While the Treaty has no specified end date, it contains provisions that will change its implementation in 2024. Additionally, either Canada or the U.S. may unilaterally terminate most provisions of the Treaty in 2024, with a minimum of 10 years' advance notice, hence the focus on 2014 and 2024.

The U.S. Entity is undertaking a series of studies regarding current and potential future operations under the Treaty. The goal is a recommendation with broad regional support from the U.S. Entity to the U.S. Department of State by the end of 2013 on which elements the Pacific Northwest would like the Department of State to pursue in negotiations with Canada.

Collectively known as the Columbia River Treaty 2014/2024 Review, this multi-year effort is working to provide information critical to a U.S. Entity recommendation through evaluation of the value of Treaty benefits to the region and consideration of contemporary concerns that reach beyond flood risk management and power generation.

Integral to the Treaty Review process is the U.S. Entity's direct consultation with the Sovereign Review Team, comprised of representatives of the four Northwest states, 15 tribal governments and 11 federal agencies. Supporting the Sovereign Review Team is the Sovereign Technical Team, responsible for completing the technical work that informs the Sovereign Review Team and the U.S. Entity.

For more information

For information on the Columbia River Treaty 2014/2024 Review, please visit *www.crt2014-2024review.gov*, email us at *treatyreview@bpa.gov*, or call the Bonneville Power Administration at 800-622-4519 or the U.S. Army Corps of Engineers at 503-808-4510.

This publication of the Columbia River Treaty 2014/2024 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.

US Army Corps of Engineers

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Columbia River Treaty 2014/2024 Review

The Columbia River Treaty: its purpose and future

The Columbia River flows through Canada and the United States, but its headwaters lie high in the Canadian Rockies. In the spring of 1948, that meant the two countries shared a big problem.

Epic flooding brought devastation to towns along the length of the river, from British Columbia to the river's mouth near Astoria, Ore. Vanport, Oregon's second-largest city, was hardest hit. Flood water destroyed the city of 30,000 and more than 50 lives were lost. This devastation, in part, focused discussions between officials from both countries about reducing impacts from flooding and increasing power generation to meet the post-war demand for energy.

While these discussions were in earnest, the issues were complex; the Columbia River Treaty was not signed until 1961 or implemented until 1964. The Treaty primarily reduced flood risk and supported hydropower generation, the two outstanding concerns of the day.

Flood risk management

Four storage reservoirs on the Columbia River system remain the most obvious result of the Treaty. Together, the three dams built in Canada (Duncan, Mica and Keenleyside — also known as Arrow in the U.S.) doubled the amount of water that could be stored, adding 15.5 million acre-feet of capacity. Libby Dam in Montana created another large storage reservoir, Lake Koocanusa. The Treaty called for the U.S. to pre-pay Canada, a total of $64 million, as each Canadian Treaty dam was put into operation. This payment covered implementation of annual flood control plans for the first 60 years of the Treaty, through September 2024.

The Treaty storage capacity was put to good use over the years. A recent outstanding example was in 1996, when Canadian and U.S. dams held back the Columbia River during an unusual winter rain event that threatened Portland. With the Willamette River running very high, dam operators severely restricted flows from the upper Columbia River Basin to reduce water in the lower basin. This created room for the Willamette, running through Portland into the Columbia, to drain. In 1997, spring flows on the Columbia River would have been higher than the previous year, again posing the potential to flood Portland, had Treaty and other U.S. dams not been operated in a coordinated manner.

The Willamette River nearly flooded downtown Portland, Ore. in 1996. Carefully coordinated river operations spared the city.

Power generation

The large Treaty dams help smooth out the Columbia's seasonal flow. They release water in the fall and winter to generate electricity to meet power demands and then use the space created by these fall and winter releases to hold back water in the spring that previously overwhelmed the capability of the downstream dams to manage the system.

Canada and the U.S. agreed that the increased annual power generation benefits created by the Treaty at the downstream U.S. dams were to be shared equally. This

benefit is determined using theoretical calculations agreed to by the original Treaty authors, and the Canadian share of the power generation, known as the "Canadian Entitlement," is delivered from the U.S. to Canada.

