

Meeting Minutes

2018 Annual Tour and Board Meeting, International Kootenay Lake Board of Control (IKLBC)

Thursday, September 20, 2018

Tour: 7:30 AM to 1:30 PM

Board Meeting: 2:30 to 4:30 PM

Kootenai River Inn Casino, Bonners Ferry, Idaho

	United States	Canada
Chair	Colonel Mark Geraldi (Host)	Bruno Tassone
Members	Kyle Blasch	Ted White
Secretariat	Kevin Shaffer	Gwyn Graham
IJC Commissioners	Richard Moy	Gordon Walker
IJC Advisors	Mark Colosimo	Wayne Jenkinson, Paul Allen
Guests	Dale Ernst (Fortis BC), Gillian Kong (BC Hydro), Martin Suchy (ECCC)	

IKLBC Board Tour Summary

Board members visited the U.S. Army Corps of Engineers' (USACE) Libby Dam in Montana. Presentations of Libby Dam operations and water management were given at the visitor center, followed by a tour of the dam. The tour was led by Richard Spiger, Operating Project Manager, and Joshua Erickson, Technical Section Chief. Mr. Erickson delivered the presentation on Libby Dam operations and Kevin Shaffer, USACE Seattle District Water Management Section Chief, delivered the presentation on Libby Dam water management.

Libby Dam is located on the Kootenai River in Montana, upstream of Kootenay Lake. The dam was authorized by the U.S. Flood Control Act of 1950 and the Columbia River Treaty. Construction occurred between 1966 and 1972. The dam impounds Lake Kooconusa, the seventh largest reservoir in the United States, which extends upstream into Canada. The dam is operated for flood risk management on the Kootenai River in and around Bonners Ferry, Idaho; flood risk management in the greater Columbia River basin; hydropower generation; and fisheries objectives. Construction of the dam resulted in significant reductions from historical peak flows and lake levels on Kootenay Lake.

Libby Dam, similar to Duncan Dam in Canada, is no longer operated to specifically meet the Kootenay Lake rule curve and the Kootenay Lake Orders of Approval. However, water

management operations at Libby Dam and on Lake Kooconusa are coordinated between Canada and the United States through the Columbia River Treaty framework. Mr. Shaffer shared information on coordinated operations during the flood event of 2012 to store additional water in Lake Kooconusa and to reduce peak lake levels on Kootenay Lake.

Mr. Shaffer also indicated that operations are also significantly influenced by the U.S. Endangered Species Act and operations for salmon on the Columbia River basin, Kootenay River white sturgeon, and for bull trout. Mr. Shaffer noted recent success in temperature management work at Libby Dam to support white sturgeon and bi-national work in the area of Bonners Ferry, Idaho, to restore white sturgeon spawning habitat.

IKLBC Board Meeting

1. Welcome and Introductions

The meeting was opened at 2:20 PM by Colonel Geraldini (Board Chair, U.S. Section) with welcoming remarks and introductions of the board members and IJC Commissioners Rich Moy and Gordon Walker, who were in attendance. Colonel Geraldini presented Gwyn Graham (Canadian Secretary) with a USACE coin for his contributions to the International Joint Commission work.

2. Agenda

The draft agenda was reviewed with minor corrections, then accepted.

Corrections:

Jamie King's (Fortis BC) name was corrected in the agenda.

An update on the Corra Linn upgrade project from Fortis BC representative Dale Ernsnt was added to agenda.

3. Business from Previous Meeting

3.1 Review of Priority Items from 2017 Meeting

Kootenai River Drivers to Flooding on Agricultural Land:

The board had previously been notified by local farmers in Idaho that moderate Kootenai River levels were resulting in crop damages. Specifically, damage was noted when the gage elevation at Porthill, Idaho, exceeded 1,750 feet. Mr. Shaffer followed up with the hop farmer (Mr. Ed Atkins) to obtain clarification of under which conditions crop damage was occurring, since elevation 1,750 feet is regularly reached at Porthill and significant damages were not commonly reported. Mr. Atkins confirmed ponding in fields and crop damage occurs at these levels and is detectable using recent drone monitoring. However, Mr. Atkins indicated that the significant crop damage occurs only during when the river is above these levels for prolonged periods of time, or during particularly high levels.

