INTENT
Identify an optimal reservoir operation for fish that would ensure access to spawning habitat, specifically kokanee.

SOFT CONSTRAINT TARGET
Maintain reservoir level above 434 metres (1424 feet) during the kokanee spawning period from late August to early November.

PERFORMANCE (2008 TO 2012)
Figure 1 shows the actual reservoir water level over each year in relation to the target range. Arrow Lakes Reservoir water levels were within this range approximately 80.7% of the time during the kokanee spawning period from August 25 to November 15.

Figure 1: Reservoir operation from 2008 to 2012 in relation to the soft constraint target range. Orange shading indicates water levels outside of the optimal range identified by the soft constraint target for kokanee access.
PRELIMINARY RESULTS FROM MONITORING PROGRAMS

Two monitoring studies were conducted from 2008 to 2012 to determine whether reservoir levels impact spawning for a number of key fish species. One study focused on fish that spawn in tributary streams: kokanee, rainbow trout and bull trout. The other study focused on burbot.

CLBMON-32A Arrow Lakes Tributary Fish Migration Access Assessment and Monitoring Program

This study looked at 18 Arrow Lakes Reservoir tributaries deemed most likely to be affected by reservoir levels based on a review of available information. Ground surveys of the tributaries were conducted each year during the spawning periods. Rainbow trout spawning typically occurs in late spring compared to bull trout and kokanee spawning that usually occurs from late summer through fall.

Survey results indicate that reservoir water levels did not impede spawning fish access to tributaries from 2008 to 2012. Kokanee was the only species with potential access problems to tributaries. However, when passage of spawning kokanee was impeded it was mostly due to low stream flows.

CLBMON-31 Arrow Lakes Reservoir Burbot Life History and Habitat Use

The objectives of this study included identifying burbot spawning habitat and determining if the reservoir winter drawdown affects burbot access. Over 200 adult burbot were tagged and followed through telemetry from 2008 to 2012. Tracking data and fish captures during the spawning period (January to March) suggest that burbot spawn in the Beaton Arm area of Arrow Lakes Reservoir. In all cases, aggregations of burbot were found at deep elevations below the winter drawdown level.

For more information

More information on the Columbia River Water Use Plan fish monitoring programs for spawning access can be found online by searching for "Arrow Reservoir Operations Management Plan" at www.bchydro.com/quickfacts. Questions? Please contact a BC Hydro Community Relations Representative:

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