

# COLUMBIA RIVER WATER USE PLAN

## Five-year review of Arrow Lakes Reservoir soft constraint targets

Factsheet February 2014

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The Columbia River Water Use Plan (WUP) was developed for BC Hydro's Columbia River facilities in consultation with interested parties to benefit specific power and non-power interests in the Columbia River basin. These interests include fisheries, wildlife, vegetation, recreation, erosion, culture/heritage values, and power generation. The WUP was approved in 2007 and BC Hydro expects to spend about \$115 million to implement WUP recommendations under the direction of the provincial Comptroller of Water Rights over a 12-year period.

### FIVE-YEAR REVIEW OF ARROW SOFT CONSTRAINT TARGETS

BC Hydro is inviting First Nations, government, and stakeholders to attend a session in April 2014 to review the last five years of Arrow Lakes reservoir operations and performance. The review will look at BC Hydro's operations as they relate to a suite of soft constraint targets identified by the consultative committee for the Columbia River Water Use Plan to help guide Arrow Lakes Reservoir operations.

### WATER USE PLAN RECOMMENDATIONS FOR ARROW LAKES RESERVOIR

BC Hydro's Arrow Lakes Reservoir operations are determined mainly by weather and runoff conditions as well as the requirements of the Columbia River Treaty and other non-Treaty agreements for flood control, power generation, and other needs. The water use planning process recognized that BC Hydro has very little flexibility to make changes to the operation of Arrow Lakes Reservoir for the benefit of other interests. The process also recognized that some of the other interests compete with one another because the water levels that are better for one particular interest can make things worse for another.

#### PROJECTS INSTEAD OF OPERATIONAL CHANGES

Recognizing these challenges, the WUP recommends a number of physical works projects for Arrow Lakes Reservoir to benefit specific interests instead of operational changes. These include improvements to boat access and regular debris removal to improve reservoir recreation, wildlife habitat enhancement projects, planting of native plants in the reservoir drawdown zone to enhance vegetation and improve wildlife habitat, and studies to identify archaeological sites. The WUP also recommends monitoring studies to assess the success of these projects and in some cases, provide information about specific interests that were not well understood.

#### SOFT CONSTRAINT TARGETS TO HELP GUIDE BC HYDRO'S OPERATING DECISIONS

The Columbia River WUP Consultative Committee also developed a suite of soft constraint targets to help guide BC Hydro's Arrow Lakes Reservoir operations. Each target identifies the ideal/preferred reservoir operations (water level over the year) for a specific interest. Soft constraint targets were developed for vegetation, wildlife, fish, culture and heritage, recreation, erosion, and power generation. Where limited information was available on how Arrow Lakes Reservoir operations affected a particular interest, a monitoring program was also developed to provide additional information. Depending on water conditions and system flexibility each year, BC Hydro makes trade-offs between these competing targets when making operating decisions and seeks to achieve a balance over the long term. This approach was recognized during the water use planning process.



## ARROW LAKES RESERVOIR SOFT CONSTRAINT TARGETS AND MONITORING PROGRAMS

INTEREST	TARGET	MONITORING PROGRAMS
 Recreation	Reservoir water levels between 437.39 metres and 438.9 metres (1435 feet and 1440 feet) from May 24 to September 30. Reservoir levels above 434 metres (1424 feet) are acceptable with boat ramps	Recreation Demand Study Boat Ramp Use Study
 Wildlife	Ensure inundation of nesting bird habitat by rising reservoir levels and availability of fall migratory bird habitat is no worse than recent average (1984 – 1999). Target a reservoir level of 434 metres (1424 ft) or lower from late Apr – mid July for spring nesting birds and 438.3 metres (1438 feet) or lower from early August 7 to late Oct for fall migratory birds.	Nest Mortality of Migrating Birds Waterbird and Shorebird Monitoring. Neotropical Migrant Use of Drawdown Zone Amphibian and Reptile Life Use History
 Fish	Reservoir levels above 434 metres (1424 feet) to ensure tributary access during kokanee spawning period from late August to early November.	Arrow Tributary Fish Migration study Arrow Burbot Life History
 Vegetation	Maintain current (2004) level of vegetation in the drawdown zone by maintaining lower reservoir water levels during the growing season.	Arrow Inventory of Vegetation Arrow Revegetation and Composition Analysis Arrow Plant Response to Inundation
 Culture and Heritage	Reservoir levels at or below 435.86 metres (1430 feet) for as long as possible to limit impacts to archaeological sites.	Arrow Archaeological Site Overview Assessment Arrow Heritage Monitoring Wind and Wave Erosion
 Erosion	Minimize duration of full pool events and avoid sudden drawdown once full pool has been reached to avoid shoreline slumping. Reservoir water level of 438.9 metres (1440 feet) is ideal.	Mid-Columbia Riverbank Erosion Protection and Monitoring Mid-Columbia River Long-term Erosion Monitoring
 Power Generation	Optimize power values.	

## FIVE-YEAR REVIEW OBJECTIVES

BC Hydro is not contemplating any changes to the Water Use Plan following this five-year review but will use feedback from the review process to better understand and balance the trade-off decisions we need to make when operating the system. We will assess how and if we can make progress against our soft targets as we take into consideration the impact of some additional and important operating flexibility as a result of the Non-Treaty Storage Agreement signed in 2012. This will be a major focus as we work through the full term of the Columbia River WUP implementation period.

### For more information please contact a BC Hydro Community Relations Representative:

More information on the Columbia River Water Use Plan including summaries of performance for the Arrow Lakes Reservoir soft constraint targets, copies of annual newsletters, and monitoring study terms of reference and reports are available at:  
[http://www.bchydro.com/about/sustainability/conservation/water\\_use\\_planning/southern\\_interior/columbia\\_river.html](http://www.bchydro.com/about/sustainability/conservation/water_use_planning/southern_interior/columbia_river.html).

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