

Columbia River Treaty

Supplemental Report addresses important issues



A regional conversation continues

The U.S. and Canadian Entities jointly began exploring the future of the Columbia River Treaty, an international, long-term agreement between the two countries, in preparation for several possible changes after 2024.

Under the Treaty, the two nations jointly manage the Columbia River for power generation and flood control as it flows from British Columbia into the United States. Although the Treaty has no termination date, it does have two provisions that take effect on and after Sept. 16, 2024, that will change how flood control is implemented between Canada and the United States and that may impact power benefits as well. The date also has significance in that it is the earliest date that either Canada or the United States has the option to terminate most of the provisions of the Treaty, with a minimum 10 years' written notice.

To better understand the implications of these provisions, the U.S. and Canadian Entities embarked on a joint effort to conduct initial studies. As a result, in July 2010, the U.S. and Canadian Entities issued the Phase 1 Report, which established a baseline of

information and set the stage for future regional discussions and collaboration.

This report, however, only considered power and flood control operations under the Columbia River Treaty. As a companion to the Phase 1 Report, the U.S. Entity is now issuing a Supplemental Report that goes a step further by providing information on how current U.S. fish operations may affect the operation of U.S. reservoirs or may be impacted by Called Upon flood control and termination or continuation of the Treaty.

When discussing the post-2024 future of the Treaty, including fish operations represents a more realistic picture of the operation of U.S. hydro projects given the extensive objectives of the Federal Columbia River Power System Biological Opinions and other fish requirements.

A little bit of history

The "Treaty between the United States and Canada Relating to Cooperative Development of the Water Resources of the Columbia River Basin," otherwise

known as the Columbia River Treaty, has brought significant benefits to both the United States and Canada.

The U.S. Entity charged with implementing the Treaty is comprised of the Bonneville Power Administration administrator and the division engineer of the U.S. Army Corps of Engineers' Northwestern Division. When they act in their capacity as the U.S. Entity, they do so on behalf of the U.S. government, carrying out its duties under the Treaty in the best interests of the people of the United States, rather than on behalf of the agencies they otherwise represent. The Corps of Engineers' legal mandate to implement flood control to protect public health and safety is also fully consistent with the U.S. Entity's objective for flood control under the Treaty.

Potential futures for the Treaty

The Phase 1 studies looked at three basic Treaty scenarios:

1. The Treaty continues with the automatic change in flood control operations in 2024.
2. The Treaty is terminated with the automatic change in flood control operations in 2024. For these studies, two Canadian operational scenarios were developed to depict a range of possible flows across the border into the United States.
 - Canada operates for flood control only.
 - Canada uses a reservoir draft to maximize its power production while meeting flood control needs. This situation is considered more realistic than the flood control only scenario.
3. The Treaty continues but, contrary to the post-2024 provisions in the Treaty, the flood control operations do not change from current obligations. This alternative is not available without new agreements, but was included for comparison purposes.

Range of results

It's important to note that operational assumptions and modeling from the Phase 1 Report naturally affect outcomes of the Supplemental Report. While these assumptions were reasonable, they all carry a wide range of uncertainty. Using different assumptions could produce different results. Consequently, decisions about the future of the Treaty should not be made based on these reports alone. Instead, these reports are a tool for opening up broader discussions and for scoping and designing future work.

Called Upon flood control

Whether the Treaty is continued or terminated, requirements for flood control provided by the Treaty projects will automatically change in 2024 to an operation referred to as "Called Upon."

Currently, the Treaty provides a dedicated amount of Canadian storage for flood control. This will change to a protocol where the United States may call upon Canadian storage for U.S. flood control but only after making effective use of its own reservoirs. The United States must then pay Canada for its operating expenses and economic losses due to the Called Upon operation.

To model the implementation of Called Upon flood control operations for the Phase 1 Report, a maximum flow objective at The Dalles needed to be established for the purposes of these studies only. The maximum flow objective is normally determined by the level at which significant flood damages are assumed to begin in the lower Columbia. It also defines at what level the United States may call upon storage in Canada after 2024.

