

Cowichan Lake Shoreline Assessment

What are we talking about?

Present Natural Boundary 2020

The Present Natural Boundary 2020 (the *physical natural boundary*) is being 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. The Present Natural Boundary 2020 and the *legal natural boundary* may or may not be the same.

The Present Natural Boundary 2020 of Cowichan Lake is determined by the presence and action of water as well as the soil and slope of the land. Differences in wind, waves, gravel, sand, soil, vegetation and grade/slope around the lake will change the location of the Natural Boundary depending on where you are on the lake. The Present Natural Boundary 2020 has been established by this project to provide a current understanding of the entire physical Cowichan Lake Natural Boundary.

The Present Natural Boundary 2020 follows 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.

A Natural Boundary is only legally recognized by the BC Office of the Surveyor General when it is defined by a BC Land Surveyor registered with the Association of British Columbia Land Surveyors.

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.

Storage

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

Current Full Storage

The current full storage is the maximum amount of water that the existing weir (at a height of 162.57 m) can hold in the lake.

Proposed Full Storage

The proposed full storage is the maximum amount of water that the proposed weir (at a raised weir height of 163.27 m) will be able to hold in the lake.

Cowichan Lake Floodplain Boundary

The Flood Plain Boundary is defined by provincial mapping and provides guidance for land use planning. 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 likely hood 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 167.2 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. The parcel boundary may not match the Present Natural Boundary 2020 if title is based on a very old survey or if the natural boundary has changed since the original survey.

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.

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

Average Annual High Water Mark

The Average Annual High Water Mark for Cowichan Lake is the average of the lake's highest water mark each year averaged over 61 years (from 1957–2018). The Average Annual High Water Mark 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.

Maximum Draw Down Elevation

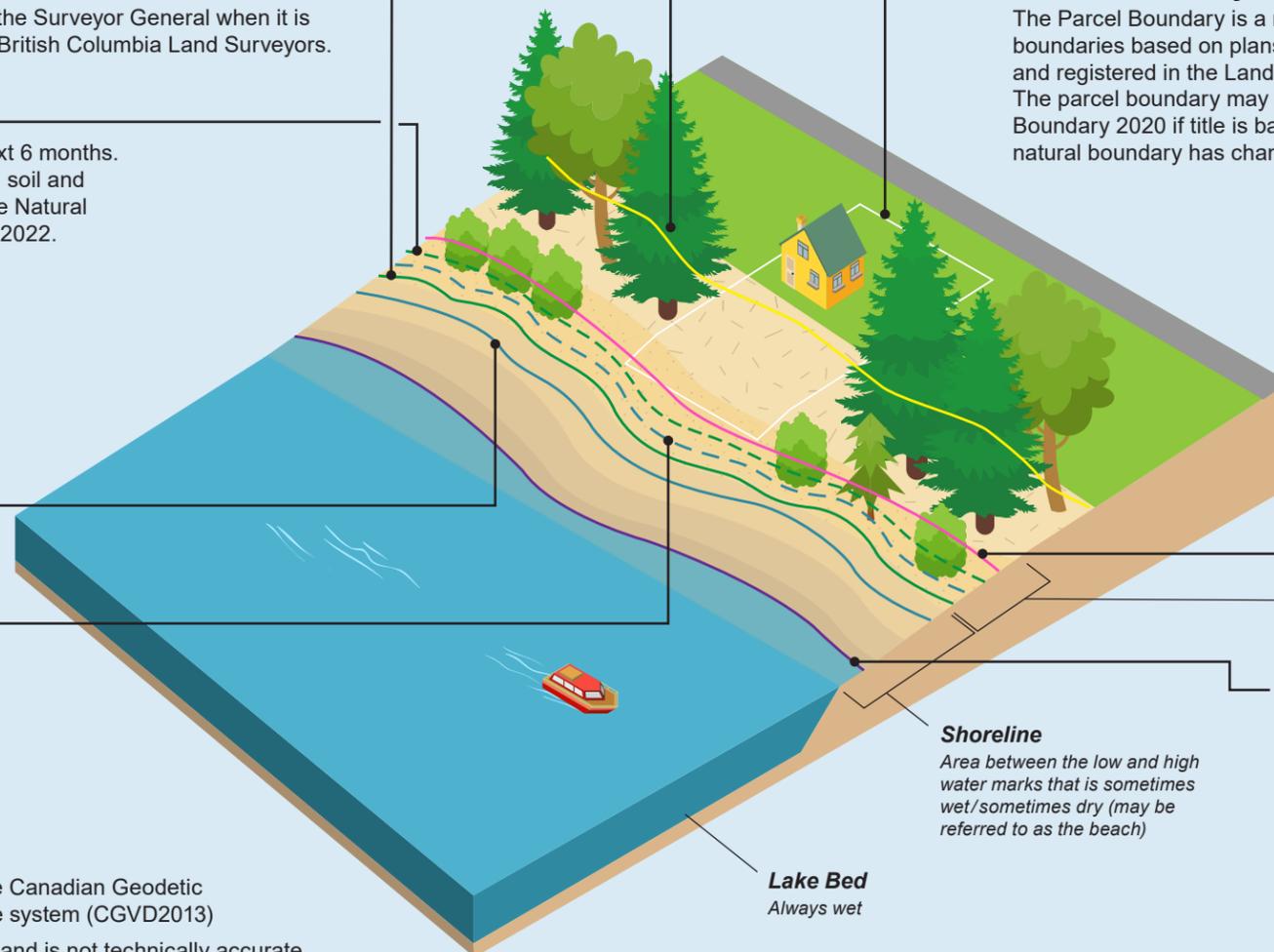
If water levels lower to a point at which it is necessary to use the pumps to transfer water from the lake to the river, the Maximum Draw Down Level is the lowest water elevation that may be reached in the lake. After this, no more water may be transferred from the lake. The Maximum Drawdown Elevation is a water elevation of 161.0 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).



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.



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.

