Annual Board Meeting Minutes

International Kootenay Lake Board of Control (IOLBC)

Held at the Hume Hotel and Spa
Emporium Boardroom, Nelson, BC
Wednesday, September 19, 2023
9:00 – 3:30 PM (PDT)

BOARD MEMBERS

Evan Friesenhan (host)	Co-Chair, Canadian Section
Col. Kathyrn P. Sanborn	Co-Chair, U.S. Section (nominee)
Ted White	Board Member, Canadian Section
Roy Bartholomay	Board Member, U.S. Section

BOARD STAFF and ASSISTANTS

Sonja Michelsen	Secretary, U.S. Section
Martin Suchy	Secretary, Canadian Section
Kate Alexander (virtual)	Assistant to Martin Suchy

IJC REPRESENTATIVES

Robert Sisson	Commissioner, U.S. Section
Adam Greely (virtual)	Science Advisor, U.S. Section
Rob Caldwell (virtual)	Engineering Advisor, Canadian Section
Paul Allen	Communications Manager, Canada Section
Geneviève Asselin (virtual)	Communications Advisor, Canada Section

GUESTS

Felicia Minotti	GAC
Connie Chapman	BCMF
Shannon Price	FBC
Gillian Kong (virtual)	BCH
Dr. Shawn Young	KTOI - observer
Bruce Davison (virtual)	ECCC
Chelsea Colwyn (virtual)	CSKT -observer
Lyndsey Gaudioso (virtual)	CSKT -observer

ACRONYMS

BCH	BC Hydro
BCMF	BC Ministry of Forest
BRD	Brilliant Forebay Dam
CCVA	Climate Change Vulnerability Assessment
CSKT	Confederated Salish and Kootenai Tribes
ECCC	Environment and Climate Change Canada
FBC	Fortis BC
GAC	Global Affairs Canada

GCM	Global Climate Model
IAC	Indigenous Advisory Council
IJC	International Joint Commission
IKLBC	International Kootenay Lake Board of Control
IWB	International Watershed Initiative
KTOI	Kootenai Tribe of Idaho
NHS	National Hydraulic Services
RCB	Remaining Carbon Budget
USGS	U.S. Geological Survey

1. Welcome and Introductions

Evan Friesenhan, the Canadian Co-Chair, opened the meeting on time and began with a land acknowledgment. Everyone who was present at the meeting, both in-person and virtual, introduced themselves. Minor technical issues were addressed.

2. Review of Agenda

The agenda was reviewed, the addition of a 5-minute break before the morning business items was suggested by Martin Suchy.

3. Approve June Minutes

No changes were suggested. The minutes were approved.

4. Hydrologic Conditions

4.1 Order Compliance

Martin Suchy, the Canadian Section Secretary, provided an update of the Basin's 2022-2023 hydrological conditions. Temperatures and snowpack conditions were normal at the start of the water-year.

The snow accumulation in the Kootenay watershed through the fall and winter was around and slightly below normal. In late April a quick transition to warmer than normal temperatures caused a rapid snowmelt close to a month before normal. There was a risk of flooding due to the sudden melt, however no flooding occurred because there were no rain-on-snow events. For the remainder of the summer, temperatures tended to be higher, but remained close to normal values. As of the time of the meeting, drought conditions in the Basin reported by both the BC Drought Advisory Levels and US Drought Monitor are high. An El Nino has been predicted at close to 100% certainty for the coming fall and early winter. This will likely result in higher temperatures (higher freezing levels) and potentially below normal precipitation.

The inflow and outflows of Kootenay Lake recorded in 2023 showed a much lower and earlier peak than what was observed in 2022.

An exceedance of the rule curve was recorded over a couple of days in April during a brief bump in inflows. However, because Grohman Narrows was in control of the outflow and the Dam gates were fully open, the applicant remained in compliance with the Order.

The minimum lake level of 1739.06ft (530.07m) was reached on April 25-26 and freshet was declared on April 30th. The freshet peak of 1748.52 ft (532.95m) was reached on May 23. The rule curve switched from Lowering to a set max elevation at Nelson on June 25, and as of September 1 the rule curve returned to Queens Bay control. The water level is currently sitting near normal.

A question was raised about the historic peak freshet dates and how they vary from year to year. Mr. Suchy responded by saying that peak flow is dependent on snowpack but is variable year to year. There has been no analysis done to test the impacts of climate change on the timing of peak freshets. Peak lake levels have seen a reduction since the construction of Libby Dam.

