

Arrow Lakes Reservoir

Columbia River Basin operations summary

Spring 2025

This publication provides an overview of BC Hydro's operations in the Columbia River Basin, including Kinbasket Reservoir, Revelstoke Reservoir, Arrow Lakes Reservoir, Duncan Reservoir, and Columbia River flows. This summary also offers information about the current operating conditions in the Columbia River Basin, as well as the Columbia River Treaty ("the Treaty").

SNOWPACK AND RUNOFF

This year's peak snowpack accumulation in mid-April was higher than the observed levels in 2024, but still below average. As of April 30, 2025, the forecast runoff for April to September for the Canadian portion of the Columbia River Basin is 84% of normal, and 85% of normal for the entire Columbia River Basin (Canada and the U.S. combined). Last year, the observed runoff in the Canadian portion of the Columbia River Basin was 75% of normal, and the overall runoff in the entire Columbia River Basin was 74% of normal.

KINBASKET RESERVOIR

Kinbasket Reservoir is created by Mica Dam and provides 12 million-acre-feet (MAF) of storage over a possible operating range up to approximately 47 metres (155 feet). This reservoir regulates discharges and generation for both Mica and Revelstoke dams and regulates approximately 50% of the average annual flows into Arrow Lakes Reservoir. Combined, Mica and Revelstoke provide approximately 27% of BC Hydro's annual average generation.

Kinbasket Reservoir drafted¹ as normal in the fall and winter, and reservoir levels were near to above average for the operating year. The reservoir reached to a minimum of 728.9 metres (2,391.7 feet) on April 24, 2025, about 3.7 metres (12 feet) above average for this date. Since then, the reservoir has been refilling. As of May 12, 2025, Kinbasket Reservoir is about 4.5 metres (15 feet) above average for this time of year.

The May official water supply forecast for Kinbasket Reservoir from February to September is 83% of normal. Based on this water supply forecast, the reservoir is expected to reach average levels this summer. Actual levels will depend on actual inflows and electricity demand.

¹ "Draft" refers to the lowering of the water level in reservoirs for various purposes, including hydroelectric generation, downstream flow management, and other water-related needs. Draft is usually expressed as a change in elevation (in meters or feet) of water in the reservoir compared to the previous level.



Kinbasket Reservoir

The normal licensed range for Kinbasket Reservoir is between 754.4 metres (2,475 feet) and 706.96 metres (2,319.42 feet) respectively. The reservoir can be operated up to two feet above its normal maximum level, if approved by the Comptroller of Water Rights. Kinbasket Reservoir provides 7 MAF of Treaty storage and 5 MAF of non-Treaty storage.

REVELSTOKE RESERVOIR

Revelstoke Reservoir is created by Revelstoke Dam and provides 1.5 MAF of storage. Unlike Arrow Lakes Reservoir or Kinbasket Reservoir, Revelstoke Reservoir has limited storage and is usually operated within the top 1.5 metres (5 feet) of full pool. Revelstoke Reservoir water levels may fluctuate in response to weather patterns, inflow levels, and electricity demand. It is common to have daily fluctuations of the reservoir within 1.5 metres (5 feet) of full pool during the spring freshet and winter peak load periods. Periodically, the reservoir is drafted (lowered) below its normal minimum level of 571.5 metres (1,875 feet) to meet increasing system needs for short-term generating capacity. The reservoir may fill to near full pool during periods of high reservoir inflows. Water is occasionally released over the Revelstoke Dam spillway during low demand and high inflow periods to maintain minimum flows or to maintain the reservoir water level.



Revelstoke Reservoir

The licensed range for Revelstoke Reservoir is between 573 metres (1,880 feet) and 554.7 metres (1,820 feet). Revelstoke Reservoir is normally maintained at or above 571.5 metres (1,875 feet), although there may be frequent fluctuations with this range every day.

ARROW LAKES RESERVOIR

Arrow Lakes Reservoir is created by the Hugh L. Keenleyside Dam and provides 7.1 MAF of storage over a possible operating range of approximately 20 metres (66 feet). Water releases from Arrow Lakes Reservoir are regulated under the Treaty and its supplemental operating agreements. The Treaty requires Canada to hold back water during wet years and release more water during dry years.

