

Puntledge River Water Use Plan

Monitoring Program and Physical Works

Annual Report: 2013

Implementation Period: July 2012 to June 2013

- **PUNMON-1 Assessment of Adult Fish Passage during Pulse Flow Releases**
- **PUNMON-2 Assessment of Egg Incubation Success in Reach C**
- **PUNMON-3 Steelhead Production**
- **PUNMON-4 Evaluating Effects of Ramping Rates on Fish Stranding in Puntledge River (Reach C)**
- **PUNMON-5 Puntledge River Kayak Pulse Flow Cost-Benefit Analysis**
- **PUNWORKS-1 Gravel Replacement in the Puntledge River**

For Conditional Water Licences 120300, 120301, 120302

July 31, 2013

BC Hydro Puntledge River Project Water Use Plan Monitoring Programs and Physical Works Annual Report: 2013

1 Introduction

This document represents a summary of the status and the results of the Puntledge River Water Use Plan (WUP) monitoring programs and physical works to June 30, 2013, as per the Puntledge River Order under the *Water Act*, dated January 19, 2005. There are five monitoring programs and one physical work.

2 Status

The following table outlines the dates that TOR for the Puntledge River WUP monitoring programs and physical works were submitted to and approved by the CWR.

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

Monitoring Program & Physical Works TOR	Order Clause (optional)	Original ToR Submission		Most Recent ToR Resubmission	
		Date Submitted	Date Approved	Date Submitted	Date Approved
PUNMON-1 Assessment of Adult Fish Passage during Pulse Flow Releases	Schedule B.1.a	Aug 11, 2005	Sep 06, 2005	May 04, 2007	May 28, 2007
PUNMON-2 Assessment of Egg Incubation Success in Reach C	Schedule B.1.b	Aug 11, 2005	Sep 06, 2005		
PUNMON-3 Steelhead Production	Schedule B.1.c	Aug 11, 2005	Sep 06, 2005		
PUNMON-4 Evaluating Effects of Ramping Rates on Fish Stranding in Puntledge River (Reach C)	Schedule B.1.d	Aug 11, 2005	Sep 06, 2005	Oct 18, 2007	Jan 29, 2008
PUNMON-5 Puntledge River Kayak Pulse Flow Cost-Benefit Analysis	Schedule B.2	Aug 11, 2005	Sep 06, 2005	May 10, 2010	May 20, 2010
PUNWORKS-1 Gravel Replacement in the Puntledge River	Schedule C.1	To be submitted Apr 30, 2014.			

3 Schedule

The following table (Table 3-1) outlines the current schedule for the monitoring programs and physical works being delivered for the Puntledge River WUP.

Table 3-1: Table of WUP Schedule

Monitoring Programs	2006 WLR YR1	2007 WLR YR2	2008 WLR YR3	2009 WLR YR4	2010 WLR YR5	2011 WLR YR6	2012 WLR YR7	2013 WLR YR8	2014 WLR YR9	2015 WLR YR10 Final Review
Assessment of Adult Fish Passage During Pulse Flow Releases		✓	✓	●						
Assessment of Egg Incubation Success in Puntledge River Reach C		✓	●							
Steelhead Production	✓	✓	✓	✓	✓	●				
Evaluating Effects of Ramping Rates on Fish Stranding in Puntledge River Reach C	✓	✓	●							
Kayak Pulse Flow Cost - Benefit Assessment	✓	✓	✓	✓	●					
Physical Works										
Gravel Placement in the Puntledge River									■	
Legend:	■	=	Program to be undertaken/initiated in identified year		✓	=	Program completed for the year			
	u/w	=	Project is underway		x	=	Program started, but encountered operational or hydrological delays			
	●	=	Program completed			=	Review Year			

4 Monitoring Programs and Physical Works Terms of Reference

The Monitoring Programs and Physical Works being implemented under the Puntledge River 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/about/sustainability/conservation/water_use_planning/vancouver_island/puntledge_river.html

5 Summary of Monitoring Programs

5.1 PUNMON-1 Assessment of Adult Fish Passage during Pulse Flow Releases

5.1.1 Status

This monitoring program was initiated in June 2007 and completed September 2010.

5.2 PUNMON-2 Assessment of Egg Incubation Success in Reach C

5.2.1 Status

This monitoring program was initiated in August 2006 and completed September 2008.

5.3 PUNMON-3 Steelhead Production

5.3.1 Status

This monitoring program was initiated in January 2006 was completed November 2011.

5.4 PUNMON-4 Evaluating Effects of Ramping Rates on Fish Stranding in Puntledge River (Reach C)

5.4.1 Status

This monitoring program was initiated in July 2006 and was completed March 2008.

5.5 PUNMON-5 Puntledge River Kayak Pulse Flow Cost-Benefit Analysis

5.5.1 Status

This monitoring program was initiated in June 2006 and was completed April 2011.

