November 2011

NECHAKO FISHERIES CONSERVATION PROGRAM

BRIEFING DOCUMENT FOR NFCP STEERING COMMITTEE

EXECUTIVE SUMMARY OF ACTIVITIES IN 2011/2012 AND PROPOSED WORK FOR 2012/2013

Technical Committee Operations

The Technical Committee met with the Steering Committee for a strategic planning session on June 9, 2011 and 4 conference calls took place in Year 24 of the NFCP. During the year, the Technical Committee undertook the projects approved for the 2011/2012 fiscal year with the exception of the flow discrepancy, habitat structure removal and STMP projects.

2011/2012 Program Summary

In the 2011/2012 operating period 4 of 7 planned projects were conducted by the Nechako Fisheries Conservation Program. Planned projects included:

	Person-Days	Person-Day Costs	Disbursements	Total Expenses
4 Remedial Measures Projects	153	$76,500	$34,100	$110,600
3 Monitoring Projects	70	$35,000	$58,200	$92,300
Grand Total	223	$111,500	$92,300	**$203,800**

The total program budget for the 2011/2012 program year was $203,800 excluding Technical and Steering Committee operations.

Proposed 2012/2013 Program Summary

The proposed 2012/2013 (Year 25) Nechako Fisheries Conservation Program includes:

	Person-Days	Person-Day	Disbursements	Total

		Costs		Expenses
4 Remedial Measures Projects	153	$76,500	$34,100	$110,600
2 Monitoring Projects	24	$12,000	$49,000	$61,000
Grand Total	177	$88,500	$83,100	**$171,600**

Activities are identical to those undertaken in Year 24 with the exception of the Outstanding Reports Publication.

A detailed breakdown of person-days and expenses of proposed 2012/2013 individual projects is attached in Table 1. Table 2 provides a comparison of the proposed Year 25 program budget with the approved budgets for the previous 4 years. Figure 1 shows the information graphically.

Table 1. NFCP: Proposed 2012/2013 Program.

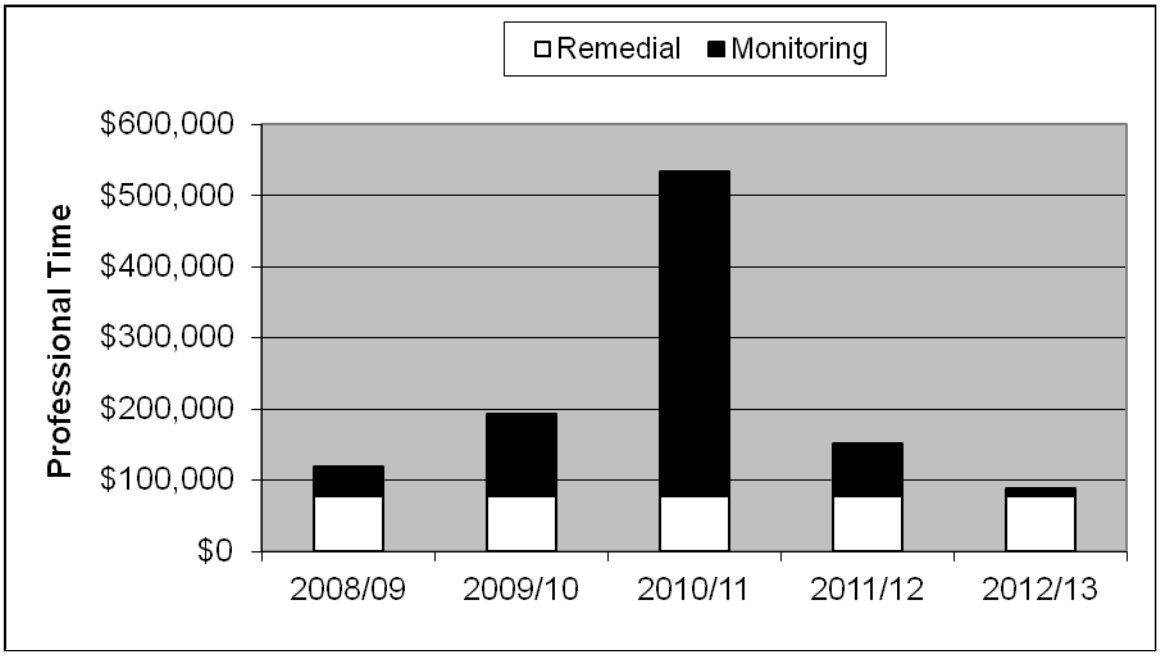
REMEDIAL MEASURES		DAYS	DISBURSEMENTS*	RESPONSIBLE
RM12-2	Summer Temperature Management	$54,750	$15,910	RTA
RM12-3	Instream Habitat Complexing/Structure Removal	$6,000	$4,820	RTA
RM12-8	Flow Control	$11,250	$3,410	RTA
RM12-8A	Flow Discrepancy Project	$4,500	$10,000	RTA
	SUBTOTAL	$76,500	$34,140	$110,640
MONITORING				
M12-1	Enumeration and Residency Time	$8,000	$30,000	DFO/RTA
M12-2	Carcass Recovery	$4,000	$19,000	DFO/RTA
	SUB TOTAL	$12,000	$49,000	$61,000
APPLIED RESEARCH				
No applied research projects recommended for 2012/2013				
	SUB TOTAL	0	0	
	TOTAL	$88,500	$83,140	**$171,640**
COMMITTEE OPERATIONS**		***	$50,000	