As usual, Arrow Lakes Reservoir drafted during the fall and winter. The reservoir reached a minimum level of 423.03 metres (1,387.9 feet) on January 31, 2025. In comparison, the reservoir reached a minimum level of 422.7 metres (1,386.9 feet) on January 11, 2024. Arrow Lakes Reservoir has been refilling since then. As of May 12, 2025, the reservoir is currently about 3 metres (10 feet) above average, similar to this time last year.

The May official water supply forecast for Arrow Lakes Reservoir from February to September is 86% of normal, and the Dalles at 85% of normal. Based on the latest water supply forecast and the required Treaty releases, Arrow Lakes Reservoir is expected to refill to above average levels between 437 and 439.5 meters (1,435 and 1,442 feet) in late June. In comparison, last year the reservoir reached a maximum level of 436.7 metres (1,433 feet) on June 29, 2024.

The normal licensed range for Arrow Lakes Reservoir is between 440.1 metres (1,444 feet) and 419.9 metres (1,377.9 feet). The reservoir can be operated up to two feet above its normal maximum level (to 440.7 metres or 1,446 feet), if approved by the Comptroller of Water Rights. Arrow Lakes Reservoir provides 7.1 MAF of Treaty storage.



Duncan Dam from the lower viewpoint

DUNCAN RESERVOIR

Duncan Reservoir is created by Duncan Dam and provides 1.4 MAF of storage. The dam's operations help to minimize downstream flood risk in and around Kootenay Lake. Duncan Dam operations also provide minimum fish flows year-round as required by the Duncan Dam Water Use Plan.

Duncan Reservoir reached a minimum level of 549.0 metres (1,801.3 feet) on April 25, 2025, which is about average for this date. In comparison, the minimum level reached last year was 547.3 metres (1,795.6 feet) on April 26, 2024.

Duncan Dam has been refilling since it reached its minimum level in late April. As of May 12, 2025, the reservoir is at average levels for this time of year. The May official water supply forecast for Duncan Reservoir from February to September is 84% of normal. Based on the current water supply forecast, the reservoir is expected to refill to a maximum of 576.4 metres (1,891 feet) by the end of July, which is 0.3 metres (1 foot) below full pool. Last year, the reservoir reached a maximum level of 572.7 metres (1,879 feet) on August 4, 2024.

The normal operating range for Duncan Reservoir is between 576.7 metres (1,892 feet) and 546.9 metres (1,794.2 feet). Duncan Reservoir can be operated up to 1.2 feet above its normal maximum level (577 metres or 1,893.2 feet) if approved by the Comptroller of Water Rights. Duncan Reservoir provides 1.4 MAF of Treaty storage.

COLUMBIA RIVER FLOWS

Columbia River flows, downstream of the Kootenay River confluence at Castlegar, are the result of flow regulation at Hugh L. Keenleyside and other dams on the mainstem Columbia, as well as dams on the Kootenay River system. Actual discharges depend on many factors, including upstream runoff and storage operations and Treaty discharge requirements.

