



COLUMBIA RIVER TREATY REVIEW

Summary of Interests and Values
Shared by Columbia Basin Residents

October 2012



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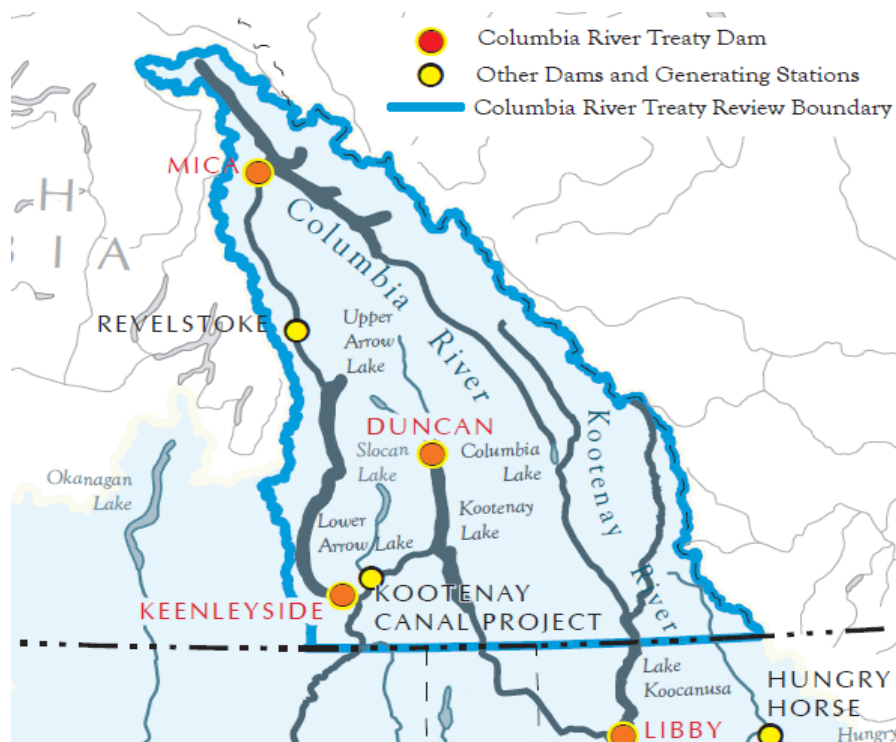
Overview

In November 2011, The Province initiated a Columbia River Treaty 2014 Review (Review) process to evaluate future decision options, including possible continuation, amendment or termination of the Columbia River Treaty. The review process will also provide recommendations to government on any potential new arrangements within the Treaty. The Columbia River Treaty Review public engagement is designed to be a meaningful and constructive process to ensure Basin residents' interests, and the implications of Treaty options on those interests, are well understood and communicated, and that Basin residents have full opportunity to provide input and help inform the future of the Treaty. First Nations consultation is a key component of the Columbia River Treaty 2014 Review guided by Charter Rights, provincial policy and case law, and is a separate consultation process.

The Provincial Columbia River Treaty Review team conducted community workshops in the spring of 2012 as the first phase of consultation with Canadian Columbia River Basin (Basin) residents around the future of the Columbia River Treaty (Treaty). Part 1 of this report outlines what was heard during these community sessions, including participants' interests, questions, and consultation suggestions as well as action items for the Province and BC Hydro. Detailed information of the process and notes from community meetings are compiled separately as Appendix 1, and are available at <http://blog.gov.bc.ca/columbiarivertreaty/community-sessions/>

Part 2 of the report delves into greater detail than part 1, highlighting perspectives residents shared through various venues in different conversations throughout the Basin. It identifies interests around the process of the Columbia River Treaty Review such as a desire for a transparent authentic process, engaging local people in decision making, and expanding local understanding of reservoir management. Part 2 also identifies desired outcomes as expressed by residents, such as specific performance measures for fish and wildlife. Themes have been summarized in an order not intended to indicate ranking. As noted in past water planning processes, residents in the Canadian Columbia River Basin hold a range of interests, some of which compete with each other. This report provides a composite picture of interests and values expressed by Basin residents with regards to the Columbia River Treaty.

Figure 1: Canadian Columbia Basin up to Libby Dam



Part 1: Spring Consultation 2012

In May and June 2012, the Columbia River Treaty Review team met with Basin residents to hear local perspectives on the future of the Columbia River Treaty. Sessions were held in the seven communities of Jaffray, Creston, Nakusp, Castlegar, Valemount, Golden and Revelstoke. Over 360 people attended. Columbia Basin Trust held afternoon sessions starting with a welcome from local governments followed by in-depth discussion facilitated by the Columbia Basin Trust on topics identified in previous Columbia Basin Trust workshops. After dinner provided by Columbia Basin Trust, the Province began its first phase on consultation on the Columbia River Treaty with an overview of the Columbia River Treaty 2014 Review process followed by a presentation by BC Hydro on known Basin interests that have previously been identified through other initiatives such as the Fish and Wildlife Compensation Program, Columbia and Duncan Water Use Plans, and Non-Treaty Storage Agreement discussions. The Province also shared information on future scenarios being analysed, technical studies planned and underway and preliminary B.C. and U.S. perspectives.