Mr. Tassone recalled that the farmer had invested in field drainage and inquired about the effectiveness. Mr. Tassone recalled that the farmer believed the damage issues were not common before VarQ operations began at Libby Dam (not referencing pre-Libby Dam conditions, which exhibited much more prolonged and higher flows). Pre-Libby Dam, the Kootenai River exceeded the indicated problem levels on a regular basis. VarQ provides

increased spring discharges to approach a more naturalized hydrograph, so farmers who might have been accustomed to higher degree of regulation during the freshet could perceive that conditions are worse now under VarQ.

Visualization Model:

Mr. Colosimo noted that if the board wished to pursue funding for a Kootenay Lake visualization model that the International Watershed Initiatives program would have two calls for proposals in the coming year: fall and spring. Fall submissions are due in September, so he suggested the board should aim for a spring proposal for the visualization model. Mr. Graham indicated the need to discuss database access with Fortis BC to avoid the need to piece together annual reporting datasets. Mr. Jenkinson requested the data and information on the visualization model to scope potential approaches and/or opportunities.

4. New Business

4.1 Compliance with IJC Order in 2018

Mr. Shaffer reviewed the IJC rule curve and the 2017-2018 hydrology year-in-review. Fortis BC met Order requirements, despite a rule curve exceedance due to high natural inflows in mid-March. The Board determined that this was not a violation of the Orders since Corra Linn Dam was in freefall during this time.

Water year 2018 was a wet year with significant snowmelt runoff. The snowpack grew significantly between January and April and in some places in the basin was at record levels (e.g. Redfish Creek). The significant snowpack led to flooding concerns in the Kootenay Lake basin. May was unusually hot and this weather pattern extended through summer. The unusually dry spring and summer helped avert major flooding in the basin.

Mr. Shaffer presented an updated plot of historical Kootenay Lake levels before and after the construction of Libby Dam. The plot exhibited the effect of 1940s Grohman Narrows dredging, reducing peak lake levels, as well as the more significant reduction of lake level ranges due to upstream Columbia River Treaty dams, particularly Libby Dam.

Mr. Shaffer reviewed Libby Dam operations. Libby Dam was drafted over the winter to levels determined by the snowpack and forecasted spring/summer runoff. The minimum elevation of Lake Kootenay was 2,357.9 feet on April 9, 2018. This was a significantly low reservoir level for Lake Kootenay. The VarQ refill flow was approximately 10 kcfs, with increased outflow for sturgeon pulse operations from May 5 through June 26, 2018.

Kootenay Lake reached a minimum elevation of 1,739.2 feet on April 14, 2018, and a maximum level of 1,752.2 feet on May 26, 2018. The maximum elevation was the third highest since the construction of Libby Dam. The peak inflow into Kootenay Lake of 118.7 kcfs on May 17, 2018, was the fourth highest inflow since the construction of Libby Dam.

Mr. Blasch asked how the operation decisions in the basin reflected the extreme snowpack. Mr. Shaffer indicated that there was extensive coordination between the U.S. and Canada through the Columbia River Treaty Operating Committee. Ms. Kong indicated that Duncan Dam reduced outflows to reduce Kootenay Lake levels and maximum outflow was released through Grohman Narrows during the freshet to limit peak lake levels. Sturgeon flows from Libby Dam were delayed and spread out relative to past years. Ms. Kong indicated that an additional mitigating option would be the further excavation of Grohman Narrows.