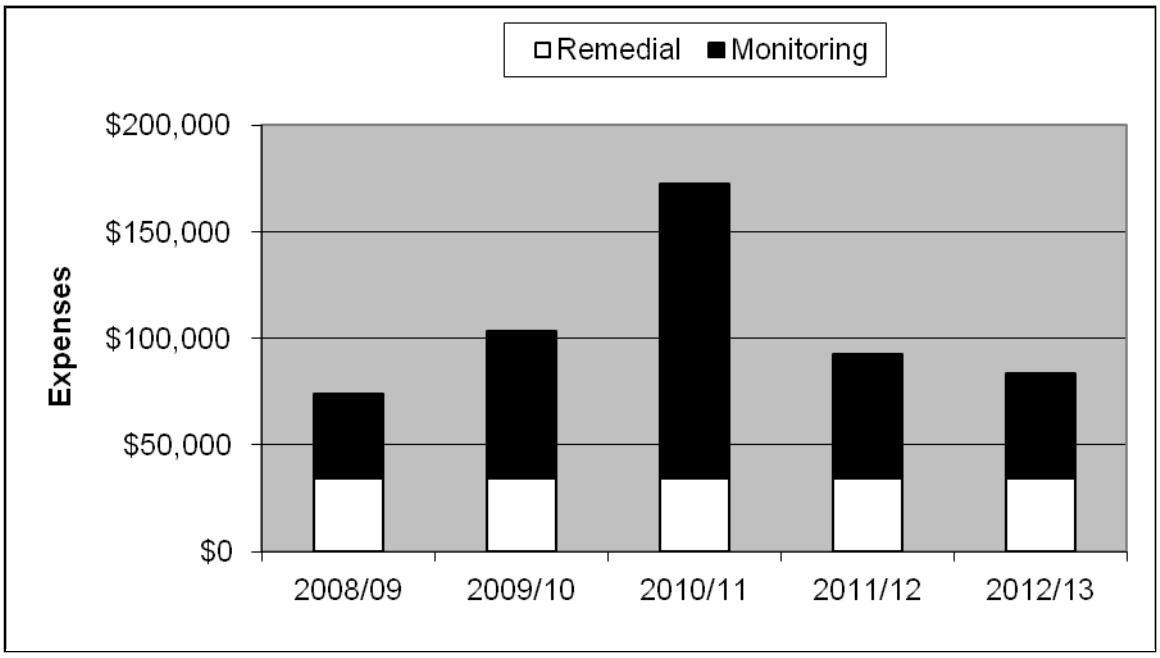
*Includes contracts
**Includes Independent Member, Annual Meeting and Report, Technical Report Production, and Committee Meetings
***As required by each party
Technical Report Production, and Committee Meetings

Table 2. Nechako Fisheries Conservation Program Previous Years' Budgets and Proposed Project Budgets for Year 25 (2012/2013)