Participants were provided with a folder of materials to use during the evening and to take back with them. The folder included frequently asked questions, treaty highlights, an overview of the Columbia River Treaty review, a postcard to send comments or questions, information about community interests assembled from previous water planning processes, and a discussion document about how people want to be consulted. All of the material is available on the Columbia River Treaty website at: www.gov.bc.ca/columbiarivertreaty/community-sessions/. Here you will also find videos made at the community session in Golden in June 2012. The three videos include *Columbia River Treaty 2014 Review- B.C.'s Process*; *Basin Residents' Interests Captured in Water Use Planning Process*; and *Treaty Review Scenarios – Key Considerations*. The PowerPoint presentations are also posted to the Columbia River Treaty website.

1.1. Interests and Questions

Prior to the community consultation sessions, the Province assembled a list of interests and issues already identified by Basin residents in other planning processes such as the BC Hydro Water Use Plans, and more recently the Non-Treaty Storage Agreement. Examples of these interests and issues include fish and wildlife habitat, First Nations interests, recreation, flooding, erosion, transportation and economic development. The Columbia River Treaty Review Team asked participants to identify what was missing from the list. Participants identified some questions and new interests that were specific to reservoir operations, while others were related to regional opportunities in general. Other questions focused on the Columbia River Treaty provisions and distribution of benefits.

Concern for **future generations** was expressed on numerous occasions. This concern relates to present and future training and employment opportunities for youth in the Basin, and the integrity of the environment they are inheriting. There is a concern that younger Basin voices would not be heard equally alongside older generations in the Columbia River Treaty Review process, that the dominant perspectives at public meetings are those focused on grievances of the past rather than aspirations of the future.

Agriculture is also important to many residents. Some people requested further discussion with the agricultural community to understand the extent of agricultural impacts related to the Columbia River Treaty (e.g.: flooding of farmland, erosion of dyking infrastructure), and identify opportunities to enhance local farming (e.g.: access to grants through Columbia Basin Trust). There is also a desire to determine what could be done to reduce erosion of dyking infrastructure, and more equitably align the costs of infrastructure maintenance with those who benefit from it.

Libby Dam operations were a key point of discussion. Many people are interested in understanding how Libby Dam operations affect the Koocanusa Reservoir, and what can be done to incorporate Canadian interests into Libby operations despite the water license being held by the U.S. Some residents question whether a similar process to the water use plans, and a fish and wildlife compensation program, could be undertaken for the Koocanusa Reservoir.

Columbia River Treaty Review Engagement Principles

1. Inclusive, Transparent and Honest
2. Create Capacity to Participate
3. Constructive Engagement
4. Close the Loop

Environmental interests were expressed across communities. Residents are interested in what more can be done to enhance environmental values (e.g.: for kokanee, salmon, burbot, bulltrout, and bird nesting). Some people suggested that coordinating with the U.S. to advance ecosystem function in the entire watershed is important to ensure that Canada and the U.S. do not undermine each other's initiatives. Questions also focused on the value of water flows for environmental benefits, and how these new benefits can be accounted for alongside or in place of maximizing power production.

There are concerns over **quality of life issues**, such as dust storms, aesthetic impacts for beach front properties, and water quality. To address concerns over dust, residents expressed a desire for re-vegetation programs and reservoir operations that minimize periods of deep draw downs. Water quality is a topic of interest, and residents want to minimize health and nuisance issues (e.g.: mosquitoes).

Climate change is an important issue for many Basin residents. People are keen to understand the impact of climate change and glacial recession on water levels throughout the Columbia River Basin, and what adaptation may look like. Residents noted the overall contribution from B.C. to the Columbia River is expected to increase and they want to understand how this impact of climate change is being considered in the future of the Columbia River Treaty. Residents want to see a Columbia River Treaty that is flexible and able to respond to climate change issues.

Economic development was a topic discussed in most communities. The region as a whole is looking for opportunities to further promote investment and create sustainable employment in general. Several community leaders and residents expressed an appreciation for employment, infrastructure and services generated by the hydroelectric projects. Others want the Province to increase support for the forest industry and improve infrastructure to facilitate economic growth. Residents indicated both water-based and shore-based **recreation** is important to the region. Overall, people would like to maximize the community benefits from the quality and diversity of recreation and **tourism**.

Some questions centred on the relationship between **downstream benefits** and the Canadian Columbia River Basin. People wanted to better understand the benefits and costs of the Columbia River Treaty as it relates to both the region and the Province.

1.2. Consultation Suggestions

Participants were asked how they would like to be consulted during the next round of public engagement in fall 2012. Participants provided feedback on consultation options based on four engagement principles the Columbia River Treaty Review Team has committed to. New ideas were submitted and actively discussed. Residents in Jaffray, Golden and Revelstoke strongly preferred public meetings; a conference was a clear preference of Nakusp and Castlegar residents; while residents in Valemount and Creston were fairly evenly split between public meeting, advisory committee and conference. Participant turn-out also varied considerably among communities. (See Appendix 1 for details of participation and preferences).