Mr. Tassone questioned Ms. Kong whether BC Hydro intends to revisit Grohman Narrows expansion. Ms. Kong indicated that the effort had minimal support from the public but that with additional dredging the increased capacity could be used to reduce peak lake levels. The Board indicated that in Kootenay Board public meetings there was expressed interest in reducing high lake and river levels. Ms. Kong indicated that recent high-water years may help more people to appreciate the potential benefits of further dredging. Mr. Blasch indicated that another mitigating option would be to manipulate inflows to Kootenay Lake.

4.2 Fortis BC Review and Update

Dale Ernst (Fortis) - Acting for Jamie King

Mr. Ernst indicated that Kootenay Lake was held under elevation 1,745 feet in the winter and that the drawdown followed the rule curve until mid-March. The lake levels exceeded the rule curve but eventually met the minimum required elevation of 1,739.32 feet on April 12, 2018 (elevation 1739.17 feet). Fortis BC and CB Hydro utilized Corra Linn Dam and the Kootenay Canal to keep the river on freefall through Grohman Narrows beginning March 1, 2018. When freefall operations occur, the maximum possible outflow is released from the lake and Corra Linn Dam is not operating to a specified lake elevation.

Fortis BC launched a communication campaign out of concern for the lake reaching elevation 1,754 feet. The lake elevation peaked on May 26, 2018, at elevation 1,752.19 feet. 2018 was the third high-flow and high-lake year since 2012. However, public comments and concerns were unremarkable. Mr. Ernst speculated that the public may have become acclimated to higher water levels after the extreme 2012 event. Mr. Ernst indicated that Fortis paid \$28,000 to farmers in Idaho in 2018 for increased 2017 pumping costs.

Mr. Ernst indicated that HMI Canada had been awarded the contract to upgrade the spill gates at Corra Linn Dam. Work includes pier-nose remediation work, remote gate operator (RGO) installation with structural steel reinforcement, electrical preparatory work, and superstructure structural steel reinforcement. Gate replacement is scheduled to start in September 2019.

Mr. Shaffer indicated that he spoke with Jamie King (Fortis BC) earlier in the year to confirm that Corra Linn Dam will be able to pass the Probable Maximum Flood discharge during the construction, even with three gates out of commission at a time. Mr. King indicated that this was indeed the case.

Mr. Ernst indicated that Nelson Hydro wants to remove/decommission their substation which would impact the Nelson lake-level gage. The site has complex land-use and easement issues. Additionally, the adjacent bridge in Nelson may be modified within the next approximately five years. The City of Nelson wants to know if gage is still required or if it could be moved downstream approximately 1 km.

Mr. Graham indicated that the Nelson gage is used as reference for end-of-freshet. Reaching a trigger elevation on the Nelson gage in the receding limb of the freshet results in a switch in the rule curve from the lowering formula to a fixed-level rule curve (referenced to the Queens Bay gage). The gage is also a reference in lowering formula calculations for rule curve. Mr. Graham suggested the board should more thoroughly evaluate implications of moving the gage location (or removal of reference from Order) prior to a decision. He requested that Fortis not move the Nelson gage location, in the meantime. Mr. Ernst indicated that Fortis will maintain Nelson gage for the time-being.

Commissioner Walker indicated that a review or change to an IJC Order is typically a drawn-out process. For example, the Lake of the Woods and Rainy River Order of Approval underwent modest adjustments but required a significant effort. The update to the Great Lakes Order also resulted in a significant review effort with Lake Ontario requiring fourteen years and public hearings, etc. However, given the age of the Kootenay Order, a review is likely due for consideration.

Ms. Kong indicated that Grohman Narrows maybe a more significant issue than Columbia River Treaty renewal in terms of changes for the Order. However, she reiterated that it would need strong public support and that BC Hydro has been considering additional expansion since 2005 but has not garnered such support.

Commissioner Moy expressed the question of whether Corra Linn operations should be considered under the Columbia River Treaty renegotiation rather than through IJC.

Mr. Tassone stated that there is minimal public enquiry raised over relevance of the Order in recent years. Rather, there is more interest in ecosystem issues and Grohman Narrows improvement.