		2008/2009		2009/2010		20010/2011		20011/2012		Proposed2012/2013	
		DAYS	EXPENSES	DAYS	EXPENSES	DAYS	EXPENSES	DAYS	EXPENSES	DAYS	EXPENSES
REMEDIAL MEASURES											(inc. contract)
1	Murray Cheslatta Flow Measurement										
2	Summer Temperature Management	$54,750	$15,910	$54,750	$15,910	$54,750	$15,910	$54,700	$15,910	$54,750	$15,910
3	Instream Habitat Complexing	$6,000	$4,821	$6,000	$4,821	$6,000	$4,821	$6,000	$4,821	$6,000	$4,820
3a	Instream Habitat Complex Assessment 1988 - 2000										
4	Stream Fertilization										
5	Assessment of Fertilization/Complexing										
6	Inventory of Habitat Cover										
7	Inventory of Sediment Sources										
8	Flow Control	$11,250	$3,410	$11,250	$3,410	$11,250	$3,410	$11,250	$3,410	$11,250	$3,410
8A	Flow Discrepancy Project	$4,500	$10,000	$4,500	$10,000	$4,500	$10,000	$4,500	$10,000	$4,500	$10,000
9	Winter Remedial Measures										
10	River Bed Survey/Hec-2 Model										
11	Riparian Bank Stabilization										
	Sub-Total Remedial Measures	**$76,500**	**$34,141**	**$76,500**	**$34,141**	**$76,500**	**$34,141**	**$76,500**	**$34,141**	**$76,500**	**$34,140**
MONITORING											
1	Enumeration	$8,000	$25,400	$81,000	$55,000	$8,000	$25,400	$8,000	$30,000	$8,000	$30,000
2	Carcass Recovery	$12,000	$5,000	$12,000	$5,000	$16,000	$7,000	$4,000	$19,000	$4,000	$19,000
3	Juvenile Outmigration					$270,750	$67,552				
4	Winter Physical Conditions										
5	Physical Data Collection					$28,500	$5,400				
6	Fry Emergence					$111,000	$23,945				
7	Substrate Quality and Composition										
8	Dissolved Oxygen Monitoring										
9	Evaluation Framework/Trend Analysis/Tech Review										
10	Outstanding NFCP Reports and Web Site Management	$23,000	$9,200	$23,000	$9,200	$23,000	$9,200	$23,000	$9,200		
11	Emergent Fry Habitat Monitoring										
12	Database Management										
	Sub-Total Monitoring	**$43,000**	**$39,600**	**$116,000**	**$69,200**	**$457,350**	**$138,497**	**$35,000**	**$58,200**	**$12,000**	**$49,000**
APPLIED RESEARCH											
1	Chinook Overwintering										
2	Life History Model										
3	Predator/Prey										
4	Temperature Effects										
5	Chinook Ecology										
6	Temperature Modelling										
	Sub-Total Applied Research			**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
	GRAND TOTAL	**$119,500**	**$73,741**	**$192,500**	**$103,341**	**$533,850**	**$172,638**	**$111,500**	**$92,340**	**$88,500**	**$83,140**

Figure 1. NFCP professional time and program expenditures for Year 25 (2012/13) and the previous 4 years.





Cost Sharing Status

Rio Tinto Alcan (RTA) pays for the cost of remedial measures projects (e.g. Summer Temperature Management, Flow Control, Instream Habitat Modification), DFO pays the cost of applied research projects (e.g. Chinook Ecology) and both agencies share the cost of monitoring projects (e.g. Spawner Enumeration). In recent years, no applied research projects have been undertaken.

There are 2 monitoring projects contemplated for 2012/13: chinook enumeration and carcass recovery. DFO completed the preparation of 10 carcass recovery reports in Year 24 covering the period 2001 - 2010. There are additional reports covering chinook enumeration over the period 2001 - 2011 that will be prepared by DFO in Year 25, however these costs have already been accounted for in previous years' budgets. The annual costs associated with these monitoring projects are shown below.

COST BREAKDOWN: MONITORING PROJECTS

		Days	Disbursements	Contract
Enumeration	DFO	$5,500	$30,000	
	RTA	$2,500		
Carcass Recovery	DFO	$4,000	$1,000	$18,000
	RTA			

Expected DFO expenses in Year 25 total $58,500 while expected RTA expenses are $2,500.

In Year 23 (2010-2011) a decision was taken (SC Decision Record 2010/11-2) to "close-off" the accounting for monitoring projects up to and including Year 22 which were considered balanced in accordance with the cost-sharing provisions of the *1987 Settlement Agreement.* In consideration of the fry/juvenile work ($372,000) that was financed by RTA in 2010, it was agreed that DFO would fund the majority of the enumeration and carcass recovery projects delivered in 2011 through 2015. The actual and projected expenditures by RTA and DFO for NFCP monitoring activities from 2010 up to and including 2015 are shown in Table 5

Table 5. Financing schedule for NFCP monitoring projects between 2010-2015.