Many participants expressed appreciation for the opportunity to have input into the future of the Columbia River Treaty, to question and hear from subject matter experts and to discuss issues with their neighbours during the breakout sessions. Others were concerned their voices would not be heard by the Province, that regional interests, issues and values would not be seriously reflected in the final decision. Participants wanted a transparent review process. In Jaffray and Castlegar there was significant discussion about the process of selecting an advisory committee, including: how committee members would be chosen, the time involved with a selection process, what special interests could be

prioritised or marginalised, and whether existing advisory bodies could fill this role. People discussed the resources required to participate effectively in any consultation option, including topic expertise, time, financial considerations for meetings, and travel to and from venue locations. People felt there should be opportunities for both local experts to engage at a technical level and for the general public to be informed, for examples through discussion papers on selected topics. A number of people emphasized engaging youth at high schools, colleges, and via Facebook. People wanted to receive timely updates of what is happening in the Columbia River Treaty Review process and suggested newsletters, classified advertisements from the Province or local government, and access to online and printed information. (i.e.: articles, technical reports, videos, webinars, 1-page overviews of specific topics and study summaries).

1.3. Action Items and Next Steps

The Province committed to a number of action items during the community sessions. The Province indicated it would post the following to its website: the White Paper on Called Upon, including B.C.'s perspective; slide and video presentations by the Province and BC Hydro; and a link to an upcoming University Symposium in Montana. These have all been posted at www.gov.bc.ca/columbiarivertreaty.

People have also asked for a summary of benefits and costs of the Columbia River Treaty, as well as a dyking infrastructure study around Creston. This work is underway. Investigating the feasibility of a weir/dam at either end of Kinbasket reservoir was also a commitment. In response to what was heard during the consultation sessions, the Columbia River Treaty Review Team has provided further information opportunities for input through a blog, monthly newsletters, Facebook, and has committed to a next round of communities meetings and a technical conference.

Part 2: Perspectives Shared in Various Forums

The Columbia River Treaty Review Team has heard Basin residents express interests related to operational changes and historical/footprint issues in a variety of forums. This section aims to capture the breadth of perspectives, categorized by location when possible, as well as reflect views shared during Water Use Plans, consultations for the Non-Treaty Storage Agreement, Revelstoke 5 and Mica 5/6 upgrades, and public consultation undertaken by the Province in spring 2012. Awareness and education sessions conducted by the Columbia Basin Trust in the fall of 2011, as well as a Columbia Basin Trust young leaders workshop on the Columbia River Treaty in winter 2012 also provided Basin-wide perspectives that are captured in this section.

2.1. Interests Across the Basin

The Columbia River Treaty Review Team has heard many interests that are common across the Basin. Overall, people are interested in balancing competing land use needs, managing water (water levels, quantity and quality) for a range of interests, and understanding and adapting to climate change. Many residents are keen to see full implementation of the Water Use Plans, and to establish a “water use plan like” process for the Kootenay system influenced by Libby Dam operations. Interests can be broadly categorized as follows: recreation and transportation, water levels (including flood control and erosion), First Nations and cultural heritage, environment and climate change (including impact on sustainability and ecosystem function, wildlife and vegetation, fish and aquatic resources), economic opportunities and costs, engagement and collaboration in water management and the Columbia River Treaty Review process.

2.2. Recreation and Transportation

Water-based and shore-based recreation is important to the region. Residents expressed a desire to maximize the community benefits from the quality and diversity of recreation and tourism. This encompasses increasing beach and shoreline access and usability, which includes minimizing refloating of debris that remains stranded at higher elevations and a debris removal program to eliminate these hazards. Residents indicated boating access and infrastructure maintenance for recreation and fishing is important, alongside boating and swimming safety. Recreational fishing and harvest for First Nations was also highlighted.

There is concern that inadequate boat access infrastructure and poorly maintained roads limit access to reservoirs and rivers for recreation. Residents wanted well designed ramps and breakwaters to provide water access over a range of water levels. Concern was expressed over a lack of safe overnight moorage at low water levels. Poor road conditions discourage residents and tourists from seeking out new recreation opportunities.

Some people drew attention to the fact that valley bottoms were inundated such that existing transportation infrastructure is more expensive to maintain. Increased transportation cost due to longer travel time is perceived to have a negative impact on economic opportunities. Many residents continue to request a “fixed link” to help restore direct access across Arrow Lakes as opposed to ferry service.

2.3. Water Levels, Flood Control and Erosion

There is a desire to minimize the frequency and impact of deeper draw downs to reduce property damage from erosion. Residents recognise flood management, especially during high water years, requires cooperation between all operators to minimize flooding and damage. Many residents appreciated that the incidence and severity of flooding has been greatly reduced as a result of the implementation of the Treaty. However, during high water years, there is an interest for reservoir levels to be drawn down in a way that is consistent with meeting ecosystem needs. Residents want to understand if there are other agreements or management plans that affect the level of reservoirs in the Columbia River system. There is a desire for consultation and greater communications about these operations between operating entities and local governments and residents.

