

# **Whatshan Project Water Use Plan**

## **Monitoring Programs and Physical Works**

### **Annual Report: 2012**

**Implementation Period: July 2011 – June 2012**

- **WGSMON-1 Lower Whatshan River Fish Habitat Enhancement Physical and Biological Effectiveness Monitoring**
- **WGSMON-2 Reservoir Vegetation Monitoring**
- **WGSMON-3 Reservoir Wildlife Monitoring**
- **WGSMON-4 First Nations Heritage and Archaeology Monitoring**
- **WGWORKS-1 Habitat Complexing Assessment and Enhancement Structures**
- **WGWORKS-2 Inonoaklin Recreation Site Boat Launch Extension**

**For Water Licences 120711 and 120712**

**July 31, 2012**

## **BC Hydro Whatshan Project Water Use Plan Monitoring Programs and Physical Works Annual Report: 2012**

### **1 Introduction**

This document represents a summary of the status and the results of the Whatshan Water Use Plan (WUP) monitoring programs and physical works from July 1, 2011 to June 30, 2012, as per the Whatshan Order under the *Water Act*, dated July 14, 2005. There are four monitoring programs and two physical works including:

- a) WGS MON-1 Lower Whatshan River Fish Habitat Enhancement Physical and Biological Effectiveness Monitoring
- b) WGS MON-2 Reservoir Vegetation Monitoring
- c) WGS MON-3 Reservoir Wildlife Monitoring
- d) WGS MON-4 First Nations Heritage and Archaeology Monitoring
- e) WGS WORKS-1 Habitat Complexing Assessment and Enhancement Structures
- f) WGS WORKS-2 Inonoaklin Recreation Site Boat Launch Extension

### **2 Background**

The water use planning process for BC Hydro's Whatshan project was initiated in May 2002 and completed in May 2003. The conditions proposed in the WUP for the operation of the project reflect the October 2003 recommendations of the WUP Consultative Committee.

In August 2003, the Whatshan WUP was submitted to the Comptroller of Water Rights (Comptroller). On July 14, 2005, BC Hydro was ordered to implement the conditions proposed in the Whatshan WUP and prepare the monitoring programs and physical works terms of reference (TOR). On November 14, 2005, the Whatshan WUP monitoring programs and physical works TOR were submitted to the Comptroller for review and approval.

The following table outlines the pertinent clauses from the Whatshan Order and dates the Whatshan Water Use Plan TOR were submitted to and approved by the CWR.

Table 2-1: Pertinent clauses and submission and approval dates for Whatshan WUP Monitoring Programs and Physical Works Terms of Reference.

Monitoring/Physical Works Program TOR	Order Clause	Date Submitted	Date Approved
WGSMON-1 Lower Whatshan River Fish Habitat Enhancement Physical and Biological Effectiveness Monitoring	Clause 3	Nov 14, 2005	Feb 15, 2006 Jun 29, 2010
WGSMON-2 Reservoir Vegetation Monitoring	Clause 4(a)	Nov 14, 2005	Feb 15, 2006
WGSMON-3 Wildlife Monitoring	Clause 4 (a)	Nov 14, 2005	Feb 15, 2006 Oct 13, 2009
WGSMON-4 First Nations Heritage and Archaeology Monitoring	Clause 4 (b)	Mar 17, 2011	May 17, 2011
WGSWORKS-1 Habitat Complexing Assessment and Enhancement Structures - Feasibility	Clause 3	Nov 14, 2005	Feb 15, 2006 Oct 13, 2009
WGSWORKS-1 Construction Implementation	Clause 3	May 4, 2009	Jun 6, 2009
WGSWORKS-2 Inonoaklin Recreation Site Boat Launch Extension	Clause 2	Nov 14, 2005 and Jun 12, 2006	Aug 2, 2006

As outlined in the Whatshan WUP, a formal review of the WUP is recommended in ten years. A review could be triggered sooner if significant risks are identified through the analysis of monitoring results. Also outlined in the Whatshan WUP, BC Hydro was to review the results of the monitoring programs five years after implementation of the WUP. As there was some review undertaken during implementation of WGSMON-1 and WGSWORKS-1 and the archaeology study began in 2012, BC Hydro has determined that a five-year review would not be conducted. No significant issues have been raised in the interim.

### 3 Status

The following table outlines the status and schedule for the Whatshan WUP monitoring programs and physical works.

**Table 3-1: Status of Whatshan WUP Monitoring Programs and Physical Works Implementation**

Monitoring Programs	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	WLR YR1	WLR YR2	WLR YR3	WLR YR4	WLR YR5	WLR YR6	WLR YR7	WLR YR8	WLR YR9	WLR YR10
WGSMON-1 Lower Whatshan River Fish Habitat Effectiveness Monitoring	✓	✓	✓		✓		u/w	■		■
WGSMON-2 Reservoir Vegetation Monitoring	✓					✓	✓			■
WGSMON-3 Reservoir Wildlife Monitoring	✓		✓	✓	✓					
WGSMON-4 Whatshan Lake Reservoir Archaeological Study							u/w	■		
<b>Physical Works</b>										
WGSWORKS-1 Habitat Complexing Assessment and Enhancement Structures	✓	✓	x	✓						
WGSWORKS-2 Inonoalkin Recreation Site Boat Launch Extension	✓									

Legend: ■ Program to be undertaken/initiated in identified year (red indicates change from original WUP)  
u/w Project is underway  
✓ Program completed for the year (red indicates change from original WUP)  
x Project encountered delays due to hydrological or operational events

## 4 Whatshan WUP Monitoring Programs

This section outlines the status of the Whatshan WUP monitoring programs as per the Order under the *Water Act*, dated 14 July 2005.