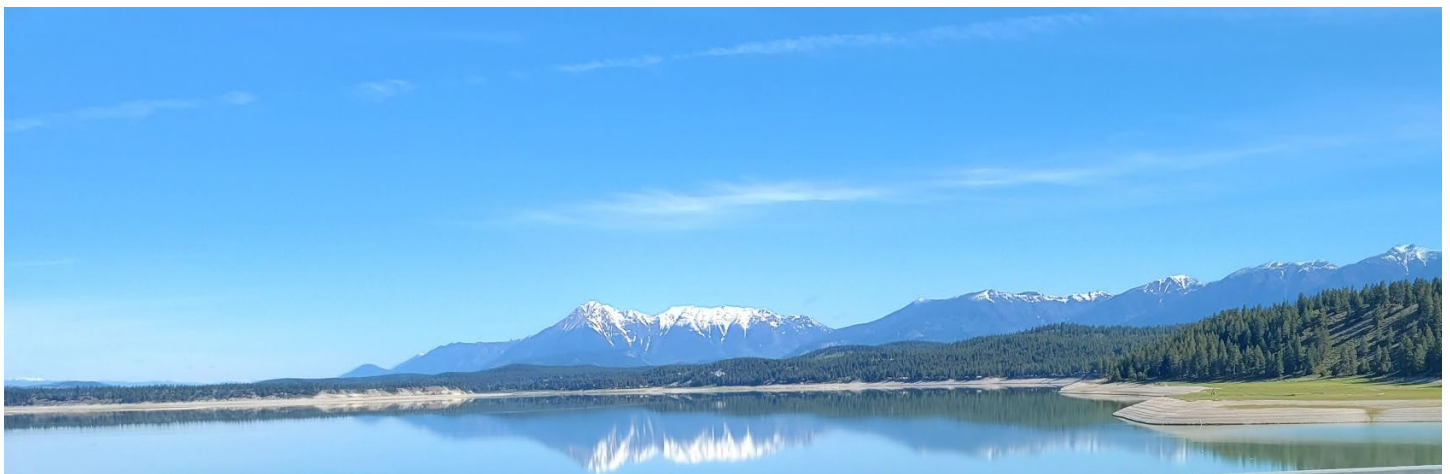
The current forecasted peak level at Birchbank is between 2,548 and 2,831 cubic metres (m³/s) or 90,000 and 100,000 cubic feet per second (ft³/s). This flow rate is well below the peak regulated flow experienced in 2012 of 6,090 m³/s (215,000 ft³/s), and the peak pre-dam flow of 10,590 m³/s (374,000 ft³/s) in 1961. The last peak flow on the Columbia River was 2,931 m³/s or 103,500 ft³/s on July 7, 2024.



Columbia River in Trail

Columbia River flows are measured at the Birchbank flow measuring station downstream of the Kootenay River confluence between Castlegar and Trail. Flooding conditions on the Columbia River are not anticipated this year based on the current forecast conditions associated with the below average snowpack.

BC Hydro's water license has no minimum discharge requirements for the Columbia River downstream of the Hugh L. Keenleyside Dam. However, BC Hydro can be obliged (per the Treaty) to reduce flows to a minimum weekly average flow of 141.5 m³/s or 5,000 ft³/s under certain water conditions. Please note that although this is the lowest possible flow rate under the Treaty, the required weekly discharges are largely based on inflows. The Treaty requires Canada to hold back water during wet conditions and release more water during dry conditions.



Koocanusa Reservoir

KOOCANUSA RESERVOIR

Koocanusa Reservoir on the Kootenay River is controlled by Libby Dam in Libby, Montana, and is operated by the U.S. Army Corps of Engineers (USACE). The reservoir backs into Canada and provides approximately 5 MAF of storage.

Koocanusa Reservoir is typically drafted during the winter for Treaty flood risk management. Libby Dam continues to be operated under VarQ² procedures for U.S. fisheries interests and flood control. The forecast runoff for Koocanusa Reservoir from April to August 2025 is 81% of average. Due to the well below average inflow forecast, reduced draft was required to manage flood risk this year. The reservoir reached a minimum level of 733.17 metres (2,405.4 feet) on March 25, 2025, which is about 10.4 metres (34 feet) above average for this date. In comparison, the reservoir reached a minimum of 736.2 metres (2,415.4 feet) on March 18, 2024, which is about 13.4 metres (44 feet) above average for this date.

Information regarding the operation of Libby Dam and Koocanusa Reservoir water levels is available from USACE at nwd.usace.army.mil or by calling 206 764 6702.

The normal operating range for Koocanusa Reservoir is between 749.5 metres (2,459 feet) and 697.1 metres (2,287 feet). During periods of high downstream flood risk, the Treaty entities may coordinate additional storage in Koocanusa Reservoir.

KOOTENAY LAKE

Information regarding Kootenay Lake is available from FortisBC at fortisbc.com or by calling 1 866 436 7847.



The West Arm of Kootenay Lake in Nelson

² VarQ was developed to improve the multi-purpose operation of Libby and Hungry Horse while maintaining the current level of system flood control protection in the Columbia River. VarQ reduces the contribution of reservoir space at Libby and Hungry Horse for system flood control of spring runoff in the Columbia River in years with low to moderate potential for flooding. For more information, please visit: <https://www.nwd-wc.usace.army.mil/cafe/forecast/VARQ/varq.htm>.