Residents question current and possible future flood control under the Columbia River Treaty. They want to understand the benefits and drawbacks of coordinated flood risk management to both Canada and the U.S. Many people also want to understand the implications for both countries of [Called Upon Flood Control](#) when the current Assured Annual Flood Control expires automatically in 2024 and converts to a Called Upon Flood Control operation of Canadian reservoir storage. Some residents question how water levels would change if reservoirs were operated solely for Canadian interests.

2.4. First Nations and Cultural Heritage

First Nations' representation in the Columbia River Treaty Review process was an interest expressed across communities. Many Basin residents want to understand how Aboriginal interests are being considered in the Columbia River Treaty Review. There is a desire to understand what level and degree of change is possible within the current flexibility of the Treaty and how this can be used to manage for ecosystem and cultural values.

Some residents expressed a desire for increased identification and protection of cultural sites and artifacts, including minimizing the impact of wind and wave erosion and inappropriate access to archeological sites, such as pot hunting. There is a desire for advancing the abundance and diversity of traditional plants, fish and wildlife populations and to ensure First Nations' ability to harvest for food, cultural and ceremonial purposes. There is concern that fluctuating

water levels and erosion impact hunting, gathering of plants and plant products, and fishing. Some residents would like to see First Nations' involvement in implementing research, monitoring and management activities. Interest in the Sinixt was also expressed.

2.5. Environment and Climate Change

Basin-wide sustainability is a key interest. There were questions about how “ecological sustainability” could be added to the Treaty alongside power and flood control priorities. Some residents are interested in incorporating stewardship principles and responsibility to future generations into the Treaty. There is some concern that managing for endangered species in the U.S. could potentially negatively impact environmental priorities in Canada. Some people noted that in future the value of water will continue to increase and hydropower values may become less important. It was noted that reservoir or river level fluctuations impact a wide range of environmental values in the system. People questioned what additional flexibility and tools could be incorporated to further manage for fish and wildlife.

Many residents, especially youth, expressed a desire for greater transboundary collaboration to enhance ecosystem function in the Basin. Some people are interested in a mechanism for discussing governance across the Basin.

Residents value ecosystem resilience and productivity. Wildlife and vegetation interests encompass floodplain ecology, grasslands, protected areas, river valley habitat, wetlands, shoreline productivity and wildlife and nesting habitat. Wildlife and vegetation objectives that were stated included: maximizing vegetative growth in the drawdown zone (river valley habitat) and maximizing wildlife habitat. Other objectives that were expressed include wetland protection and enhancement, as well as maximizing abundance and diversity of wildlife populations for hunting.

Fish and aquatic resources interests included rainbow trout, white sturgeon, cutthroat trout, bull trout (Dolly Varden), kokanee, whitefish, and burbot. Many Basin residents would like to see more activities that maximize the abundance, diversity and condition/size of priority species, and minimize the possible negative effects on fish and their habitats. Some people want to better understand fisheries management plans that are in place, or still to be developed. Concern about shore and reservoir productivity, including phytoplankton growth, was also expressed. Entrainment (trapping/stranding of fish when water levels fluctuate) is another issue of concern. Some people question if there is a relationship between dam operations and invasive aquatic species.

There is some desire to bring salmon up the Columbia River into Canada if it can be technically and economically feasible. A number of people would like to understand the circumstances that have led to the return of salmon in other river systems. Many wish to understand how increasing water temperatures may impact salmon restoration, and what may be done about this in the Columbia mainstem and tributaries.

Some people noted other environmental impacts from dam construction, including inundation and loss of lakes, wetlands, floodplains, waterways, and upland ecosystems. Concern was expressed over the loss of habitats, particularly riparian and riverine habitats, and resulting implications for fish, wildlife and important ecosystem functions such as biodiversity, connectivity, and productivity. Many residents felt compensation benefits for fish and wildlife losses have not been realized and others were not aware of what fish and wildlife compensation programs and initiatives currently exist and what has been accomplished to date and wanted more information. In addition, some people noted it can be difficult to clearly distinguish between footprint and operational impacts for environmental values.

There is much interest among Basin residents to understand how climate change is being considered in the future of the Columbia River Treaty. Some people question if enough information is available about climate change impacts to inform a long-term decision about the value of water storage and flows at specific times of year. Many residents want to see climate change predictions including glacier recession incorporated in the modeling of potential operations alternatives.

2.6. Economic Opportunities and Costs

Residents are keenly interested in economic development, commercial opportunities and job creation. These interests include tourism and waterfront businesses (e.g.: houseboats) and aesthetic impacts for beach front commercial properties. In addition, navigation and commercial transportation are important.

Many residents talked about lost economic and social opportunities resulting from inundation of fertile, productive valley bottom land and community displacement. Some residents indicated the loss of productive agricultural land and transportation issues that arose as the result of inundation hinder the development of a local agriculture sector. Certain residents felt the loss of valley bottom forest areas and high transportation costs due to complex transportation systems reduced the productive capacity and competitiveness of the forestry sector. Some residents believe that there was a lack of adequate financial compensation for these losses.