		Rio Tinto Alcan	Fisheries & Oceans	Total	**Imbalance**
Year 23	actual	$374,600	$90,700	$465,300	**$283,900**
Year 24	actual	$2,500	$90,700	$93,200	**$195,700**
Year 25	projected	$2,500	$58,500	$61,000	**$139,700**
Year 26	projected	$2,500	$58,500	$61,000	**$83,700**
Year 27	projected	$2,500	$58,500	$61,000	**$27,700**
Year 28	projected	$2,500	$58,500	$61,000	**($28,300)**
Total	projected	$387,100	$415,400	$802,500	**($28,300)**

At the end of Year 23, RTA had expended $283,900 more funds than DFO. Following Year 24, this number declined to $195,700. After Year 28, the imbalance will shift and DFO will have expended $28,300 more than RTA. These calculations assume the NFCP will only undertake minimal annual monitoring activities associated with adult Chinook enumeration and biological sampling. The 5 yr plan to be developed over the period 2012 - 2017 will specify the frequency of juvenile and fry monitoring and other sampling which may alter the financing schedule shown above.

NECHAKO FISHERIES CONSERVATION PROGRAM

STEERING COMMITTEE - BRIEFING DOCUMENT
OUTLINE OF COMPLETED YEAR 24 AND PROPOSED YEAR 25 PROJECTS

ATTACHMENT #1

NECHAKO FISHERIES CONSERVATION PROGRAM

STEERING COMMITTEE - BRIEFING DOCUMENT
OUTLINE OF COMPLETED YEAR 24 AND PROPOSED YEAR 25 PROJECTS

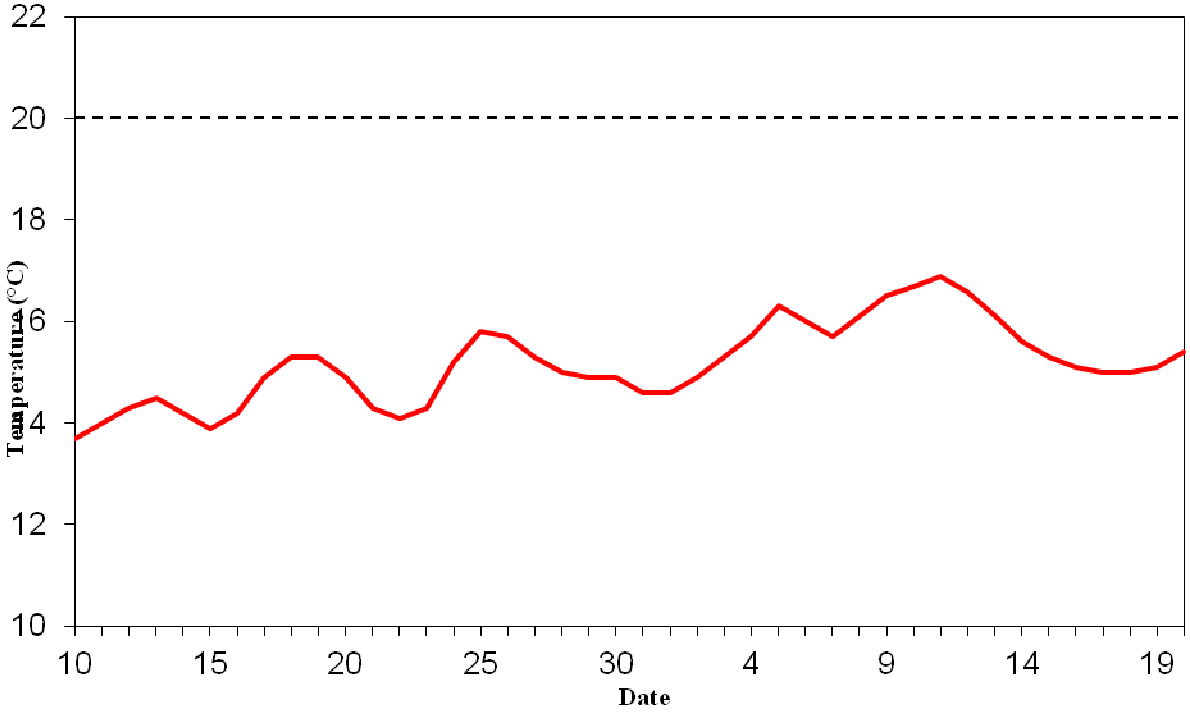
REMEDIAL MEASURES

Summer Water Temperature Management Program

Nechako River flows and water temperatures are managed using a computer-based program referenced in the Settlement Agreement. The program protocol uses a trend analysis developed from five-day meteorological forecasts to schedule releases from Skins Lake Spillway to attempt to maintain mean daily water temperatures at or below 20.0°C in the Nechako River upstream of the Stuart River (Finmoore).