Mr. Colosimo suggested that the IJC could engage in studies, related to a review of the Order, that would be of utility to multiple interests.

Commissioner Moy suggested that expansion of Grohman Narrows should be put back on the table for further consideration and stated that flood risk was going to increase in the future.

Colonel Gerald confirmed consensus by the Board that a change to the Order should not be made before conclusion of the current renegotiation of the Columbia River Treaty.

Mr. Colosimo suggested that the Board prepare a White Paper on the relevance of Grohman Narrows and the relevance of ongoing Columbia River Treaty renegotiations. Mr. Colosimo suggested such a report would be timely and would support IJC Commissioners' consideration of Order renewal in the future.

4.3 BC Hydro Update

Gillian Kong (BC Hydro)

Ms. Kong presented an overview of BC Hydro Columbia River system operations. She stated that the Columbia River has been operated to meet system requirements in coordination with the Peace River system. Ms. Kong stated that there was additional generation capacity planned at Revelstoke Dam and that generation at Hugh Keenleyside has occurred since 2002 in cooperation with the Columbia Power Corporation. Duncan Dam is a treaty dam with no power generation but approximately 2 million acre-feet of storage. Duncan Dam operates to water licenses, Columbia River Treaty objectives, and Water Use Plan considerations. The minimum elevation at Duncan Dam is in April at approximately 1,790 feet and the maximum is in July and August at 1,890 feet (full). This year, March inflows to Duncan Dam were minimal and BC Hydro sought approval to deviate from minimum Environmental Flow Needs. However, April inflows were dramatic. Duncan Dam released zero discharge from June 1, 2018, until the third week in July when the full pool level was reached. The reservoir was drafted to the Water Use Plan recreation objective of 1,888 feet with maximum discharges in late September through December constrained by Kokanee spawning objectives in the Water Use Plan.

Ms. Kong indicated that Kootenay Lake discharge was maximized during the freshet but was constrained by Grohman Narrows. The joint operation between Corra Linn Dam preferentially releases water through the Canal Plant up to the plant capacity and remaining flow is passed through Corra Linn Dam and other Kootenay River dams.

Ms. Kong indicated that Seven Mile and Waneta on the Pend d'Oreille River are essentially run of river dams with minimal storage.

4.4 Correspondences

Mr. Graham reviewed a public enquiry regarding the Nelson gauge operations.

Mr. Graham proposed a response to an enquiry regarding a Board mandate related to the Balfour ferry terminal dredging. He suggested that it is not relevant to the Order.

4.5 2018-2019 Work Plan Priorities Review

Item 1 – Track status of Fortis BC spillway renewal project. Ongoing

Item 2 – Review and prepare graphics demonstrating Queens Bay and Porthill water levels and flows to better understand drivers of river stages, especially in areas of concern to local residents. Complete; need to post to website

Item 3 – Investigate creation of Kootenay Lake visualization tool. Discussed path forward with IJC; board will submit IWI proposal

Item 4 – Review and disseminate climate change impact assessments and studies. Mr. Colosimo noted that Jeff Arnold, USACE climate change expert, is covering Northwest basins including Kootenay and Osoyoos, at the fall meeting workshops in Ottawa. Mr. Colosimo suggested that the board could include such assessments in the proposed white paper.

Item 5 – Develop basin map for presentations. Complete

Item 6 – Develop International Watershed Initiative proposals. The Board determined that the Kootenay Lake visualization project should be pursued via IWI initiative.

Additions – A white paper to outline Kootenay Lake concerns including Grohman Narrows, the Columbia River Treaty, climate change, environmental and habitat concerns, etc. to be added to future work plan.

5. Preparation for the Public Meeting

The public meeting was to be held in the Ktuxana Room in the Kootenai River Inn & Casino, beginning at 7 PM. The board reviewed the slide presentation to be delivered by Colonel Geraldi and Mr. Shaffer.

6. Adjourn

Colonel Geraldi adjourned the meeting at 4:30 PM.