Many residents and several community leaders have stated that there needs to be an appreciation of economic benefits to individuals and communities as a result of ongoing construction and operation of the dams, including high paying jobs, improved infrastructure, spin-off contracts and purchases with industry and service sectors.

Other residents believe dam impacts continue to influence property values. Some local governments noted the loss of potential tax revenue from properties that were flooded. They also expressed concern that the current structure and amounts of grants in lieu of taxes from BC Hydro is a problem for local governments. However, they noted increased potential revenue from taxation of reservoir areas and transmission lines.

Benefit sharing from the Columbia River Treaty is a topic of significant interest. Many residents question whether the Basin receives a fair share of revenues from power generation, downstream (U.S.) power benefits, and the Non-Treaty Storage Agreement. Some participants asked how downstream benefits are calculated, and wondered about the value of providing flood control to the U.S. There is a desire to understand the range of benefits and costs/impacts to the Basin from the Columbia River Treaty, as well as the amount of power generated from/enabled by the Canadian Columbia River Treaty dams. Residents want to ensure that enabling prosperity in the U.S. does not come at the expense of prosperity in B.C.

Some people want more information about where the revenue benefits in the form of the Canadian Entitlement go, how they are used, how this compares to environmental and agricultural losses, and whether B.C. could generate the equivalent amount of revenue from power production under a Treaty terminate scenario. Various residents questioned whether B.C. could keep all of the downstream power benefits as power rather than sell it, so as to avoid building new power generation facilities in the province. Other people asked how the loss in revenue would be recovered if the Treaty were terminated. There were other questions around whether continuing the Columbia River Treaty may limit interest in exploring alternative energy in the region, specifically geothermal energy. Others wondered how and where new sources of electricity could be generated if power generation from the Columbia Basin would be significantly curtailed in favour of other values. Several people who were involved in the Water Use Planning process felt that this initiative was more comprehensive than the Columbia River Treaty process or the Treaty itself and felt that the 2020 formal review of the Columbia Water Use Plan could address many issues that the Treaty was not designed to do. However, many residents were unfamiliar with the Water Use Planning process and wanted more information to understand it better.

A number of questions were expressed about the Columbia Basin Trust and its role in the Basin. Many residents want to understand how the Columbia Basin Trust will be affected by the Columbia River Treaty Review. In particular, residents wonder if Columbia Basin Trust revenues will change in a Treaty continue or Treaty terminate scenario. Some people also had questions around Columbia Basin Trust funding allocation, and whether funding is/could be tied to regional impact from the Columbia River Treaty. Many residents appreciated all the work that the Columbia Basin Trust is doing and highly valued the organization; others wanted the Trust to do more to stimulate economic growth. Some residents suggested that Columbia Basin Trust funding be distributed in correlation with the degree of impact to communities.

People have questions around dam construction, safety, and whether any of the Treaty options would allow for dam removal or building additional dams. Questions were also raised about the lifespan of Columbia River Treaty dams, and who would be responsible for maintenance and upgrade costs post 2024 under different Treaty scenarios. Some residents also want to understand if hydro rates would be impacted under a Treaty terminates scenario.

2.7. Engagement and Collaboration in Water Management

Several local residents expressed a desire for more involvement in discussions around reservoir management and dam operation in B.C., and also with their counterparts in the U.S. Many people noted the value of collaboration, and wondered if U.S. residents and stakeholders understand the impacts of the Columbia River Treaty in Canada. A number of residents noted that ensuring good relations between the Province and First Nations and Basin residents is as important if not more important than ensuring good relations between B.C. and the U.S. Many people would like greater communication about the implementation of BC Hydro Water Use Plans, including study results and annual operating decisions.

2.8. Columbia River Treaty Review Process

Many people expressed a desire for an authentic, transparent process through which their voices are heard, and interests are considered. Some residents noted that meaningful consultation includes opportunities for people to engage in various ways, at various levels of interest, and with a clear understanding of the engagement and decision-making process. They would like to see how their input is reflected in the decision, or at least to be provided a rationale as to how the eventual decision was made. Some people requested processes and materials that cater to a variety of learning styles, are targeted for specific audiences, and presented in language that is easily understood. People requested more information in order to understand the issues and implications of scenarios on their interests. Residents noted the need to identify regional priorities, and suggested a cross-border conference would help to understand the issues throughout the Basin. Others expressed the need for a better way to integrate community needs and values in the implementation of the Treaty and wanted to know what mechanisms exist currently.

A number of residents across the age spectrum would like to see more youth involvement in Columbia River Treaty discussions, and people are interested in what the Province will be doing around youth consultation and engagement on the Columbia River Treaty. It was suggested that schools (K-12) are the best avenue for raising a next generation that is aware of, and informed about the Treaty, as many opportunities exist to incorporate Columbia River Treaty content into classrooms at various levels and subjects. Some youth emphasized the importance of “going to the people” and suggested that approaching people where they are (e.g.: boat launches, campgrounds, music festivals, hockey games) is an effective engagement strategy.