YEAR 24 **2011/2012**	**YEAR 25** **2012/2013**
The Summer Temperature Management Program (STMP) was not operated in the summer of 2011 as reservoir management releases exceeded the STMP Protocol maximum discharge in the Nechako River below Cheslatta Falls for all of July and until August 25 (later than required under the STMP). Figure 1 shows the water temperature data for the Nechako River upstream of the Nechako-Stuart River confluence (at Finmore).	The 2012/2013 Summer Water Temperature Management Project will follow the same protocol and will be conducted in a manner consistent with previous project years.

Figure 1: Recorded Mean Daily Temperatures in the Nechako River above the Stuart River Confluence
July 10, 2011 to August 20, 2011



REMEDIAL MEASURES
(Continued)

Instream Habitat Complexing

As one component of the Remedial Measures portion of the NFCP, habitat complexes were constructed in the Nechako River at a pilot scale to test the biological and engineering feasibility of constructing cover habitat for rearing juvenile chinook salmon. Pilot tests conducted to date have indicated that habitat complexes can be placed in the Nechako River if required. As these complexes have been demonstrated to perform successfully and as KCP has been cancelled, there is no longer a need for yearly rigorous assessment of these structures. However, instream conditions can cause habitat complexes to lose seeded debris and some structures can potentially become navigational hazards. Ongoing monitoring of habitat complexes and preparation to modify structures that are damaged is prudent given these circumstances. In addition there is a scientific interest to continue to monitor for long-term life of these man-made habitat structures.

YEAR 24 **2011/2012**	**YEAR 25** **2012/2013**
In 2011/2012, opportunistic monitoring was proposed to evaluate the condition of the remaining habitat complexes.	In 2012/2013, opportunistic monitoring is proposed to evaluate the condition of the remaining habitat complexes.
A budget for removal of the left bank structures deemed non-functional in 2008 as well as a contingency budget for the removal of any structures deemed to be a navigational hazard was included in this year's budget. Any additional identified hazards were to be brought to the attention of the Technical Committee and their direction sought prior to any instream activities taking place. The only exception to this protocol was if human safety was at risk, in which case immediate action was to be taken. DFO personnel would liaise with Transport Canada to identify outstanding requirements for NWPA permitting and report back to the Technical Committee. This activity was deferred as a cost savings measure.	A budget for removal of the left bank structures deemed non-functional in 2008 as well as a contingency budget for the removal of any structures deemed to be a navigational hazard is included in this year's budget. Any additional identified hazards will be brought to the attention of the Technical Committee and their direction sought prior to any instream activities taking place. The only exception to this protocol would be if human safety is at risk, in which case immediate action will be taken. DFO personnel will liaise with Transport Canada to identify outstanding requirements for Navigable Waters Protection Act (NWPA) permitting and report back to the Technical Committee.

REMEDIAL MEASURES
(Continued)

Flow control

The NFCP Technical Committee is responsible for the management of the annual water allocation from Nechako Reservoir to best benefit fish in the Nechako River.

YEAR 24
2011/2012

In 2011/2012, the release of the Annual Water Allocation was initiated in April in a manner consistent with prior years. However, a March passed, Rio Tinto Alcan informed the NFCP that the combination of the cool spring and continued accumulation of snow in the Nechako Watershed had resulted in a near record snow pack. As a result, Rio Tinto Alcan anticipated the release of much greater than normal quantities of water from the reservoir to the Nechako River throughout the summer. As noted in Figure 2, releases from the reservoir increased throughout May and June, reaching a peak in July and August.

