March 2013

NECHAKO FISHERIES CONSERVATION PROGRAM

BRIEFING DOCUMENT FOR NFCP STEERING COMMITTEE

EXECUTIVE SUMMARY OF ACTIVITIES IN 2012/2013 AND PROPOSED WORK FOR 2013/2014

Technical Committee Operations

The Technical Committee undertook minimal activities in Year 25 of the NFCP and held one conference call and no face-to-face meetings. During the year, the Technical Committee undertook the projects approved for the 2012/2013 fiscal year with the exception of the flow discrepancy and habitat structure removal projects. Most of the outstanding publications which were scheduled for completion in Year 24 have been finalized.

2012/2013 Program Summary

In the 2012/2013 operating period 4 of 6 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
2 Monitoring Projects	24	$12,000	$49,000	$61,000
Grand Total	177	$88,500	$83,100	**$171,600**

The total program budget for the 2012/2013 program year was $171,600 excluding Technical and Steering Committee operations.

Proposed 2013/2014 Program Summary

The proposed 2013/2014 (Year 26) Nechako Fisheries Conservation Program includes:

	Person-Days	Person-Day Costs	Disbursements	Total Expenses
3 Remedial Measures Projects	141	$70,500	$29,320	$99,820
2 Monitoring Projects	24	$12,000	$49,000	$61,000
Grand Total	165	$82,500	$78,320	**$160,820**

Activities are similar to those undertaken in Year 25 with the exception of the habitat structure removal project. The Chinook residence time evaluation, scheduled in the current 5-year plan for implementation in Year 26, has been deferred to Year 27 by unanimous consent of the NFCP as reflected in Decision Record 2012/13-1. The previous assessment took place in 2009 making Year 27 a 5-yr measurement frequency interval in keeping with the overall intent of the program.

A detailed breakdown of person-days and expenses of proposed 2013/2014 individual projects is attached in Table 1. Table 2 provides a comparison of the proposed Year 26 program budget with the approved budgets for the previous 4 years. Figure 1 shows the information graphically.

Table 1. NFCP: Proposed 2013/2014 Program.

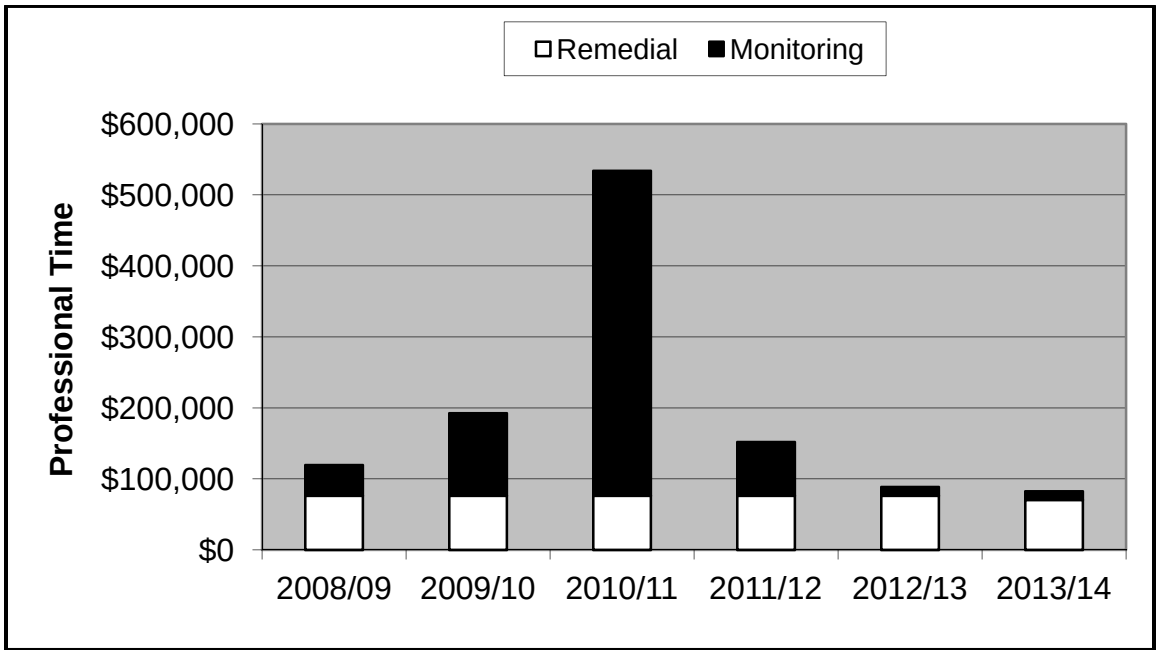
REMEDIAL MEASURES			DAYS	DISBURSEMENTS*	RESPONSIBLE
RM12-2	Summer Temperature Management		$54,750	$15,910	RTA
RM12-8	Flow Control		$11,250	$3,410	RTA
RM12-8A	Flow Discrepancy Project		$4,500	$10,000	RTA
		SUBTOTAL	$70,500	$29,320	$99,820
MONITORING					
M12-1	Enumeration and Residency Time		$8,000	$30,000	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	$82,500	$78,320	**$160,820**
COMMITTEE OPERATIONS**			***	$50,000	

