

The Cowichan Weir

The weir on Cowichan Lake was licensed in 1956 to BC Forest Products, with the purpose of holding back water on Cowichan Lake to allow water to be drawn out of the river near Duncan and piped to the Crofton pulp mill. The weir is now owned by Catalyst Paper and is operated under two water licenses from the Province which allow for the storage of 49,700 acre feet per year of water on Cowichan Lake. The licenses require a minimum flow into the Cowichan River of 7.08 cubic meters per second (cms) when the control gates are fully opened. The licenses also allow 2.83 cms to be drawn from the river for the Crofton Pulp Mill and drinking water for the residents of Crofton. The water for Crofton is pumped from the river at a point just west of Duncan, approximately 30km downstream of the weir.

The weir only begins to 'store' water in the lake once water stops passing over the top of the weir, which usually happens between late March and early May. During the rest of the year, water flows freely through the weir and water levels on Cowichan Lake are maintained naturally. Once storage begins, gates on the weir allow a controlled release of water through the spring and early summer to ensure there is enough 'water in the bank' to provide sufficient flows through late summer and fall when there is no snow pack and little rain to recharge the lake.

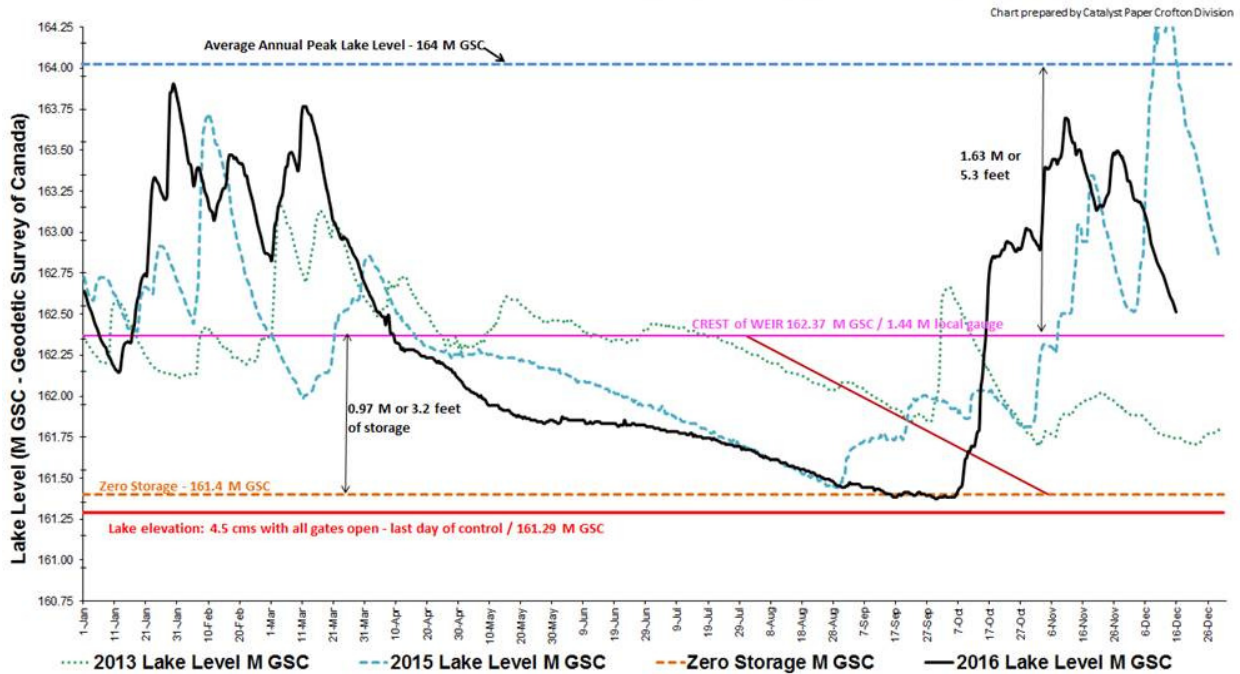
The controlled release of water is governed by Catalyst's water licence, which requires sufficient flow in the river at specific times to support the variety of fish populations that are travelling, rearing or spawning in the river. In normal years, the release of water through the summer is straightforward and flows are maintained at a level that does not allow water to flow below the prescribed 7.08 cms. However, with an increasing pattern of summer drought, providing sufficient flows in the summer while storing enough water for the fall is challenging and at times almost impossible. For example, in 2016 river flows were reduced to 4.5cms in May and through the summer to extend the limited storage and help ensure sufficient water in September and October. This reduced flow was well below the required 7cms and significantly impacted fish and other river values but was necessary to keep the river flowing into the fall. However, in spite of the reduced flows through the late spring and summer, water levels on Cowichan Lake were so low in September that pumps were installed with the anticipation of having to pump water over the weir to keep the Cowichan River flowing.

In other words, drastic measures were taken early in 2016 to reduce flows and those drastic measures continued through the entire summer, at the detriment of fish and other values. Even if Catalyst had not been drawing water out of the river there would not have been enough water available in Cowichan Lake to sustain adequate flows through the summer and fall.

It is important to note that the management of water release from the weir is a collaborative effort between Catalyst, the Province, with input from DFO, and the community including Cowichan Tribes and the Cowichan Watershed Board and other interested members of the public. The parties meet weekly to consider inflow predictions and to establish the rate of water being released into the river, within the parameters of the water licence.

To put the water flows in perspective, when the license was originally put in place in the late 1950's, the inflow to Cowichan Lake averaged 104 M cubic meters, by 2008 it was averaging 68 M cubic meters and now is substantially lower.

2016 Cowichan Lake Level - 2016 (black) & 2013 (Green) & 2015 (Blue)



This graph shows the relationship of the weir and lake levels. It does not reflect river flow levels. The solid orange line shows the required level of release through the gates to maintain an optimal balance between storage and river flows. As the graph shows, 2015 and 2016 lake levels dropped well in advance, requiring significant reductions in outflows in order to ration the water until fall rains could replenish the lake. Think of it as a water bottle and the rate at which you are supposed to pour the water out (red diagonal line) ensures that you don't run out before the zero storage date. If you have too much water, you can dump it to stay on the line, but if you have too little, there is no magic wand to fill up the bottle.

**Cowichan River Historical Low Flows at WSC Station 08HA002
(Greendale Trestle - Below Lake Cowichan)**