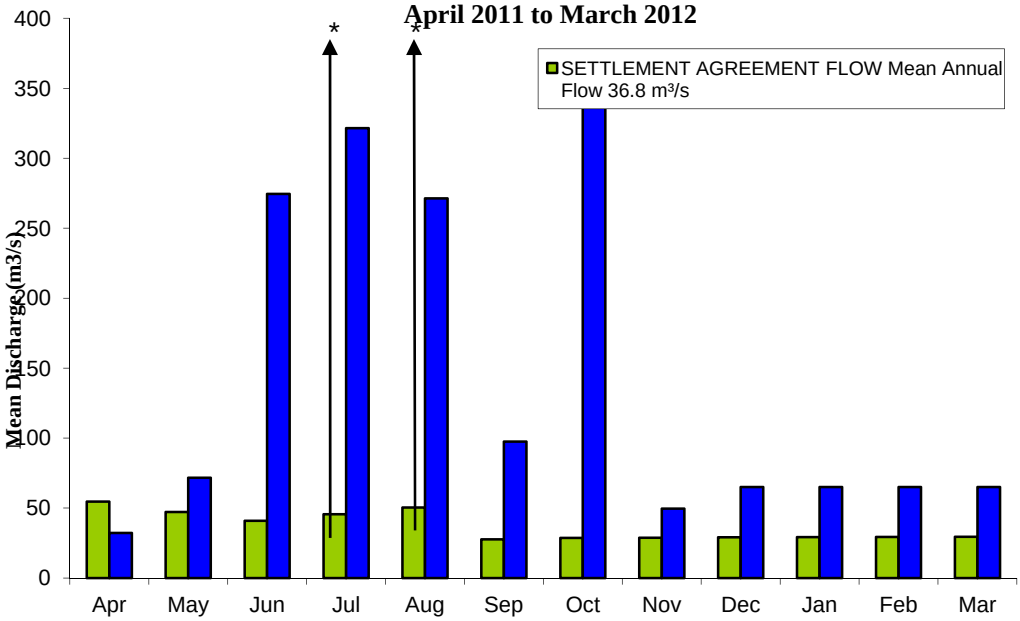
Releases were lowered in late August to control the discharge in the Nechako River below Cheslatta Falls (Figure 3) to approximately 65 m^3/s through the spawning period in September and then increased in late September, after the peak of spawning, to ~400 m^3/s for the month of October, and then it is anticipated the releases will decrease to ~65 m^3/s for the remainder of the winter.

It is estimated that the mean annual discharge from the reservoir will be 161 m^3/s, much greater than the required release of 36.8 m^3/s.

YEAR 25
2012/2013

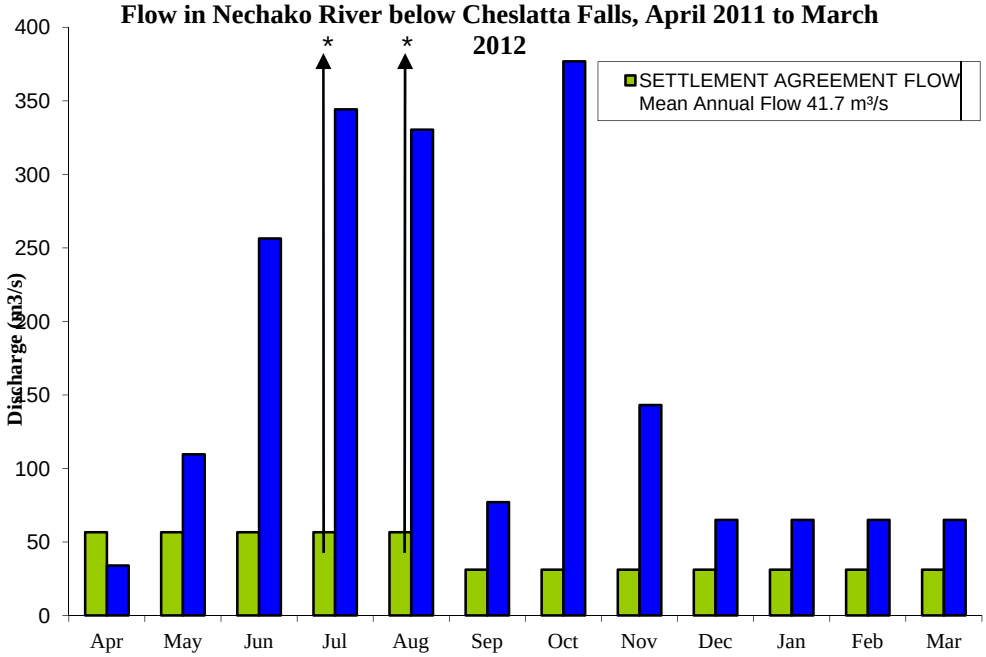
In 2012/2013, flow allocation will again be managed by the NFCP to best utilize the annual water allocation.

Figure 2 - Comparison between Settlement Agreement and Recorded Skins Lake Spillway Release, April 2011 to March 2012



* Additional Flows as Required for Cooling Purposes
** Jan., Feb., and Mar. data are assumed.