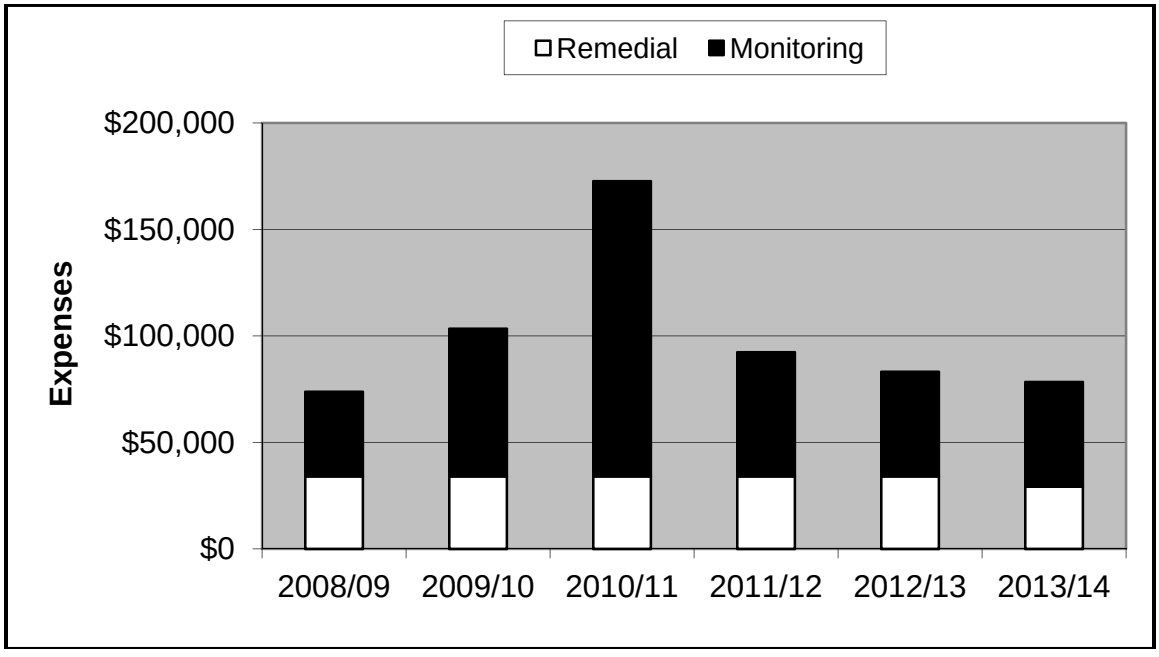
*Includes contracts
**Includes Independent Member, Annual Meeting and Report, Technical Report Production, and Committee Meetings
***As required by each party
Technical Report Production, and Committee Meetings

Table 2. Nechako Fisheries Conservation Program Previous Years' Budgets and Proposed Project Budgets for Year 26 (2013/2014)