About the Columbia River Basin

At 2,000 kilometres long, the Columbia River is the fourth largest river in North America. The headwaters of the Columbia River are in Canal Flats, British Columbia (B.C.). The river then flows northwest through the Rocky Mountain trench before heading south through B.C. and Washington, emptying into the Pacific Ocean at Astoria, Oregon. Other major tributaries of the Columbia River in Canada include the Kootenay River and the Pend d'Oreille River.

Only 15% of the Columbia River Basin lies in Canada. The Canadian portion of the basin is mountainous, accumulates a lot of snow and produces an average of 30% to 35% of the runoff for Canada and the U.S. combined. The river's large annual discharge and relatively steep gradient gives it tremendous potential for generating electricity. Hydroelectric dams on the Columbia's mainstem and its many tributaries produce more hydroelectric power than on any other North American river.

BC Hydro's facilities in the Columbia River Basin include 13 hydroelectric dams, two water storage dams, and a system of reservoirs. Four of the larger reservoirs within Canada are operated according to the Treaty and other agreements signed between Canada and the U.S.

For more information, visit bchydro.com/energy-in-bc/operations/our-facilities/columbia.html.



Columbia River Treaty

The Columbia River Treaty is a water management agreement between Canada and the United States. The Treaty was signed in 1964 and provides flood control and power generation benefits to British Columbia and the United States. BC Hydro is responsible for the implementing the treaty in Canada and we operate several dams in the Columbia region that are bound by Treaty obligations: Duncan Dam, Hugh L. Keenleyside Dam, and Mica Dam.

Last year, Canada and the United States reached an agreement-in-principle (AIP) to modernize the Columbia River Treaty. The AIP initiated the next phase in negotiations as both countries began drafting amended Treaty text in a way that reflects the AIP.

Early this year the U.S. paused negotiations with Canada on an amended Columbia River Treaty. The U.S. administration is conducting a broad review of its international engagement.

The Province of BC will continue to share information on the status of the Treaty modernization when there are new developments. To learn more, visit <https://engage.gov.bc.ca/columbiarivertreaty/>.

Stay informed

REGIONAL OPERATIONS UPDATE MEETINGS

BC Hydro periodically hosts meetings to provide updates on our Columbia and Kootenay system operations to:

- listen to and learn from local residents, stakeholders, First Nations and community representatives who have an interest in the operation of the Treaty facilities and BC Hydro facilities in the Southern Interior; and
- provide information on BC Hydro's activities and facility operations in the Columbia River Basin.

To request information about these meetings and presentations, please contact us by emailing southern-interior.info@bchydro.com.

RESERVOIR LEVEL UPDATES

You can receive regular updates about BC Hydro reservoir levels in a variety of ways:

- Go online to view near [real-time water level information](#) for various locations around our reservoirs .
- Sign up to receive weekly water level forecasts by emailing southern-interior.info@bchydro.com.
- Listen to river flow and reservoir level information by phoning our toll-free reservoir information line at **1 877 924 2444**. These recorded messages are updated every Monday, Wednesday, and Friday, and include:
 - Current elevation levels: Arrow Lakes Reservoir, Duncan Dam Reservoir, Kinbasket Reservoir, Kooconusa Reservoir, Kootenay Lake, Revelstoke Reservoir, Sugar Lake Reservoir, and Whatshan Lake Reservoir.
 - Current flows: Columbia River at Birchbank, Duncan River at the Lardeau Confluence, Shuswap River, and the flow downstream from Wilsey Dam at Shuswap Falls.

VISIT BCHYDRO.COM

- [Real-time water level information](#) for various locations around our reservoirs.
- Details about our [Columbia River Basin facilities](#) and [Revelstoke Dam Visitor Centre](#).
- Information and updates on the [Columbia River Water Use Plan](#) and [Duncan Dam Water Use Plan](#).
- Report an outage, find current and planned outages, and tips on how to prepare for outages at bchydro.com/outages.

REACH OUT TO THE SOUTHERN INTERIOR COMMUNITY RELATIONS TEAM

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