It was noted that while it is important to acknowledge the past, the Columbia River Treaty Review provides a positive focus on the future and on opportunities to do things differently. For example, some people felt the Review is an opportunity to examine how to be more inclusive and have on-going discussion around how dam operations are managed.

Many people are interested in understanding the public engagement process in the U.S. Specific questions include who is involved, how is it structured, what types of scenarios are they modeling, and how much communication is taking place between Canada and the U.S. Some residents inquired as to whether Canada and the U.S. will exchange information, and if this information will be publicly available.

Some residents are interested in the process of negotiation with the U.S. Residents want to understand what the negotiation process will entail and who will be involved as negotiators. Questions relate to the role of various agencies (e.g.: Canada, B.C., and BC Hydro), as well as timeframes (e.g.: the significance of 2014 and 2024). Some people questioned what the process would be if recommendations from Canada and the U.S. are very different from each other. Several residents have questions about the relationship between the North American Free Trade Agreement and the Columbia River Treaty.

Some residents want to understand the full range of benefits and impacts to Canada and the U.S. from the current Columbia River Treaty and also if the Treaty were terminated. Various participants are particularly interested in downstream non-power benefits, such as flows for fish in the U.S. Questions were raised as to whether the Non-Treaty Storage Agreement should be incorporated into a future Treaty. Some residents have questions around ensuring Treaty compliance, and expressed a desire to have a local voice on the Permanent Engineering Board. Many People want to understand the bargaining leverage of both countries

Part 3: Specific Interests by Reservoir

3.1. Kootenay River System - Koocanusa Reservoir

Current operations of Libby Dam in the U.S. are a focus of area residents. Many Basin residents would like to see greater communication about Libby Dam operations, as well as more influence and input into its operations. Some people feel that current operations reflect U.S. interests but do not adequately address the spectrum of impacts of Libby dam operations on both sides of the border. Residents would like to work with the U.S. to improve operations and address water quality concerns.

Many cited the lack of a fish and wildlife compensation program for Koocanusa because the water license for Libby Dam operations is issued by the U.S. and not B.C. There is some desire for a “water use plan like” process for the Kootenay River system that would consider operational impacts on a variety of values and include participation from Canada and the U.S. Some residents think this process should consider all the reservoirs and dams on the Kootenay system, from Koocanusa Reservoir to the Kootenay-Columbia confluence at Brilliant Dam. Residents suggest this process would increase responsiveness of Libby Dam operations to public concerns and lead to more effective management of the Koocanusa Reservoir as a whole.

There is a desire to maximize abundance and diversity of fish and wildlife populations. Some residents want to see more restoration activities that would mitigate the loss of grassland at the northern end of the reservoir and minimize flooding impacts of protected areas or other important habitats. Some people would like to see a fisheries management plan. It was suggested that monitoring would be useful to understand the status of fisheries and ecosystems in the region.

Opportunities for guide outfitters and angling guides were identified by some residents. In particular, access to wildlife and viewing opportunities were noted, along with concern over quantity and size of fish. There is concern that fluctuating water levels affect fish abundance, diversity and size.

With respect to tourism and recreation, it was suggested that higher spring water levels may allow marinas to open earlier. Some residents indicated that elevation 2420 feet (738 meters) is the lowest level for operation of Canadian houseboat businesses and elevation 2434 feet (742 meters) is the lowest level for shore-based recreation. The preferred elevation range for Koocanusa Reservoir for a number of residents appeared to be in the range of 2445 to 2455 feet (745 to 748 meters) from Victoria Day until Labour Day. Numerous people indicated that a long-term funding arrangement rather than annual program funding is needed for debris removal for navigational, safety and aesthetic reasons.

Many residents want to see more opportunities for commercial ranching and maximizing grazing land. Some residents observed that maximizing grazing land conflicts with recreational water levels. In addition, some people expressed an interest to maintain available floodplain land for dairy, grains, fruit and vegetables. Some residents expressed a desire for increased economic diversification and business opportunities and suggested that economic development on the south-east portion of the reservoir in B.C. is restricted by limited road access. Limited road access also was cited as the cause of increased cost of harvesting reduced timber resources. However, other residents point out that limited access helps to protect against ecological damage

People have questions about the Kootenay River Diversion and how it relates to the Columbia River Treaty.

3.2. Kootenay River System - Kootenay Lake

Four key issues were identified by a number of Basin residents relating to current operations downstream from Libby Dam to Kootenay Lake. These include flood risk to infrastructure in floodplains; impacts from river level fluctuations on dyking infrastructure; impacts/benefits of the U.S. fertilization program; and management of the Columbia Valley Wildlife Management area and surrounding wetlands. Some residents noted that post-Libby Dam development in the historical floodplain area may have resulted in increased flood risk to infrastructure. It was also noted that the frequency and scale of flood damage has decreased since construction of Libby Dam. Several residents want to know if rapid river level fluctuations from Libby Dam operations are eroding dike infrastructure and negatively impacting agricultural lands. There is concern that higher flows and water levels in summer and fall in the Kootenay River may increase flooding risk and dike erosion.