		2009/2010		20010/2011		20011/2012		2012/2013		Proposed 2013/2014	
		DAYS	EXPENSES	DAYS	EXPENSES	DAYS	EXPENSES	DAYS	EXP	DAYS	EXPENSES
REMEDIAL MEASURES											(inc. contract)
1	Murray Cheslatta Flow Measurement										
2	Summer Temperature Management	$54,750	$15,910	$54,750	$15,910	$54,700	$15,910	$54,750	$15,910	$54,750	$15,910
3	Instream Habitat Complexing	$6,000	$4,821	$6,000	$4,821	$6,000	$4,821	$6,000	$4,820		
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**	**$34,140**	**$70,500**	**$29,320**
MONITORING											
1	Enumeration	$81,000	$55,000	$8,000	$25,400	$8,000	$30,000	$8,000	$30,000	$8,000	$30,000
2	Carcass Recovery	$12,000	$5,000	$16,000	$7,000	$4,000	$19,000	$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				
11	Emergent Fry Habitat Monitoring										
12	Database Management										
	Sub-Total Monitoring	**$116,000**	**$69,200**	**$457,350**	**$138,497**	**$35,000**	**$58,200**	**$12,000**	**$49,000**	**$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**	**$0**	**$0**
	GRAND TOTAL	**$192,500**	**$103,341**	**$533,850**	**$172,638**	**$111,500**	**$92,340**	**$88,500**	**$83,140**	**$82,500**	**$78,320**

Figure 1. NFCP professional time and program expenditures for Year 26 (2013/14) and the previous 5 years.





Cost Sharing Status

Rio Tinto Alcan (RTA) pays for the cost of remedial measures projects (e.g. Summer Temperature Management, Flow Control), DFO pays the cost of applied research projects (e.g. previously - 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 2013/14: chinook enumeration and carcass recovery. DFO completed the preparation of outstanding carcass recovery reports in Year 25 covering the period 2001 - 2010. There are additional reports covering chinook enumeration over the period 2001 - 2012 that will be finalized by DFO in Year 26, 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 26 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 2013/14 (Year 26) are shown in Table 5

Table 5. Financing schedule for NFCP monitoring projects between 2010-2014.

		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	actual	-	$61,000	$61,000	**$134,700**
Year 26	projected	-	$61,000	$61,000	**$73,700**
Total	projected	$377,100	$303,400	$680,500	**$73,700**

At the end of Year 23, RTA had expended $283,900 more funds than DFO. Following Year 25, this number declined to $134,700. After Year 26, RTA will have expended $73,700 more than DFO. It is expected that in Year 27 when higher expenditures are anticipated for monitoring projects associated with the adult residence time enumeration project, the imbalance will shift in favor of DFO (assuming that DFO pays for this contract)..