Figure 3 - Comparison between Settlement Agreement and Recorded Flow in Nechako River below Cheslatta Falls, April 2011 to March 2012



* Additional Flows as Required for

(Continued)

NFCP Flow Discrepancy Project

Periodically a discrepancy is apparent between the flow records for the Skins Lake Spillway and the Nechako River below Cheslatta Falls. An investigation into the potential reasons for these discrepancies was carried out in February 1999. The investigation indicated that the most likely cause was the use of preliminary data for the station below Cheslatta Falls in making the comparison. There is also the possibility of groundwater recharge occurring in the fall.

YEAR 24 **2011/2012**	**YEAR 25** **2012/2013**
RTA received a recommendation for the type of instrumentation to install began the process to contract the installation and calibration. The instrumentation will be a coded wire measuring device. The calibration will need to be done over a range of reservoir elevations and gate openings, so will take a few years to complete.	During 2012/2013 a contingency budget will again be established to allow investigation of the source of the discrepancy between the Skins Lake Spillway and the WSC gauging station (#08JA017) in the Nechako River below Cheslatta Falls. Additionally, the Water Survey of Canada will conduct spot checks of the flows at station 08JA4017 to allow a comparison of flows with spillway releases, should an anomaly in the relationships be detected.

NECHAKO FISHERIES CONSERVATION PROGRAM

STEERING COMMITTEE - BRIEFING MEMO
OUTLINE OF COMPLETED YEAR 24 AND PROPOSED YEAR 25 PROJECTS

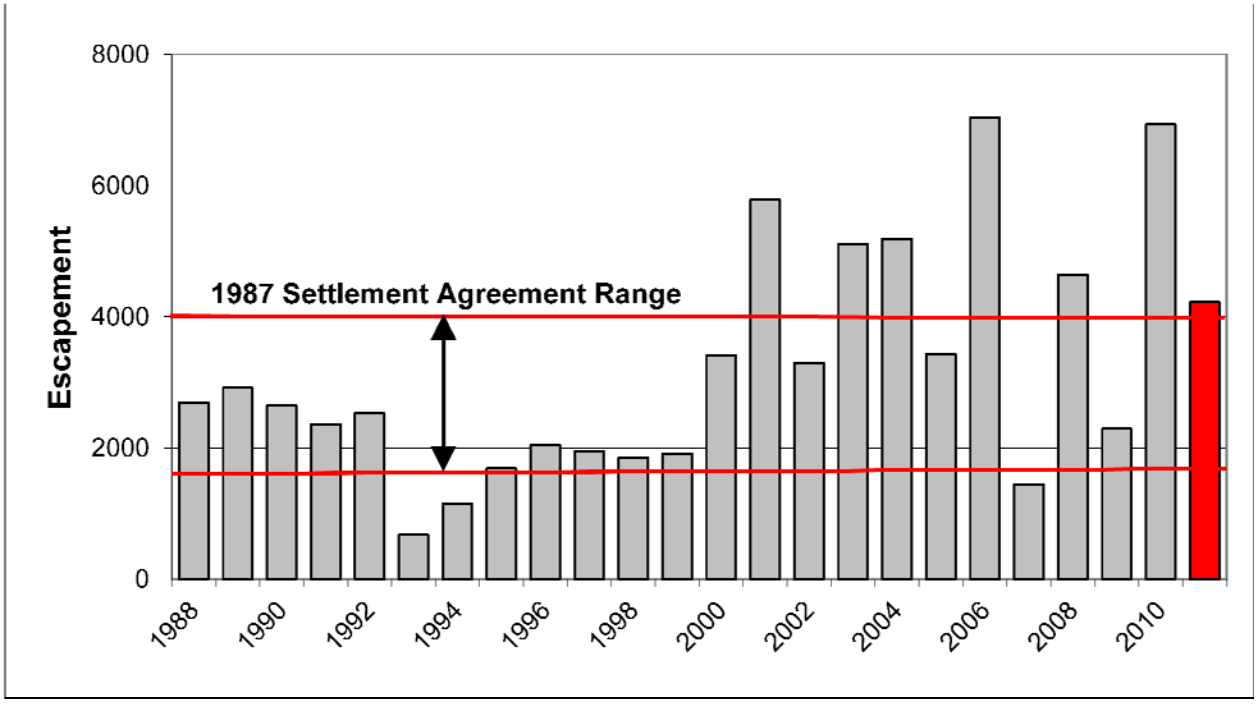
MONITORING

Adult Spawner Enumeration

The number of adult chinook salmon returning to the Nechako River is the ultimate indicator of achievement of the Conservation Goal.