A number of people expressed a desire to improve ecological functioning of the floodplain in Creston Valley, and mitigate flooding impacts of protected areas (e.g.: the Creston Valley Wildlife Management Areas and Creston Flats) or other important habitats, such as breeding ground for the Northern Leopard Frog. Some people expressed an interest to minimize impacts to fish from rising water temperature. Water levels at Duck Lake are of interest to people in the Creston region. Several expressed a preferred elevation range during the spring of 1744 to 1746 feet (531.6 to 532 meters). In contrast, elevation above 1749 feet (533 meters) and less than 1744 feet (531.6 meters) was thought of as detrimental during period between May 15th and August 31st.

Floodplain development and exposure to flood risk is also of concern to many residents around Kootenay Lake. They noted that while there is some flooding at 1750 feet (533 meters), flooding is primarily above the 1755 feet (535 meters) mark.

Another issue, ferry navigation at various water levels, was raised relating to current operations. It was reported that the ferry encounters difficulties at very low water levels, and has grounded when entering the West Arm. Dredging 25-35 years ago is considered to have minimized this. At very high water levels, docking also becomes difficult.

Some people have concerns about fish getting smaller. There is a desire to assess if May/June would be more suitable timing for the fertilization program, rather than July. Fish ladders at Brilliant Dam were suggested. Some residents also question whether the current International Joint commission order (from 1938) is still relevant, given that it addresses water flow management through the Corra Linn Dam south of Nelson, but does not deal with the managed inflows from Duncan and Libby Dams. There is some interest in dredging Grohman Narrows, which would increase the water flow rate out of Kootenay Lake and ultimately lower lake levels during potential flood events.

3.3. Kootenay River System - Duncan Reservoir

In the area around Duncan reservoir, one of the main issues raised by local residents relates to the lack of buy-back

opportunities for expropriated lands. Some people feel that property owners around Duncan reservoir were not provided an opportunity to buy-back properties that were not inundated, as was the case around Arrow Lakes. With respect to current operations, there is some concern over erosion of private land below Duncan Dam, although it is unclear what kinds of flows, at what time of year create erosion.

Some people are concerned about how discharges from Duncan operations impact kokanee and Gerrard trout spawning. Numerous residents expressed concern around the impacts of Duncan operations on fish habitat, fish populations, and wildlife dependent upon wetlands and river valleys. Several residents questioned whether dam operations have created more mosquito habitat and increased mosquito cycles that require more frequent and costly control.

Many people acknowledge that flooding has been reduced in frequency and scale compared to pre-dam conditions, but they are concerned that floodplain development is being approved by the Province and Regional Districts, with ensuing increased exposure to flood risk.

Many residents raised the possibility of adding generating capacity to Duncan Dam.

3.4. Kinbasket Reservoir

Many residents raised historical impacts from the creation of the reservoir to the forest industry as a particular concern in Golden. Numerous residents noted the loss of economic timber supply and transportation infrastructure to inundation and the high cost of maintaining the existing transportation network. Some people also acknowledged that a diminished land base creates conflict between commercial and environmental interests; for example, between forestry and wildlife habitat.

Many Valemount residents raised the issue of dust storms during reservoir drawdown periods and the potential effects on air quality and human health.

In addition to the environmental interests mentioned above in Section 2.6, some people expressed a desire to maximize shore and reservoir pelagic (zone near the surface) productivity and minimize negative habitat impacts on kokanee, bull trout and burbot. Other interests include improving phytoplankton growth for kokanee, and minimizing additional drafts in Kinbasket Reservoir that may result in fish entrainment through the hydroelectric facility. Northern Leopard frog populations are also of interest to some people in this region. Several residents felt that there is a lack of information on fish and wildlife values as a result of inadequate funding allocated to the Kinbasket area from the Columbia Basin Fish and Wildlife Compensation Program. Questions were also raised around the status of Water Use Plan implementation. Numerous residents noted that higher reservoir levels in spring and early summer would benefit fish, wildlife, and recreation.

With respect to recreation, some people noted a lack of provincial campgrounds and unmaintained recreation sites. It was also suggested that building weirs/dams in the north and south of Kinbasket Reservoir would stabilize water levels for recreation and fisheries, and help address dust storms. Various residents are concerned that extensive drawdown zones with unsightly mud flats limit the development potential for tourism and recreation. Some people expressed a desire to minimize erosion from industrial activity and bank erosion on private properties from wave action. Some suggested boat ramps at Bush Harbour and Nixon Creek, and raised boat access issues in the spring when the reservoir refills slowly. Several people would like a change in operations to maximize the frequency that commercially important routes are navigable and sites are accessible. It was noted that the Kinbasket Recreation Management Plan includes monitoring studies, physical works (including ramp extensions and new ramps), debris management, and dredging and should be considered during the Columbia River Treaty review. A number of people observed that the current minimum reservoir level is 2395 feet (730 meters) year round and the preferred level from August to October is 2457 to 2464 feet (749 to 751 meters).

Concern was expressed over the restricted access to the reservoir by the current network of resource roads. Numerous residents noted that in some seasons, the roads are impassable due to limited maintenance and a poor road network. Groundwater protection, improving connection to the electrical grid, and reducing generation of diesel electricity to improve quality of life for properties around Kinbasket Reservoir are other interests identified by area Basin residents.

