difference in the actual spawner estimate. Thus the Technical Committee has reached a decision to use only the upper site for the determination of the residence time for future spawner enumeration studies.

Health and Safety

The details of the health and safety review are contained in Attachment 1 titled "Nechako Chinook Residence Time Study Task Hazard Analysis". The conclusions from that review are as follows:

1. Observers should work in pairs, not alone.
2. Observers should be equipped with appropriate safety gear, including life jackets.
3. Observation platforms without guardrails should be no more than 2.4 m high and those with guardrails should be no more than 6 m high.

The only major implications to the project result from the first point, since in the past the observers have worked alone.

The Technical Committee had decided to accept the conclusions of the Health and Safety analysis for the residence time study. These recommendations will be incorporated in the Terms of Reference for the 2003/04 study.

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Figure 1. 1989 to 2002 Nechako Chinook Residence Time Study Sample Size

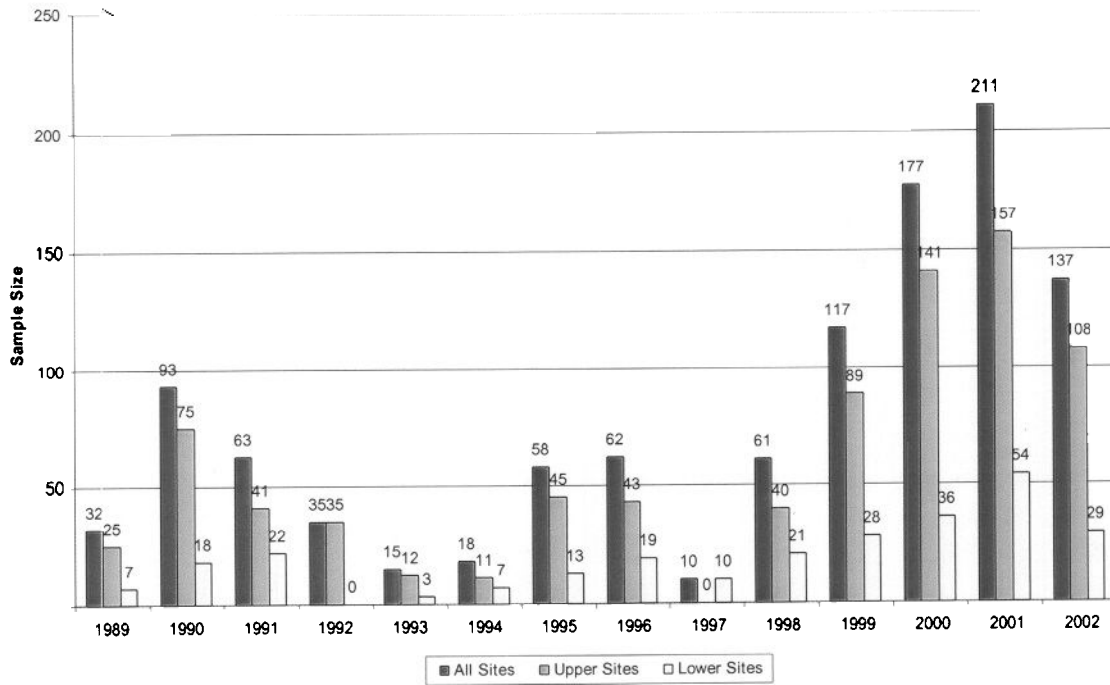
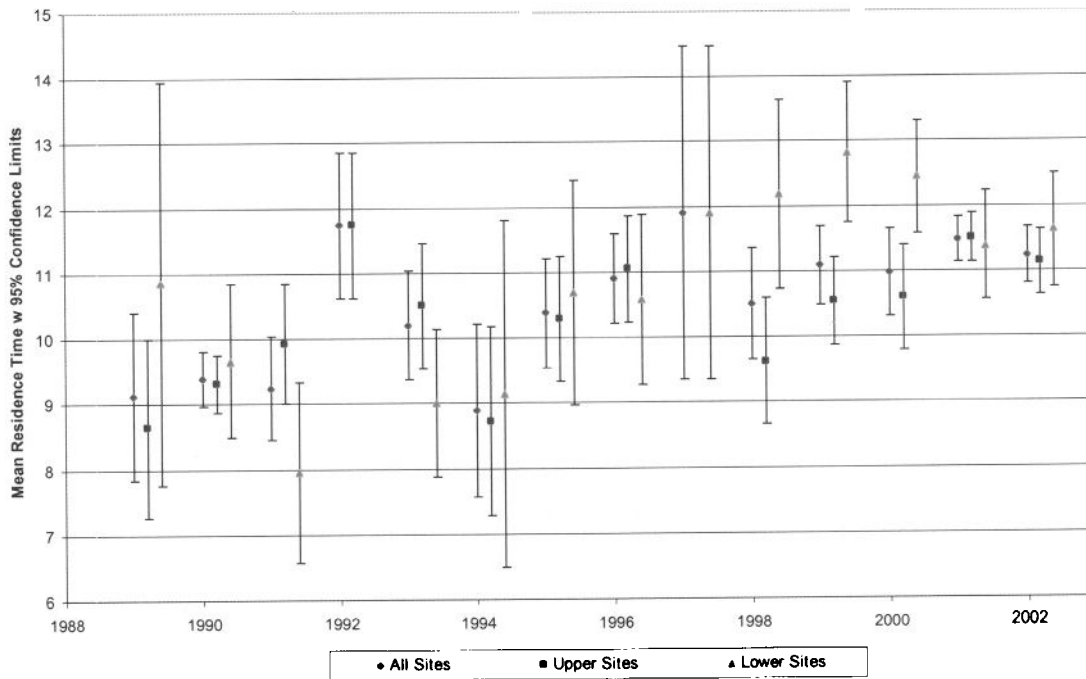
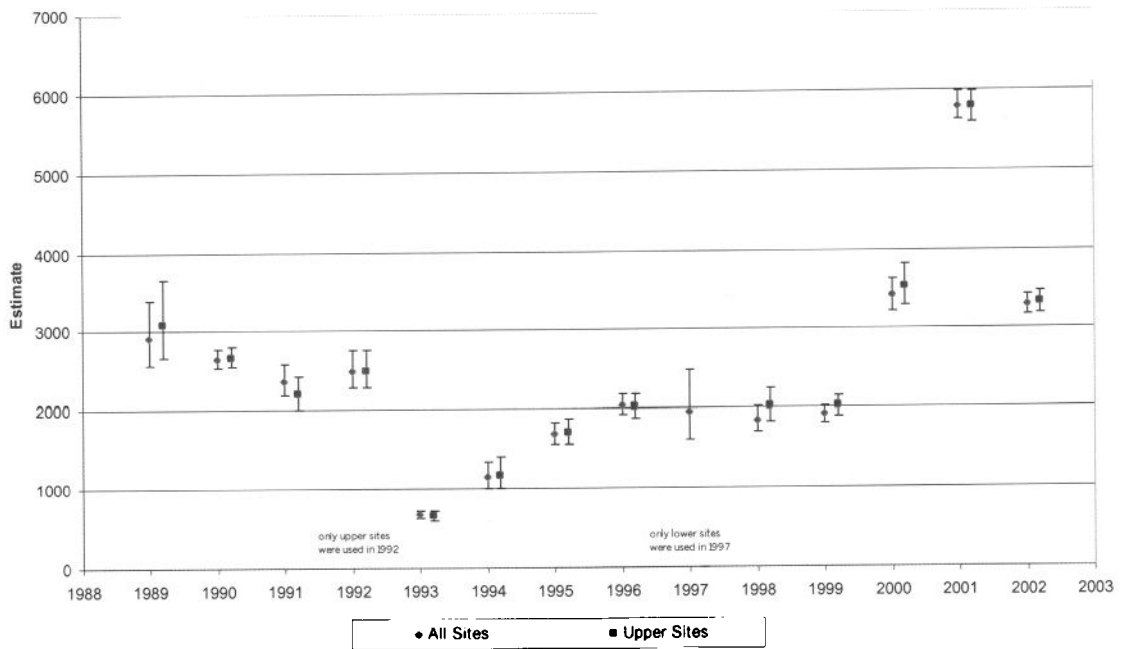