NECHAKO FISHERIES CONSERVATION PROGRAM

STEERING COMMITTEE - BRIEFING DOCUMENT
OUTLINE OF COMPLETED YEAR 25 AND PROPOSED YEAR 26 PROJECTS

ATTACHMENT #1

NECHAKO FISHERIES CONSERVATION PROGRAM

STEERING COMMITTEE - BRIEFING DOCUMENT
OUTLINE OF COMPLETED YEAR 25 AND PROPOSED YEAR 26 PROJECTS

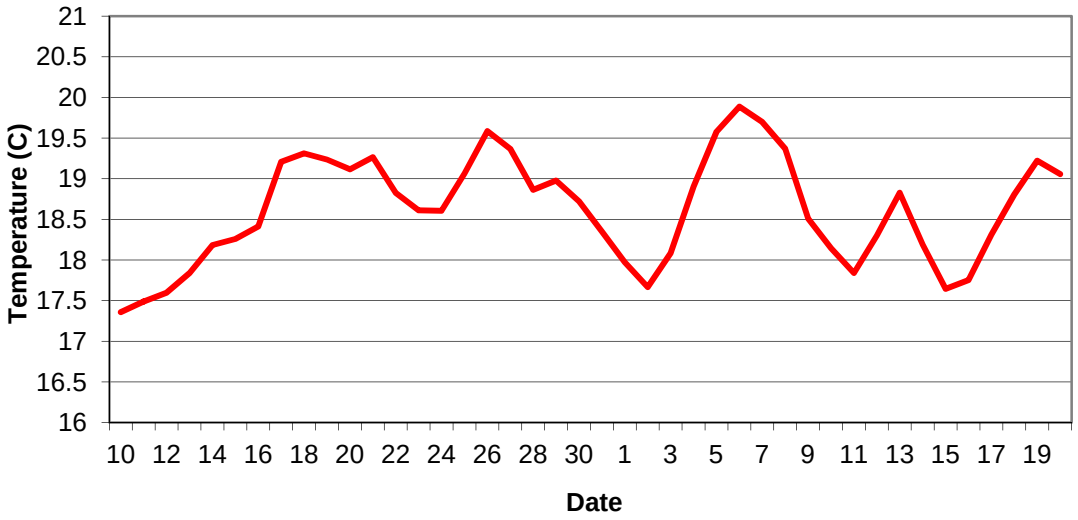
REMEDIAL MEASURES

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 25 **2012/2013**	**YEAR 26** **2013/2014**
The Summer Temperature Management Program (STMP) was not operated in the summer of 2012 as reservoir management releases exceeded the STMP Protocol maximum discharge in the Nechako River below Cheslatta Falls for all of July and until August 20 (later than required under the STMP). Figure 2 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 2: Recorded Mean Daily Temperature in the Nechako River above the Stuart River Confluence July 10, 2012 to August 20, 2012



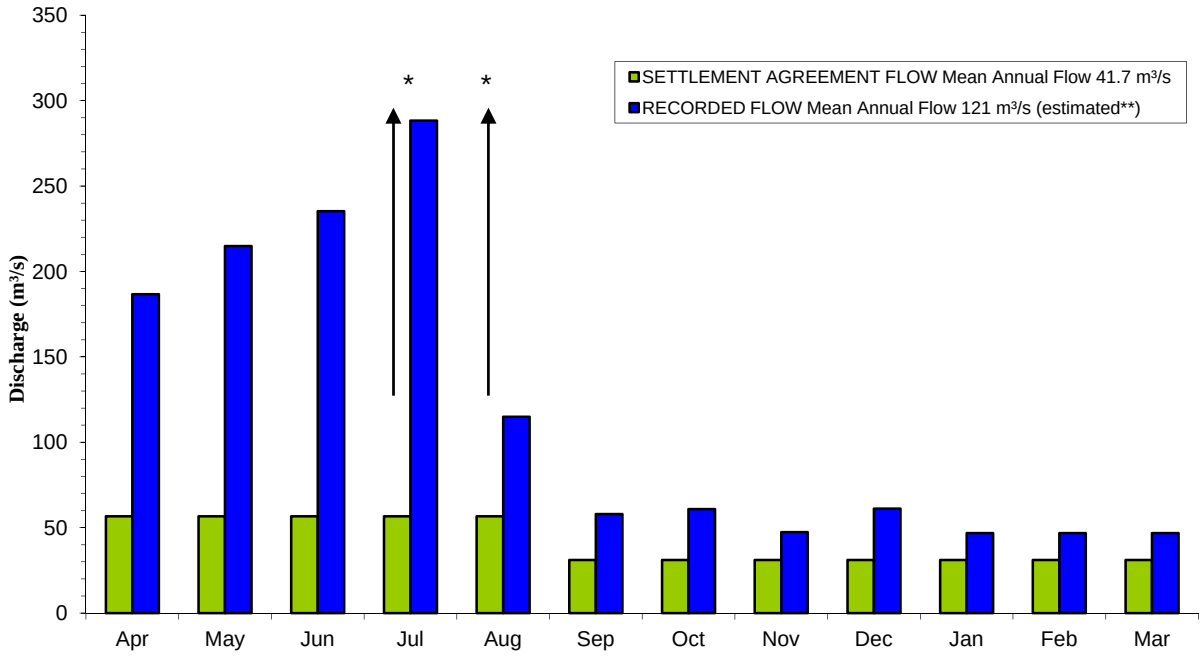
REMEDIAL MEASURES
(Continued)

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.

