

Alouette Water Use Plan

Monitoring Programs

Annual Report: 2015

Implementation Period: May 2014 to April 2015

- **ALUMON-1 Smolt Enumeration**
- **ALUMON-2 Kokanee Out-migration**
- **ALUMON-3 Substrate Quality**
- **ALUMON-4 Sockeye Adult Enumeration**
- **ALUMON-5 Water Temperature**
- **ALUMON-6 Kokanee Age Structure Analysis**
- **ALUMON-7 Archaeological Monitoring**

For Water Licences 124724, 124725, 124726

May 31, 2015

BC Hydro Alouette Project Water Use Plan Monitoring Programs Annual Report: 2015

1 Introduction

This document represents a summary of the status and the results of the Alouette Water Use Plan (WUP) monitoring programs to April 30, 2015, as per the Alouette Project Order under the *Water Act*, dated April 20, 2009. There are seven monitoring programs.

2 Status

The following table outlines the dates that Terms of Reference (TOR) for the Alouette WUP monitoring programs were submitted to and approved by the CWR.

Table: 2-1: Dates of Alouette WUP TOR Submissions and Approvals by the Comptroller of Water Rights

Monitoring Program TORs	Order Clause	Original ToR Submission		Most Recent ToR Resubmission	
		Date Submitted	Date Approved	Date Submitted	Date Approved
ALUMON-1 Smolt Enumeration	Clause 16.a	Oct 19, 2009	Nov 16, 2009	Nov 03, 2010	Nov 16, 2010
ALUMON-2 Kokanee Out-migration	Clause 16.b	Oct 19, 2009	Nov 16, 2009	Nov 03, 2010	Nov 16, 2010
ALUMON-3 Substrate Quality	Clause 16.c	Oct 19, 2009	Nov 16, 2009		
ALUMON-4 Sockeye Adult Enumeration	Clause 16.d	Oct 19, 2009	Nov 16, 2009		
ALUMON-5 Water Temperature	Clause 16.e	Oct 19, 2009	Nov 16, 2009		
ALUMON-6 Kokanee Age Structure Analysis	Clause 16.f	Oct 19, 2009	Nov 16, 2009		
ALUMON-7 Archaeological Monitoring	Clause 16.g	Oct 19, 2009	Nov 16, 2009		

3 Schedule

The following table (Table 3-1) outlines the current schedule for the monitoring programs being delivered for the Alouette WUP.

The Alouette Water Use Plan completed its last year of monitoring in 2014 and this report will represent the final annual report. The Alouette Monitoring Committee will meet in June 2015 to discuss the results of the final year of monitoring. This will be the last meeting until the WUP Order Review scheduled to be held in 2017.

Table 3-1: Table of WUP Schedule

Monitoring Programs	2008	2009	2010	2011	2012	2013	2014
	WLR YR1 ¹	WLR YR2 ¹	WLR YR3	WLR YR4	WLR YR5	WLR YR6	WLR YR7
ALUMON-1 Smolt Enumeration	✓	✓	✓	✓	✓	✓	✓
ALUMON-2 Kokanee Out-migration	✓	✓	✓	✓	✓	✓	✓
ALUMON-3 Substrate Quality	✓	✓	✓	✓	✓	✓	✓
ALUMON-4 Sockeye Adult Enumeration	✓	✓	✓	✓	✓	✓	✓
ALUMON-5 Water Temperature	✓	✓	✓	✓	✓	✓	✓
ALUMON-6 Kokanee Age Structure Analysis	✓	✓	✓	✓	✓	✓	✓
ALUMON-7 Archaeological Monitoring	x ²	✓	✓				

Legend:

- = Program to be undertaken/initiated in identified year
- ✓ = Program completed for the year
- x = Program started, but encountered operational or hydrological delays

Footnotes:

- 1 Programs initiated prior to receipt of monitoring program leave to commence from CWR.
- 2 Archaeological Monitoring delay until 2009 based on delayed TOR approval by Katzie First nation and BC Archaeological Branch

3.1 Monitoring Programs Terms of Reference

The monitoring programs being implemented under the Alouette WUP are described in Terms of Reference. These Terms of Reference and the reports for work completed to date can be found here:

http://www.bchydro.com/toolbar/about/sustainability/conservation/water_use_planning/lower_mainland/alouette.html

4 Summary of Monitoring Programs

4.1 ALUMON-1 Smolt Enumeration

4.1.1 Status

This monitoring program was initiated in 2008 and all field work was completed in spring 2014. Attached is the report for Year 6 (2013) dated April 2013. The final report for 2014 will be submitted once it has been finalized.

4.2 ALUMON-2 Kokanee Out-migration

4.2.1 Status

This monitoring program was initiated in 2008 and all field work was completed in spring 2014. Attached is the report for Year 6 (2013) dated June 2014. The final report for 2014 will be submitted once it has been finalized.

