

Puntledge River Water Use Plan

Monitoring Program and Physical Works

Annual Report: 2018

Implementation Period: December 2016 to June 2018

- **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, 2018

BC Hydro Puntledge River Project Water Use Plan Monitoring Programs and Physical Works Annual Report: 2018

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 November 30, 2016, as per the Puntledge River Order under the *Water Act*, dated January 19, 2005. There are five monitoring programs and one physical work.

On July 18, 2017, the Comptroller of Water Rights granted relief for the requirement to submit the 2017 Annual Report as all projects are complete with the exception of the Puntledge River Gravel Placement project (PUNWORKS-1), for which a TOR is still under development.

2 Status

The following table outlines the dates that Terms of Reference (TOR) for the Puntledge River WUP monitoring programs and physical works were submitted to and approved by the Comptroller of Water Rights (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	Apr 26, 2016	Jul 14, 2016		

3 Schedule

The following table outlines the current schedule for the monitoring programs and physical works being delivered for the Puntledge River WUP.

Table 3-1: Monitoring Programs and Physical Works Schedule as of June 2018

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	2016 WLR YR11	2017 WLR YR12	2018 WLR YR13	2019 WLR YR14
PUNMON-1: Assessment of Adult Fish Passage During Pulse Flow Releases		✓	✓	✓F										
PUNMON-2: Assessment of Egg Incubation Success in Puntledge River	✓	✓	✓F											
PUNMON-3: Steelhead Production	✓	✓	✓	✓	✓	✓F								
PUNMON-4: Evaluating Effects of Ramping Rates on Fish Stranding in Puntledge River	✓	✓	✓F											
PUNMON-5: Kayak Pulse Flow Cost - Benefit Assessment	✓	✓	✓	✓	✓	✓F								
Physical Works														
PUNWORKS-1: Gravel Placement in the Puntledge River					x		x	x	x	x	x	x	■	■

Legend: ■ = Program to be undertaken/initiated in identified year
 ✓ = Program completed for the year
 x = Program start delayed
 ✓F = All field work for this project is complete. No further field work is planned.
 PCR = Project Completion Report submitted.

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 Status of Monitoring Programs

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

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

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

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

5.3 PUNMON-3 Steelhead Production

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)

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

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

6 Status of Physical Works

6.1 PUNWORKS-1 Gravel Replacement in the Puntledge River

This project is for the placement and periodic maintenance of approximately 2000 square metres of spawning gravel in the Puntledge River which is to be undertaken in consultation with agencies.

On July 14, 2016, BC Hydro received approval of a Terms of Reference (TOR) to determine feasibility and resolve issues associated with the preferred location for the gravel placement. Since that time, BC Hydro has been working to resolve logistical challenges for access to the project via a private property on Forbidden Plateau Road. These property issues are two-fold, access to the project site across private property and preserving access to the river for the private water license. BC Hydro has made significant progress to addressing these issues and will submit the revised TOR once these issues have been resolved.

Attached is the Gravel Placement Project Definition Report dated March 31, 2013.

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 2018.

Puntledge River Project Water Use Plan
Monitoring Programs and Physical Work Annual Report: 2018

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	\$6,978	\$5,281	\$1,696	\$6,977	\$0		
PUNM01A Adult Fish Passage Mo	\$355,431	\$318,377		\$318,377	\$37,054	Project Complete	
PUNM01A Adult Fish Passage Mo - OR DM	\$58,961	\$48,998		\$48,998	\$9,963		
PUNM01A Adult Fish Passage Mo - OR Imp	\$296,470	\$269,379		\$269,379	\$27,091		
PUNM02A Egg Incubation Assess	\$100,962	\$94,751	\$3,154	\$97,905	\$3,057	Project Complete	
PUNM02A Egg Incubation Assess - OR DM	\$20,862	\$15,492	\$3,154	\$18,646	\$2,216		
PUNM02A Egg Incubation Assess - OR Imp	\$80,100	\$79,259		\$79,259	\$841		
PUNM03A Steelhead Production	\$346,928	\$332,114	\$5,897	\$338,012	\$8,916	Project Complete	
PUNM03A Steelhead Production - OR DM	\$70,228	\$60,713	\$5,897	\$66,610	\$3,618		
PUNM03A Steelhead Production - OR Imp	\$276,700	\$271,401		\$271,401	\$5,299		
PUNM04A Stranding Assessment	\$15,841	\$15,251		\$15,251	\$590	Project Complete	
PUNM04A Stranding Assessment - OR DM	\$7,472	\$7,046		\$7,046	\$426		
PUNM04A Stranding Assessment - OR Imp	\$8,369	\$8,204		\$8,204	\$165		
PUNM05A Kayak Cost Benefit	\$64,094	\$64,094		\$64,094	\$0	Project Complete	
PUNM05A Kayak Cost Benefit - OR DM	\$27,894	\$27,894		\$27,894			
PUNM05A Kayak Cost Benefit - OR Imp	\$36,200	\$36,200		\$36,200			
PUNW01A Gravel Replacement	\$58,896	\$35,307	\$202,671	\$237,978	(\$179,082)	TOR will be resubmitted once access issues have been resolved.	
PUNW01A Gravel Replacement - OR DM	\$58,896	\$35,307	\$2,671	\$37,978	\$20,918		
PUNW01A Gravel Replacement - OR Imp	\$0		\$200,000	\$200,000	(\$200,000)		

OR - Ordered Remissible

ONR - Ordered Non-Remissible

* Red values in parentheses denote overage.