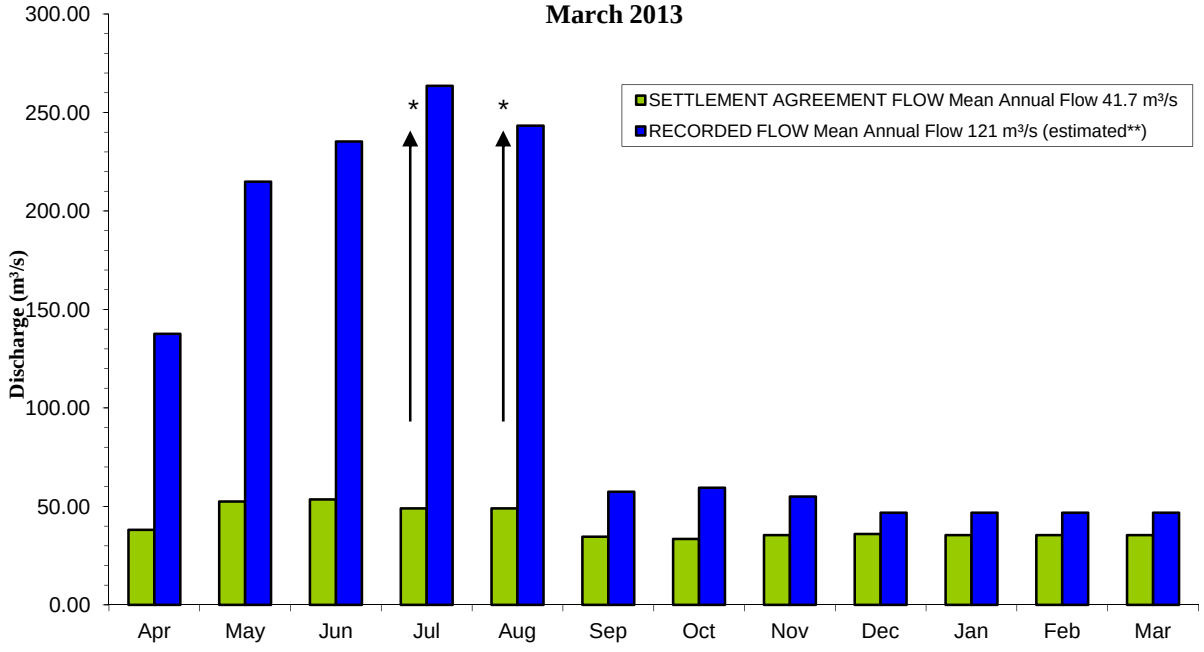
YEAR 25 2012/2013	YEAR 26 2013/2014
In 2012/2013, the release of the Annual Water Allocation was initiated in April at a greater rate than in prior years due to a higher than normal reservoir level and the estimated high snow-pack. As noted in Figure 2, releases from the reservoir remained high between April and late August when they were decreased, to control the discharge in the Nechako River below Cheslatta Falls to approximately 65 m^3/s through the spawning period in September, remaining at that level until, mid-November when they were again decreased to 39 m^3/s. It is anticipated the releases will remain at ~39 m^3/s for the remainder of the winter. It is estimated that the mean annual discharge from the reservoir will be 115.6 m^3/s, much greater than the required release of 36.8 m^3/s.	In 2013/2014, flow allocation will again be managed by the NFCP to best utilize the annual water allocation.

Figure 3 - Comparison between Settlement Agreement and Recorded Flow in Nechako River below Cheslatta Falls, April 2012 to March 2013



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

Figure 4 - Comparison between Settlement Agreement and Recorded Flow in Nechako River below Cheslatta Falls - without Added Cooling Flows, April 2012 to March 2013



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

(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 25 **2012/2013**	**YEAR 26** **2013/2014**
The flow discrepancy project was not undertaken in 2012-13 as no flow anomaly was detected early in the year and discharges from the reservoir were much greater than the minimums required under the 1987 Settlement Agreement for the remainder of the year.	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 25 AND PROPOSED YEAR 26 PROJECTS

