## Juvenile Chinook Monitoring in 2010

NFCP also undertakes projects designed to evaluate in-stream habitat quality for eggs and Chinook juveniles. These projects are carried out every five to ten years. The next juvenile surveys are planned for 2010. Fry emergence success will be measured to give an indication of egg habitat quality by providing an index of fry surviving through the winter. The fry densities will be compared to the number of adult spawners from the previous year. Juvenile abundance and physical condition will be assessed in the upper Nechako River, and juvenile outmigration from the upper river will also be monitored. This project is designed to provide important management information 4 to 5 years prior to the return of adult spawners. Data collected to date has resulted in the development of reliable spawner-to-outmigrant and spawner-to-rearing juvenile relationships for the Nechako River.

Sampling for Juvenile Chinook.

## What's Next?

NFCP activities are guided by a five-year plan covering the period 2007-2012. The plan is available at www.nfcp.org. Planned projects for 2010 include:

- Annual Water Allocation (AWA).
- Summer Temperature Management Program (STMP).
- Adult Chinook salmon count (September and October).
- Chinook fry enumeration.
- Juvenile Chinook (outmigrant) enumeration.
- Temperature data collection for the duration of the 2010 Fry Emergence program.
- Data on age distribution, sex ratio, size, fecundity, and egg retention of adult Chinook salmon in the Nechako River.
- Stream habitat structure inspections.

**Reports for NFCP projects available at**

**WWW.NFCP.ORG**

**Nechako Fisheries Conservation Program**
**PO Box 2551, Vanderhoof, BC, V0J 3A0**



# Nechako Fisheries Conservation Program

# Biological Data Summary 2009

The Nechako Fisheries Conservation Program (NFCP) was formed to ensure the effective implementation of the 1987 Settlement Agreement between Rio Tinto Alcan, Fisheries and Oceans Canada and the BC Ministry of Environment. The objective of the NFCP is the conservation of salmon stocks in the Nechako River. To that end, since 1987, the NFCP has monitored Chinook salmon and their habitats and has also managed water discharges from the Nechako Reservoir at Skins Lake Spillway.

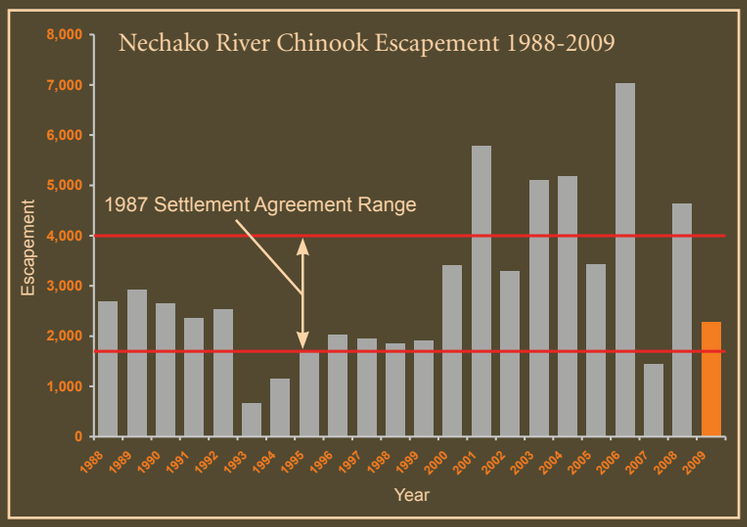

Nechako Reservoir and Nechako River.

**www.nfcp.org**

## Chinook Monitoring

The NFCP monitors both adult and juvenile fish in the Nechako to ensure that habitat conditions remain favourable for Chinook production. Chinook spawn in the mainstem of the Nechako River between late August and early October. The eggs hatch into alevins in December that incubate in the river gravel until March of the following year. Young Chinook emerge as free-swimming fry from March to May and spend between two to twelve months rearing in the Nechako River.

The *Settlement Agreement* sets out a Conservation Goal of a range of between 1,700 to 4,000 Chinook spawners in the Nechako River. Chinook are counted by means of helicopter surveys. Each survey begins at Cheslatta Falls and finishes at Vanderhoof. The helicopter flies at about 50 km/hour and between 100 to 200m above the river, circling islands or bars where necessary. Two observers (DFO and Rio Tinto Alcan) seated on the same side of the helicopter independently count all the Chinook observed in 16 sections of the Nechako. The observers wear polarized sunglasses to reduce glare off the river surface, and use hand-held counters to record their counts.




NFCP monitoring since 1988 has shown that adult Chinook returns to the Nechako have generally fallen within the conservation target range. During 2009, there was an estimated escapement of 2289 Chinook which is within the target range. Mean residency time of adults on their spawning redds was estimated in 2009 by means of direct observations from viewing towers erected along the Nechako River. The average residency time was 9.8 days which is consistent with previous residency time data collected since 1987. The NFCP believes that the relatively low escapement in 2009 is not associated with in-stream rearing conditions.

## Water Management

The NFCP provides direction to Rio Tinto Alcan to ensure effective implementation of the Annual Water Allocation (AWA) and Summer Temperature Management Program (STMP) in accordance with the *Settlement Agreement*.

The AWA requires a release of 36.8 $m^3/s$ of water from Skins Lake Spillway (SLS) over the course of the annual water year. Releases from the SLS were an average of 32.66 $m^3/s$ in April. From late April until the STMP began in July SLS discharge was approximately 49 $m^3/s$ . From the end of the STMP to April 2010, SLS will be managed to achieve an average flow of approximately 32.61 $m^3/s$.

Skins Lake Spillway.

The STMP is designed to benefit sockeye salmon migrating through the Nechako River. The objective is to reduce the frequency of high water temperatures (>20°C) at Finmoore, located upstream of the confluence of the Nechako and Stuart Rivers. The summer of 2009 was relatively warm and in Vanderhoof, maximum daily air temperature was 30°C or higher between July 24-August 2. Flow in the Nechako River was at, or slightly above, the NFCP maximum flow volume target between July 13-August 10. The maximum flow targets are established in consideration of flood risk. In 2009, mean daily water temperatures in the Nechako River above the Stuart River confluence exceeded 20.0°C between July 15-16, July 26-31 and August 2-4, and reached a maximum of 21.4°C on July 30.

The net effect of these water releases will be an average AWA base flow of slightly greater than 36.8 $m^3/s$ plus STMP flows for a total SLS discharge of 57.7 $m^3/s$.