Given the uncertainty of future flood control needs, the Phase 1 and Supplemental reports looked at two potential scenarios of U.S. flood control objectives. The analyses used both 450,000 cubic feet per second



of streamflow at The Dalles and 600 kcfs as the maximum flow objectives.

Three main areas of impacts

Power generation

Looking across all of the scenarios, the addition of fish operations to the Phase 1 Report reduced the U.S. system generation by about 1,520 to 1,665 annual average megawatts. This loss of generation occurred with or without the Treaty and is perhaps the largest difference when comparing the Phase 1 and the Supplemental reports.

The Supplemental Report shows that terminating the Treaty resulted in a relatively small decrease in U.S. generation of 90 to 94 annual average megawatts,

which is less than 1 percent of the total system generation. However, the seasonal shape varied from month to month and between different water conditions. In general, U.S. generation increased January to May and decreased July through September. The reduction in summer generation was especially large, greater than 1,000 average megawatts, in low-water years.

Reservoir levels

The Supplemental Report showed that the future flood control objectives and procedures for implementing Called Upon flood control had much more impact on U.S. reservoir operations than whether or not the Treaty is terminated.

One of the main impacts fish operations have on the hydro system is the objective to maintain key reservoirs at their flood control levels January through April. The Biological Opinions require holding as much water in the reservoirs as possible, near their flood control elevations, going into the spring. This provides late spring flow augmentation to help fish travel downstream more rapidly. The Supplemental Report held U.S. reservoirs higher to meet this objective, resulting in higher reservoir levels during the winter and spring than levels used in the Phase 1 Report. The Phase 1 Report, which did not take fish objectives into consideration, often drafted deeper for power needs.

The level of flood control protection needed by the United States also had an impact on reservoir elevations. The lower the flow objective, the more frequent the need for a lower reservoir elevation in Called Upon years. A lower flood control flow objective resulted in lower elevations in the January through April period, which impacted the reservoirs' ability to refill, as well as streamflow levels in the spring and summer.

Fish requirements

Whether or not the Treaty is terminated had far less effect on U.S. fish operations than implementing either of the Called Upon flood control objectives. The flood control objectives determined the available water in the reservoirs at the start of the spring fish operations. With a 450 kcfs flood control objective, the reservoirs tended to be lower and, therefore, had less water to provide fish flows in the spring and summer.

The levels of the reservoirs at the start of the spring fish operation drove the ability of the system to meet various flow objectives. The majority of the impact from reservoir elevation changes was on the mainstem of the Columbia, at Priest Rapids and McNary dams in the spring, with a slight impact in the summer. There was little impact to fish flows at Lower Granite Dam.

What Happens Next

The Supplemental Report recognizes that additional collaborative work within the region is needed to fully understand the implications of post-2024 Treaty scenarios on power and flood control, as well as the many other important objectives, including fish and wildlife, flood control, ecosystem health, water supply and quality, climate change, the integration of wind and other variable resources, cultural resources, recreation, navigation and irrigation.

The U.S. Entity is fully committed to an open, collaborative and regionwide engagement process so that all voices that wish to be heard in the Pacific Northwest can be heard to inform the best possible policy options in our 2014/2024 Columbia River Treaty Review.

For more information on the Columbia River Treaty review effort, to contact the Columbia River Treaty Review team or for technical reports, go to www.crt2014-2024review.gov/. Interested parties can also send e-mail messages to the Columbia River Treaty Review team at treatyreview@bpa.gov.

This publication of the 2014/2024 Columbia River Treaty Review was developed to inform you of issues surrounding the Columbia River Treaty. It is published by the U.S. Entity, which includes the Bonneville Power Administration and the U.S. Army Corps of Engineers. For more information, call the Bonneville Power Administration at 1-800-622-4519 or the U.S. Army Corps of Engineers at (503) 808-4510.



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