### 4.1 WGSMON-1 Lower Whatshan River Fish Habitat Enhancement Physical and Biological Effectiveness Monitoring

#### 4.1.1 Status

This monitoring program was conducted again in Year 7 (2012), the second year of post-construction monitoring. The physical habitat survey and the fisheries survey are scheduled for September, 2012. The Year 7 report will be included with the 2013 annual report.

### 4.2 WGSMON-2 Reservoir Vegetation Monitoring

#### 4.2.1 Status

Implementation of this monitoring study is scheduled for Years 1, 6, and 10. A contract was awarded to G3 Consulting Ltd. for the final two years of the study. The

Year 6 (2011) report will be submitted with the 2013 annual report, and Year 10 work is scheduled for 2015.

#### **4.3 WGS MON-3 Reservoir Wildlife Monitoring**

##### **4.3.1 Status**

The final year of this study was implemented as scheduled in Year 5 (2010) and the study report was submitted with the 2011 Annual Report.

#### **4.4 WGS MON-4 First Nations Heritage and Archaeology Monitoring**

##### **4.4.1 Status**

This study is scheduled for implementation in 2012. The report will be submitted with the 2013 annual report.

### **5 Whatshan WUP Physical Works**

This section outlines the status of the Whatshan WUP physical works as per the Order under the *Water Act*, dated July 14, 2005.

#### **5.1 WGS WORKS-1 Habitat Complexing Assessment and Enhancement Structures**

##### **5.1.1 Status**

The final component of WGS WORKS-1, construction of the habitat structures, was completed in 2009 and all reports have been submitted. Post construction monitoring continues under WGS MON-1.

#### **5.2 WGS WORKS-2 Inonoaklin Recreation Site Boat Launch Extension**

##### **5.2.1 Status**

The project was completed in 2007.

### **6 Whatshan WUP Monitoring Programs and Physical Works Costs**

The following table summarizes the Whatshan WUP monitoring programs and physical works costs approved by the Comptroller on February 15, 2006 and the actual costs to June 30, 2012.

**Table 6-1: Whatshan WUP Monitoring Programs and Physical Works Costs**

Monitoring Programs	Activity	Costs approved by CWR	Total Forecast (Life to Date Actuals and Forecast)	Variance Total to Approved	Explanation	Corrective Action
Whatshan Annual Report	OR	\$5,642	\$5,456	\$186		
<b>WGSMON#1 LOWER WHATSHAN RIVER FISH HABITAT ENHANCEMENT EFFECTIVENESS MONITORING</b>	OR	\$248,493	\$248,493	\$0		
WGSMON#1 Direct Management 001	OR	\$42,791	\$42,791	\$0		
WGSMON#1 Implementation 002	OR	\$205,702	\$205,702	\$0		
<b>WGSMON#2 RESERVOIR VEGETATION</b>	OR	\$162,160	\$162,160	\$0		
WGSMON#2 Direct Management 001	OR	\$27,760	\$27,760	\$0		
WGSMON#2 Implementation 002	OR	\$134,400	\$134,400	\$0		
<b>WGSMON#3 WILDLIFE MONITORING</b>	OR	\$75,279	\$66,948	\$8,331	Project completed.	
WGSMON#3 Direct Management 001	OR	\$27,218	\$18,788	\$8,430		
WGSMON#3 Implementation 002	OR	\$48,061	\$48,159	(\$98)		
<b>WGSMON#4 ARCHAEOLOGY INVENTORY STUDY</b>	OR	\$86,283	\$86,283	\$0		
WGSMON#4 Direct Management 001	OR	\$25,334	\$25,334	\$0		
WGSMON#4 Implementation 002	OR	\$60,949	\$60,949	\$0		
<b>WGSWORKS#1 HABITAT ENHANCEMENT STRUCTURES</b>	OR	\$280,590	\$254,018	\$26,572	Project completed.	
WGSWORKS#1 Direct Management 001	OR	\$14,373	\$13,752	\$621		
WGSWORKS#1 Implementation 002	OR	\$266,217	\$240,267	\$25,950		
<b>WGSWORKS#2 INONOAKLIN RECREATION SITE BOAT LAUNCH</b>	OR	\$69,504	\$36,352	\$33,152	Project completed.	
WGSWORKS#2 Direct Management 001	OR	\$18,104	\$33,492	(\$15,388)		
WGSWORKS#2 Implementation 002	OR	\$51,400	\$2,860	\$48,540		
<b>OR - Ordered Remissible</b>						
<b>ONR - Ordered Non-Remissible</b>						

\* Red values in parentheses denote overage.