YEAR 24 2011/2012	YEAR 25 2012/2013
In 2011, 5 over-flights were undertaken between August 31 and September 28. Results indicated an escapement estimate of 4219 spawners (preliminary estimate) to the Nechako River (Figure 4), slightly above the upper target of the conservation goal of 4000 chinook.	In 2012, the approach to the adult enumeration on the Nechako River will again include only the aerial count portion of the project. The average redd residence time of 10.6 days will be utilized to scale the helicopter counts

Figure 6. Nechako Chinook Escapement: 1988 - 2011



MONITORING
(Continued)

Adult Carcass Recovery

Life history information on freshwater and marine components of Nechako River chinook salmon can be ascertained by analyzing adult carcasses near the spawning grounds. Age at return, time of fresh water residency, and egg deposition are important data to enable results from other monitoring projects to be interpreted.

YEAR 24 2011/2012	YEAR 25 2012/2013
Samples taken for age analyses were sent to the aging laboratory and the 2011 age data is not yet available. The data will be analyzed and compiled into a future NFCP report.	In 2012, the carcass recovery project will continue to collect biological data on size, sex, age, life history, egg retention and fecundity of Nechako River chinook. The current budget proposal allows for continuation of the project consistent with prior years.

MONITORING
(Continued)

Fry Emergence

The key incubation environment indicator is the quality and quantity of emerging fish from the gravel. A monitoring project designed to assess emergent success serves as an early warning indicator of any changes in the incubation environment and defines potential recruitment of chinook in the Nechako River.

YEAR 24 2011/2012	YEAR 25 2012/2013
The next fry emergence project is scheduled for 2015/2016 therefore no new work was undertaken in 2011/2012.	The next fry emergence project is scheduled for 2015/2016 therefore no new work will be undertaken in 2012/2013.

MONITORING
(Continued)

Juvenile Outmigration

To provide an "early warning" indication of any change in numbers or condition of Nechako River chinook, an index monitoring project was formerly conducted on an annual basis. This project is designed to provide important management information 4 to 5 years prior to return of adult spawners. Data collected to date has resulted in the development of spawner to out-migrant and spawner to rearing juvenile (CPUE) relationships for the Nechako River. Following the schedule set by the NFCP 5-year plan, measurements of juvenile outmigration are to be conducted every five years.

YEAR 24 **2011/2012**	**YEAR 25** **2012/2013**
The next juvenile outmigration project is scheduled for 2015/2016 therefore no new work was undertaken in 2011/2012.	The next juvenile outmigration project is scheduled for 2015/2016 therefore no new work will be undertaken in 2012/2013.

MONITORING
(Continued)

Physical Data Collection

The timing of emergence, growth rates, and life history dynamics of chinook salmon are closely related to the temperature of their environment. Therefore, the maintenance of the river temperature database is important for designing and/or supporting monitoring projects and assessing the timing of life history events.

YEAR 24 2011/2012	YEAR 25 2012/2013
In 2011/2012, collection of temperature baseline data under the auspices of the NFCP was discontinued.	In 2012/2013, no collection of temperature baseline data under the auspices of the NFCP will take place.

MONITORING
(Continued)

Outstanding NFCP Report Publication and Web Site Management

The NFCP has completed over 150 project reports summarizing the results of various remedial measures, applied research, monitoring and data collection projects over the last 23 years of the program. The 2012/2013 Outstanding Report project will endeavor to complete publication of all outstanding NFCP reports, including those for currently budgeted projects. Completed reports will be put on the NFCP website in PDF format along with annual programs and new initiatives.

YEAR 24 **2011/2012**	**YEAR 25** **2012/2013**
The NFCP web site was maintained under the direction of the Independent Member. Ten of the 27 reports under DFO authorship that were planned for publishing in 2011/2012 were completed. A pamphlet will be prepared summarizing NFCP activities in 2011 and will be broadly distributed in northern B.C.	The NFCP will complete and publish all of the outstanding technical reports. This includes 17 reports under DFO authorship. Anticipated revisions to the website include updating of annual programs, decision records technical report posting and descriptions of new initiatives. A pamphlet will be prepared for distribution in northern B.C. to summarize NFCP activities in 2012.

NECHAKO FISHERIES CONSERVATION PROGRAM

STEERING COMMITTEE - BRIEFING MEMO
OUTLINE OF COMPLETED YEAR 24 AND PROPOSED YEAR 25 PROJECTS

APPLIED RESEARCH

YEAR 24 2011/2012	YEAR 25 2012/2013
No applied research projects were conducted in 2011/2012	No applied research projects are planned in 2012/2013.