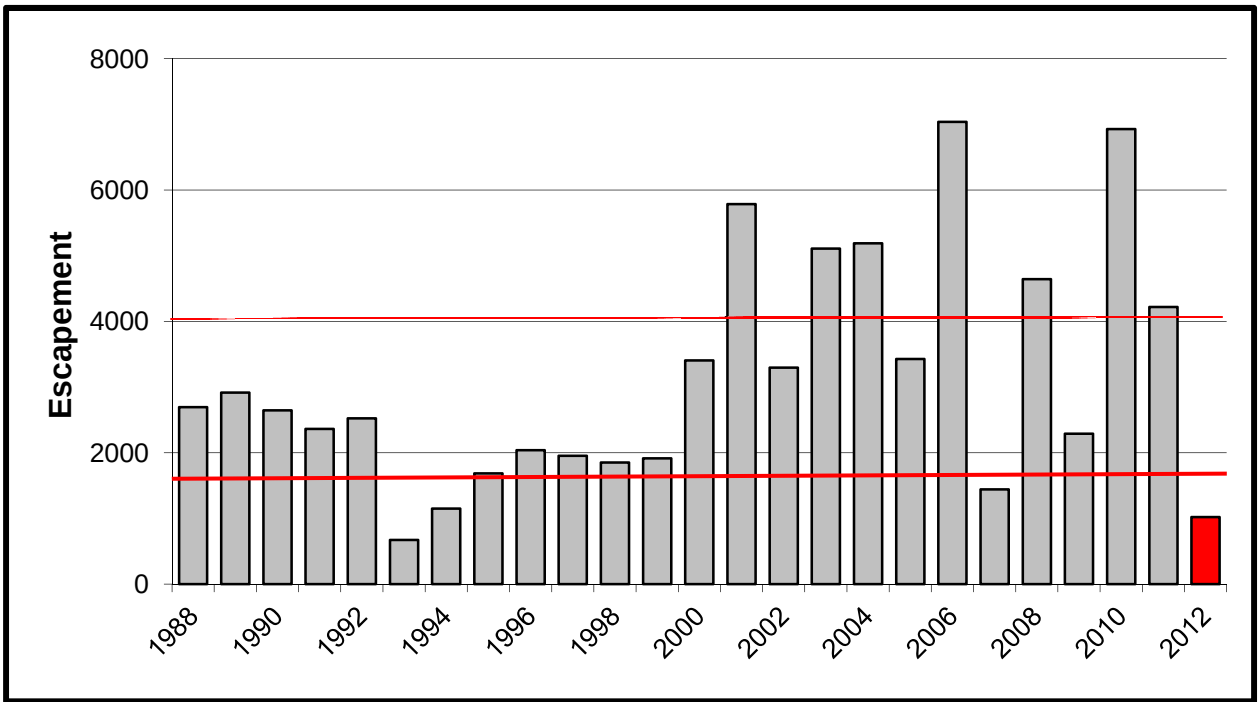
MONITORING

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 25 2012/2013	YEAR 26 2013/2014
In 2012, 5 over-flights were undertaken between August 31 and September 28. Results indicated an escapement estimate of 1021 spawners to the Nechako River (Figure 5), below the lower target of the conservation goal of 1700 chinook.	In 2013, 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. This is a minor departure from the 5-year plan 2012-2017 which included measurement of residence time in 2013 as a precursor to a broader Chinook fry and juvenile assessment. However in view of the scheduling of the previous residence time assessment in 2009, there was unanimous consent within the NFCP to defer this program until 2014, in keeping with a 5-year frequency of measurement.

Figure 5. Nechako Chinook Escapement: 1988 - 2012



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 25 2012/2013	YEAR 26 2013/2014
Samples taken for age analyses were sent to the aging laboratory and the 2012 age data is not yet available. The data will be analyzed and compiled into a future NFCP report.	In 2013, 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 25 2012/2013	YEAR 26 2013/2014
The next fry emergence project is scheduled for 2015/2016 therefore no new work was undertaken in 2012/2013.	The next fry emergence project is scheduled for 2015/2016 therefore no new work will be undertaken in 2013/2014.

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 25 **2012/2013**	**YEAR 26** **2013/2014**
The next juvenile outmigration project is scheduled for 2015/2016 therefore no new work was undertaken in 2012/2013.	The next juvenile outmigration project is scheduled for 2015/2016 therefore no new work will be undertaken in 2013/2014.

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 25 2012/2013	YEAR 26 2013/2014
In 2012/2013, no collection of temperature baseline data under the auspices of the NFCP took place	In 2013/2014, 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 25 years of the program. The 2013/2014 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 25 **2012/2013**	**YEAR 26** **2013/2014**
The NFCP web site was maintained under the direction of the Independent Member.	The NFCP web site will be maintained under the direction of the Independent Member.
In 2011/2012 (Year 24), ten of the 27 reports under DFO authorship that were planned for publishing in 2011/2012 were completed to the draft stage. Thus far none have been finalized.	The NFCP will complete and publish the outstanding technical reports of which there are ??. Anticipated revisions to the website include updating of annual programs, decision records, technical report posting and descriptions of new initiatives.
In 2012/2013 the NFCP completed and published most of the outstanding technical reports. This work was undertaken by DFO.	A pamphlet will be prepared for distribution in northern B.C. to summarize NFCP activities in 2013.

NECHAKO FISHERIES CONSERVATION PROGRAM

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

APPLIED RESEARCH

YEAR 25 **2012/2013**	YEAR 26 **2013/2014**
No applied research projects were conducted in 2012/2013	No applied research projects are planned in 2013/2014.