Because the power was not immediately needed to serve its demand, Canada sold the first 30 years of the Canadian Entitlement to a U.S. consortium of utilities for $254 million in 1964. The value of the Canadian Entitlement, combined with pre-payment for flood risk management, helped finance Duncan, Keenleyside and Mica dams. Now that the 30-year contracts have expired, the U.S. delivers the Canadian Entitlement energy to BC Hydro over Bonneville Power Administration transmission lines. BPA estimates that this energy entitlement is worth between $250 million and $350 million a year.

Tiny chinook salmon smolts hatch in the Columbia and its tributaries then migrate to sea.

Evolving Issues

The Columbia River Treaty has provided many benefits to Canada and the U.S. Building the Treaty dams helped address economic issues and public safety. While much has remained the same since the Treaty went into effect, much has changed.

Ecosystem-based function — Ecosystem-based function refers to environmental conditions including streamflows, water quality and the cultural and societal benefits of healthy fish and wildlife populations. Ecosystem considerations such as those for enhanced fish and wildlife protection are the subject of significant conversation today even as federal responsibilities have expanded to include the increased use of basin water to aid fish migration up and down the rivers. Some parties involved in discussions on the Treaty's future consider ecosystem issues comparable to those of power generation and flood risk management, maintaining that the overall ecosystem health of the river and its surrounding land must be considered into the future.

Navigation — Oceangoing ships ply the 106 miles of the Columbia River from Astoria, Ore., to international shipping terminals in the Portland/Vancouver area. Tugs and barges travel the 359 miles between the Portland area and Lewiston, Idaho, to haul wood, grain and other regionally important commodities. In 2012, Portland marine terminals alone handled 3.7 million tons of grain from upriver ports. Reservoir levels must be maintained to a 14-foot depth to allow safe passage of the barges and other traffic on the upper river. Given that the headwaters of the Columbia River are in Canada, the effect that any potential future changes to the Treaty would have on navigation requires study.

The Columbia River is an important thoroughfare for commerce.

Recreation — Recreational use of the river and reservoirs varies widely, including fishing, swimming, water skiing, windsurfing, picnicking, camping, rafting, boating, sightseeing, hunting and bird watching. Many recreational activities benefit from stable water levels, but flood risk management and routine power demands require that reservoir water levels fluctuate.

Irrigation — Water from the Columbia River system irrigates more than 7.3 million acres of land in the basin. Annually, millions of acre-feet (an acre-foot is enough water to cover one acre with one foot of water) of Columbia Basin river flow, through diversions and pumping, is used for irrigation. Some of this volume is not consumed but comes back to the rivers as irrigation return flow. Irrigators are concerned about the overall availability of water, particularly in dry years, and specifically about reservoir levels that can fall below pump intakes, rendering them inoperable.

Climate change — Most projections of the effect of climate change on the Columbia River Basin expect less snowpack but more rain and warmer winters and summers. This shift, with the resulting earlier spring runoff, would have an effect on all uses in the basin.

Tradeoffs and balances in the Treaty's future

These are just some of the issues the original Treaty did not address. There are more: the impact of river operations on municipal water supplies or sites of cultural significance to the region's Native Americans, for example. Perhaps the most striking aspect of the demands placed on the river, aside from their abundance, is that they often require tradeoffs. Although the Columbia River system is vast, its water is limited and the demands placed upon it have never been higher.

Many tradeoffs will need to be considered. The water that could be supplied for irrigation may also be needed for improved ecosystem function. Water stored in a reservoir for ecosystem flows could take the space that is needed for flood risk management. The water flows that fishers need in the Kootenai River downstream from Libby Dam may conflict with dam operations for flood risk mitigation or to encourage spawning among endangered sturgeon. Shifting water from fall and winter releases to spring periods may reduce power supply.

Irrigation enables bountiful crops to grow in otherwise arid country.

The two nations, through the Treaty Review process, are now studying their options and considering the Treaty's future in the context of modern concerns.

The Columbia River Treaty 2014/2024 Review

The coordinated operation of the many dams and reservoirs under the Columbia River Treaty has provided significant flood risk management and hydropower benefits for both the United States and Canada. The Treaty calls for two "entities" to implement the agreement, one for the U.S. and one for Canada.

The U.S. Entity, appointed by the president, consists of the BPA administrator and the Northwestern Division engineer of the U.S. Army Corps of Engineers. The Canadian Entity, appointed by the Canadian cabinet, is the British Columbia Hydro and Power Authority (BC Hydro).