Figure 2. 1989 to 2002 Nechako Chinook Residence Time Study Mean Residence Time



**Figure 3. 1989 to 2002 Nechako Chinook Spawner Estimates
 Calculated Using Mean Residence Time Data from
 All Sites and from Upper Sites Only for each year.**



ATTACHMENT 1

NECHAKO CHINOOK RESIDENCE TIME STUDY TASK HAZARD ANALYSIS

Project Description

The objective of the Nechako Chinook Residence Time Study is to estimate the number of days that a female chinook salmon spends actively spawning, referred to as residence time. This information is a key element of an overall project designed to provide an estimate of the size, timing and distribution of the Nechako River chinook salmon spawning escapement.

In order to collect residence time data, daily observations of selected spawning areas must be made throughout the duration of spawning timing, typically late August to early October. Due to the nature of the project it is necessary for the observers to work in close proximity to, and sometimes within, the river. In order to see into the water, observations must be conducted from an elevated position, either naturally occurring cutbanks or constructed temporary structures.

Health and Safety Considerations

Two primary elements of concern associated with this project have been identified.

- Working Around Water
- Working from Elevated Platforms

Relevant sections of legislation and policy specific to these two elements of concern are paraphrased in the respective sections below.

In addition to the two primary elements of concern, there are two areas of concern associated with this project that are common to most field situations in this area.

- Vehicle Operation
- Creek Walking (including Wildlife Encounters)

Health and safety procedures associated with these common elements are included in the Upper Fraser River Habitat and Enhancement Branch Occupational Health and Safety Plan.

Working Around Water

Canada Labour Code, Part II, Canada Occupational Health and Safety Regulations, Section 12.11: Protection Against Drowning and Treasury Board of Canada Secretariat, Personal Protective Equipment and Clothing Directive, Section 16: Drowning Hazards:

Where there is a hazard of drowning, the employer shall provide:

- a life jacket or fall protection system,

- appropriate emergency equipment, and
- a person qualified to operate all the emergency equipment.

Interpretation of the Regulation and Directive is that in most circumstances where staff are required to work around, on or in water there is a risk of drowning.

Working from a Elevated Platform

Canada Labour Code, Part II, Canada Occupational Health and Safety Regulations, Section 12.10: Fall-Protection Systems and Treasury Board of Canada Secretariat, Personal Protective Equipment and Clothing Directive, Section 15: Fall-protection systems and Safety Restraining Devices:

The employer shall provide a fall-protection system where a person works from:

- an unguarded structure more than 2.4 m above the nearest permanent safe level, or
- a guarded temporary structure more than 6 m above a permanent safe level.

The DFO Occupational Safety and Health Loss Control Manual, Chapter 17, Section 17.4:

In addition to regulatory requirements, DFO employees must not work alone nor be allowed to work alone when carrying out operations involving the climbing of towers, shipmasts, process stacks or other high rise structures without fixed ladders.

Conclusions

Three main conclusions have been drawn from the information provided above.

1. Observers should work in pairs, not alone.
2. Observers should be equipped with appropriate safety gear, including life jackets.
3. Observation platforms without guardrails should be no more than 2.4 m high and those with guardrails should be no more than 6 m high.

Although taller structures could be used in conjunction with appropriate fall-protection systems, it is more appropriate to avoid the hazard where possible. Given the nature of the work, it should be possible to carry out the project utilizing structures that are within the identified parameters. Regardless, all temporary observation platforms should meet the minimum construction requirements identified in *Canada Labour Code*, Part II, Canada Occupational Health and Safety Regulations, Section 3: Temporary Structures and Excavations; and the Treasury Board of Canada Secretariat, Elevated Work Structures Directive.

In addition, as identified above, safety procedures related to Vehicle Operation and Creek Walking (including Wildlife Encounters) as outlined in the Upper Fraser River Habitat and Enhancement Branch Occupational Health and Safety Plan should be implemented.