4.3 ALUMON-3 Substrate Quality

4.3.1 Status

This monitoring program was initiated in 2008 and all field work was completed in fall 2014. Attached is the report for Year 6 (2013) dated March 2014 and Year 7 (2014) dated February 2015.

4.4 ALUMON-4 Sockeye Adult Enumeration

4.4.1 Status

This monitoring program was initiated in 2008 and all field work was completed in summer 2014. The final report for 2013 and 2014 will be submitted once they have been finalized.

4.5 ALUMON-5 Water Temperature

4.5.1 Status

This monitoring program was initiated in 2008 and all field work was completed in fall 2014. Attached are the final reports for Year 4 (2011) dated June 29, 2012; Year 5 (2012) dated June 2, 2014; and Year 6 (2013) dated July 15, 2015. The final report for 2014 will be submitted once it has been finalized.

4.6 ALUMON-6 Kokanee Age Structure Analysis

4.6.1 Status

This monitoring program was initiated in 2008 all field work was completed in fall 2014. Attached is the final report for Year 5 (2013) dated March 2014. The final report for 2014 will be submitted once it has been finalized.

4.7 ALUMON-7 Archaeological Monitoring

4.7.1 Status

This monitoring program was initiated in 2009 and was carried out over two years. This monitor is completed.

5 Monitoring Programs Costs

The following table summarizes the Alouette WUP monitoring program costs approved by the Comptroller and the actual costs to April 30, 2015.

Table 5-1: Alouette WUP Monitoring Program Costs

Monitoring Programs	Costs approved by CWR	Life to Date Actuals (LTD)	Estimated to Complete (Forecast)	Total Forecast (LTD and Forecast)	Variance Total to Approved	Explanation	Corrective Action
Alouette WUP Annual Report	\$4,708	\$3,444	\$1,321	\$4,765	(\$57)		
ALUM01A Smolt Enumeration	\$852,546	\$788,520	\$2,286	\$790,806	\$61,740	Project completed.	
ALUM01A Smolt Enumeration - ONR DM	\$25,928	\$21,782	\$2,286	\$24,068	\$1,860		
ALUM01A Smolt Enumeration - ONR Imp	\$826,618	\$766,737		\$766,737	\$59,881		
ALUM02A Kokane Out Migration	\$453,982	\$432,340	\$2,287	\$434,628	\$19,354	Project completed.	
ALUM02A Kokane Out Migration - ONR DM	\$29,191	\$24,078	\$2,286	\$26,364	\$2,827		
ALUM02A Kokane Out Migration - ONR Imp	\$424,791	\$408,262	\$1	\$408,263	\$16,528		
ALUM03A Substrate Quality	\$82,012	\$69,898	\$2,286	\$72,184	\$9,828	Project completed.	
ALUM03A Substrate Quality - ONR DM	\$17,774	\$8,452	\$2,286	\$10,738	\$7,036		
ALUM03A Substrate Quality - ONR Imp	\$64,238	\$61,446		\$61,446	\$2,792		
ALUM04A Sockeye Adult Enumer	\$164,184	\$129,592	\$2,286	\$131,878	\$32,306	Project completed.	
ALUM04A Sockeye Adult Enumer - ONR DM	\$25,351	\$12,583	\$2,286	\$14,869	\$10,482		
ALUM04A Sockeye Adult Enumer - ONR Imp	\$138,833	\$117,009		\$117,009	\$21,824		
ALUM05A Water Temperature	\$57,974	\$39,460	\$2,286	\$41,747	\$16,227	Project completed.	
ALUM05A Water Temperature - ONR DM	\$17,925	\$6,592	\$2,286	\$8,879	\$9,046		
ALUM05A Water Temperature - ONR Imp	\$40,049	\$32,868	\$0	\$32,868	\$7,181		
ALUM06A Kokanee Age Structure	\$95,162	\$69,047	\$2,286	\$71,333	\$23,829	Project completed.	
ALUM06A Kokanee Age Structure - ONR DM	\$10,769	\$6,381	\$2,286	\$8,667	\$2,102		
ALUM06A Kokanee Age Structure - ONR Imp	\$84,393	\$62,666	\$0	\$62,666	\$21,727		
ALUM07A Arch Impact Assessmnt	\$124,208	\$120,383	\$1,478	\$121,861	\$2,347	Project completed.	
ALUM07A Arch Impact Assessmnt - ONR DM	\$7,806	\$10,131	\$1,478	\$11,609	(\$3,803)		
ALUM07A Arch Impact Assessmnt - ONR Imp	\$116,402	\$110,252	\$0	\$110,252	\$6,150		

OR - Ordered Remissible
ONR - Ordered Non-Remissible

* Red values in parentheses denote overage.