

Cowichan Lake Shoreline Assessment

What are we talking about?

Present Natural Boundary 2020

The Present Natural Boundary 2020 (the *physical natural boundary*) was established for this project to inform the analysis of future impacts to the shoreline resulting from the increased height of the weir. This work is NOT being done to define the *legal natural boundary* which is used to establish property boundaries.

A natural boundary is determined by the presence and action of water as well as the soil type and slope of the land. Differences in wind, waves, gravel, sand, soil, vegetation and grade/slope around the lake will alter the location of the natural boundary depending on where you are on the lake.

The Present Natural Boundary 2020 was defined by Bazette Land Surveying Inc. using standard land survey practices and the *BC Land Act* definition: "*natural boundary*" means the visible high water mark of any lake, river, stream or other body of water where the presence and action of the water are so common and usual, and so long continued in all ordinary years, as to mark on the soil of the bed of the body of water a character distinct from that of its banks, in vegetation, as well as in the nature of the soil itself.

Future Natural Boundary

This part of the project will be modelled and assessed over the next 6 months. Factors that will be taken into account include the new weir height, soil and vegetation, wind and wave energy, and climate change. The Future Natural Boundary will be presented as part of the project outcome in April 2022.

Supply

Supply is the amount of water in the lake that is held back by the weir. When the gates in the weir are closed, and the water no longer flows over top of the weir, the water left in the lake is the water supply.

Existing Weir Crest - Full Supply Level

The full supply level of the existing weir is the water's edge when the lake level is at the crest of the existing weir. The water elevation at full supply level is 162.65 m.

Proposed Weir Crest - Full Supply Level

The full supply level of the proposed weir is the water's edge when the lake level is at the weir crest. The water elevation at full supply level of the proposed weir is 163.35 m. This represents a 0.7 m rise.

Cowichan Lake Floodplain Boundary

The Flood Plain Boundary is defined in the Cowichan Lake Provincial Flood Mapping dated 1984, confirmed in 2019 and is used for land use regulations.

The boundary defines the area that can be expected to flood, on average, once every 200 years. This is called the 200-year flood. A 200-year flood can occur at any time in any given year, however the likelihood of it happening in this area is 0.5%. Raising the weir height does not in any way impact this boundary. The Cowichan Lake Floodplain Boundary is at a water elevation of 167.53 m.

Parcel Boundary

The Parcel Boundary is a representation of the legal boundaries based on plans prepared by BC Land Surveyors and registered in the Land Title and Survey Authority.

Water Levels

The water levels for Cowichan Lake are measured at the Government of Canada's 08HA009 Station located on the most easterly point of Cowichan Lake. Lake measurements have been recorded throughout the day since the 1950s.

wateroffice.ec.gc.ca/report/real_time_e.html?stn=08HA009

Average Annual High Water Level

The Average Annual High Water Level for Cowichan Lake is the average of the lake's highest recorded water level each year averaged over 67 years (from 1953–2020). The Average Annual High Water Level is a water elevation of 164.2 m.

Riparian Area

The area between the lake and the land made up of lush, green, moisture-loving vegetation that surrounds the lake.

Minimum Licensed Lake Level (with pumping)

If water levels lower to a point at which it is necessary to use the pumps to transfer water from the lake to the river, the Minimum Licensed Lake Level is the lowest water elevation that may be reached. After this, no more water may be transferred from the lake without approval. The Minimum Licensed Lake Level is a water elevation of 161.00 m.

* 2020 had the lowest lake level on record. To maintain minimum water levels in the Cowichan River, water was pumped from the lake down to a water elevation of 161.93 m. Low water levels affect the use of docks and boats, vegetation, and fish. The goal of the new weir is that there will be sufficient water in storage without the need to pump (though the capability will still be there).

Why are we doing a Shoreline Assessment?

The Shoreline Assessment will determine the potential impacts to the Cowichan Lake shoreline due to a higher weir. Water will be stored earlier and at a higher level than in the past.

This assessment will be used to guide the response and approach of the Province of BC in approving a water licence and any responsibilities of a future licence holder to those property owners where effects may be projected.



NOTES: All elevations are based on the Canadian Geodetic Vertical Datum of 2013 height reference system (CGVD2013)

Graphic is for illustrative purposes only and is not technically accurate.