Some residents expressed concerns regarding BC Hydro's grants in lieu of taxes to the Columbia Shuswap Regional District, where these funds are allocated to Regional District areas not impacted by Mica Dam. Some residents feel that if the Non-Treaty Storage Agreement causes Kinbasket Reservoir water levels to not meet the full range of Basin residents' interests, then revenues from the Agreement should be allocated to address impacts to Basin residents.

3.5. Columbia River System - Arrow Lakes

Many residents expressed the view that the hardship caused by the dislocation of communities and families has not been properly acknowledged and that a number of relocated residents were treated fairly. Several people would like to see this inequality addressed. Others felt that although there is lingering pain from the past, it is time to move forward and focus on the future.

A key historical issue for some Basin residents around the Arrow Lakes is a "fixed link"—a promise made during dam construction that a bridge across Arrow Lakes would be built. Current ferry operations are considered by many as insufficient to meet transportation needs during heavy traffic. However, many people welcomed the announcement in June 2012 of a new, bigger ferry for the Upper Arrow Lakes that would be built in Nakusp.

Concerns were raised over the impact of current Arrow Lakes Reservoir operations on recreation, tourism, forestry and fisheries. Many residents expressed concerns that marina infrastructure is impacted at high levels, while shore and boat recreation, tourism, and log booming are limited at low levels. Several residents noted that the preferred levels for recreation are between 1435 feet (427 meters) and 1440 feet (439 meters). Conflict between motorized and non-motorized recreation users is also an issue to many residents.

Some residents noted that low water levels can limit access to fall spawning habitats for kokanee and bull trout. There is some concern that lake productivity may be limited by low reservoir levels in spring. The loss of nutrients due to sediment stored behind dams was also noted; specifically, some people are concerned about the resulting downstream nutrient loss and impacts on ecosystem productivity. A number of residents acknowledged that this effect may be compensated by BC Hydro's fertilization program, but there were questions relating to the program's effectiveness and more information was requested. Some residents would like to see minimum flow requirements in the Columbia River for dace, sculpin, rainbow trout, bull trout, and possibly sturgeon. Others would like to see BC Hydro lands more actively managed for environmental values.

Wildlife concerns were raised relating to springtime rising reservoir levels that displace nesting waterfowl and shorebirds. Some residents suspected that, in the fall, water levels impact bird habitat availability.

Several people noted that fluctuations of Arrow Lakes impact wetland conditions. Some residents suggested that regional districts bear greater costs for mosquito control in recent years when reservoir levels remain high for longer periods in the summer. Other residents noted a concern about an unsafe boat launch at Shelter Bay, and also expressed a desire for river markers to enhance navigational safety. A dyke or weir was proposed by some as a means to increase water depths for boating and ferry navigation. In addition, some people question if fish hatcheries on Arrow Lakes could support increases in recreational anglers and tourism.

3.6. Columbia River Mainstem

Several people noted the need to address U.S. migration impediments before salmon could be restored to the Columbia River mainstem. If this were done, some expressed a desire for facilitating fish passage for salmon spawning, egg incubation, and juvenile rearing, including into historically accessible areas in Arrow Lakes and tributaries, lower Kootenay River, and Slocan Lake and Pend d'Oreille and Salmo Rivers. Other residents questioned the practical viability of achieving this goal.

Large fluctuations in river levels were identified as concerns around current operations in the region between Hugh Keenleyside Dam downstream to the U.S. border. Many people want to understand the impact of the fluctuations, caused by a combination of Kootenay River and Columbia River operations (Erosion at Gyro Park from high water and river level fluctuations is a concern to many Nelson residents. Several residents and community leaders are concerned municipal infrastructure, such as waste water and sewage facilities and areas around Castlegar, Waldie Island and Trail, can be flooded in high water years. Development in the historical floodplain is another concern to some people, yet it was also noted that flooding occurs with reduced frequency and scale compared to before the Columbia River Treaty.

Part 4: Next Steps

The Columbia River Treaty Review team will return to the Columbia River Basin in November 2012 to begin a second round of public consultations. One of the key objectives of the sessions will be to describe and begin to receive feedback on the impact of Treaty options on the interests Basin residents shared with the Treaty Review team during the first round of consultations, as summarised in this report. Please visit the Calendar of Events on the Columbia River Treaty Review website (www.gov.bc.ca/columbiarivertreaty/events) to see locations, dates and times for eight community consultation sessions.

The Province wants to hear from Columbia Basin residents. Send feedback on this summary report to the Columbia River Treaty email (columbiarivertreaty@gov.bc.ca), or post a comment or question on the discussion forum: www.gov.bc.ca/columbiarivertreaty/category/blog/.

For more information visit the Frequently Asked Questions or Further Resources sections of the Columbia River Treaty Review website, subscribe to the Columbia River Treaty Review newsletter for regular updates, including details of upcoming engagement opportunities or follow the Columbia River Treaty Review on Twitter and Facebook. Visit www.gov.bc.ca/columbiarivertreaty for details.