6 Summary of Physical Works

6.1 PUNWORKS-1 Gravel Replacement in the Puntledge River

6.1.1 Status

This physical works has not yet been initiated. The project has been deferred over the years pending assessments of a spawning habitat restoration project undertaken in Reach B of the Puntledge River in 2005.

On May 11, 2006, BC Hydro received approval from the Comptroller of Water Rights (CWR) to delay the Puntledge gravel placement. On March 3, 2008 BC Hydro received approval from the CWR to further delay the gravel placement project for two years with the submission of the Terms of Reference by March 31, 2010.

On July 21, 2010 BC Hydro received approval from the CWR to further delay in the gravel placement project and suggested the need for the project be reviewed and confirmed at the Interim Review.

During the Puntledge WUP Interim Review (December 14, 2011) DFO recommended gravel placement be planned for the summer of 2013.

BC Hydro has begun planning for the gravel placement with DFO and we have prepared a preliminary work plan. BC Hydro and DFO plan to work together to undertake this project; however, due to resource constraints in both organizations and the need for further work on the complex logistics and planning, BC Hydro received approval from the Comptroller of Water Rights to further delay the gravel placement project until the late summer of 2014. This time period will allow development of a collaborative agreement between BC Hydro and DFO and a solid work plan to complete the project.

7 Monitoring Programs and Physical Works Costs

The following table summarizes the Puntledge River WUP monitoring programs and physical works costs approved by the Comptroller and the Actual Costs to June 30, 2013.

Table 7-1: Puntledge River WUP Monitoring Programs and Physical Works 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
Puntledge WUP Annual Report	\$4,932	\$4,449	\$0	\$4,449	\$483		
PUNMON-1 Assessment of Adult Fish Passage during Pulse Flow Releases	\$355,431	\$314,798	\$0	\$314,798	\$40,633		
PUNM01A Adult Fish Passage Mo - OR DM	\$58,961	\$45,419	\$0	\$45,419	\$13,542		
PUNM01A Adult Fish Passage Mo - OR Imp	\$296,470	\$269,379	\$0	\$269,379	\$27,091		
PUNMON-2 Assessment of Egg Incubation Success in Reach C	\$100,962	\$92,417	\$0	\$92,417	\$8,545		
PUNM02A Egg Incubation Assess - OR DM	\$20,862	\$13,158	\$0	\$13,158	\$7,704		
PUNM02A Egg Incubation Assess - OR Imp	\$80,100	\$79,259	\$0	\$79,259	\$841		
PUNMON-3 Steelhead Production	\$346,928	\$329,858	\$0	\$329,858	\$17,070		
PUNM03A Steelhead Production - OR DM	\$70,228	\$58,457	\$0	\$58,457	\$11,771		
PUNM03A Steelhead Production - OR Imp	\$276,700	\$271,401	\$0	\$271,401	\$5,299		
PUNMON-4 Evaluating Effects of Ramping Rates on Fish Stranding in Puntledge River (Reach C)	\$15,841	\$15,017	\$0	\$15,017	\$824		
PUNM04A Stranding Assessment - OR DM	\$7,472	\$6,813	\$0	\$6,813	\$659		
PUNM04A Stranding Assessment - OR Imp	\$8,369	\$8,204	\$0	\$8,204	\$165		
PUNMON-5 Puntledge River Kayak Pulse Flow Cost-Benefit Analysis - OR	\$64,094	\$64,094	\$0	\$64,094	(\$0)		
PUNM05A Kayak Cost Benefit - OR DM	\$27,894	\$27,894	\$0	\$27,894	(\$0)		
PUNM05A Kayak Cost Benefit - OR Imp	\$36,200	\$36,200	\$0	\$36,200	(\$0)		
PUNMON-5 Puntledge River Kayak Pulse Flow Cost-Benefit Analysis - ONR		\$964		\$964	(\$964)	Consultant required additional time for the 5 year summary report edits.	
PUNM05A Kayak Cost Benefit - ONR DM OS		\$7		\$7	(\$7)		
PUNM05A Kayak Cost Benefit - ONR Imp OS		\$957		\$957	(\$957)		
PUNWORKS-1 Gravel Replacement in the Puntledge River		\$15,391	\$151,927	\$167,318	(\$167,318)	TOR not yet submitted. Work to start in 2014	TOR to be submitted by Apr. 30, 2014
PUNW01A Gravel Replacement - OR DM		\$15,391	\$18,927	\$34,318	(\$34,318)		
PUNW01A Gravel Replacement - OR Imp			\$133,000	\$133,000	(\$133,000)		
OR - Ordered Remissible							
ONR - Ordered Non-Remissible							

* Red values in parentheses denote overage.