Shawn Young made a comment about how the lowering of the Lake in the spring, in anticipation of freshet, has detriments to the ecosystem. Mr. Suchy responded by saying that this is something that the Board is aware of and will be a part of future conversations leading into the Order Review.

No further questions or comments were made.

4.2 Applicant – Corra Linn Dam Operations

Shannon Price, the Power Supply Operations Manager with FortisBC, gave a presentation on Corra Linn Dam operations. She also put emphasis on how this was a low water year for Kootenay Lake.

Low elevations were observed in the storage season. Starting near the end of January the Lake was drafted linearly following the rule curve. On March 23 the minimum water level was reached.

There were lower-than-normal snowpacks for most of the province, with conditions remaining cool and dry until May. Even with the warmer weather in the late spring there was low flood concern. Kootenay Lake peaked early during the freshet season at 1748.52ft (352.95 m).

It was noted that Corra Linn Dam was in free fall during the Rule Curve exceedance in April and no violations of the Order occurred.

Ms. Price gave an update on the Corra Linn Dam spillway gate replacement project. The replacement of the 14 gates, and infrastructure reinforcement is scheduled to be completed in Aug 2023, approximately two years after initially estimated. The delay is primarily due to replacing the concealed components supporting the spillway gates. At the time of the meeting all 14 gates had returned to operation. Tasks remaining on the project include minor electrical work, installation of a gantry enclosure and defect correction work. Due to procurement issues, some work will extend into 2024. To date the project had accumulated 335,000-man hours without a lost time incident.

The annual maintenance of Corra Linn dam has been completed.

A $30,000 USD payment is to be made to the Idaho farmers in September 2023 for the 2022 pumping costs. A question as to who received the payment was raised. Ms. Price responded saying she would be looking at the invoice to determine who it was sent to.

No further questions or comments were made.

4.3 BC Hydro Operations

Gillian Kong gave an update on BC Hydro Operations. She expanded on the previously expressed statements that the Columbia Basin was very dry this year. She mentioned that this water year started with a summer that never ended and a fall that never came. The early depletion of the snowpacks in May lead to several record low inflows throughout the summer months.

2023 is currently sitting as the fourth driest year on record for runoff in Canada since 1949 and is tied with 2015. Snowpacks are much lower this year than they were in 2022. The Lower Columbia (St. Leon Creek), saw a more normal snowpack than the upper Columbia Basin (Molson's Creek and Mica). Both the Lower and Upper Columbia Basins experienced an early depletion in May. The Canadian inflows have been below normal this year. Mica inflows are the sixth lowest year since 1971 and are currently at around 85% of normal. Revelstoke is at 79%, Arrow and Duncan are at 83% and Kootenay Lake at 70% of normal inflows.

Similar to what was observed in Canada, the upper portion of the US Columbia Basin reported lower runoff (Grand Coulee at 71%, Libby at 79%). Due to several weather events the Snake Basin (in the lower US Columbia) reported 97% of normal runoff. The Dalles ended up at 83% of normal runoff and was 2023 was reported to be the seventeenth driest year on record.

Duncan was drafted down to the minimum in anticipation of freshet for flood management, low inflows have impacted Duncan refill. Because of the dry conditions once the reservoir hit the minimum on April 29 the refill began almost immediately. To manage the integrated Columbia system and drought conditions, Duncan Dam discharges were increased in August. The levels deviated from recreational target elevations.

The Duncan reservoir peaked at 1886.5ft on August 10. Discharge will be reduced on September 23 in preparation for the Kokanee spawning downstream of Duncan. The lower discharge will continue into December.

The minimum fish flows will be able to be held for August and September. There is a possibility that the Kootenay flows will be as low as 10kcfs (283cms) in October. This is not unusual, as October is typically the lowest flow month. Kootenay Lake is not going to fill until December to allow for all flows from upstream to be sent downstream of the lake. The fill in December is predicated by releases from Libby reservoir.

Shawn Young had questions about Duncan operations regarding the decrease in outflows on September 23. Where is this impacting the fish? Is this for local (Kootenay Basin) fish or elsewhere in the Columbia Basin?

> Ms. Kong: They are running maximum release possible as of the time of the meeting. Increasing flows from Duncan is done to offset the flows required to come out of Arrow Lakes on the mainstem Columbia River. They will be dropping down the outflow from September 23 to October 23 to match water license maximum of ~2.6kcfs (73.6cms). In September the decrease to 2.6kcfs is to support Kokanee spawning below Duncan Dam.
>
> Dr. Young: Does Duncan have the capacity in its infrastructure to moderate the flows to assist the fish migrating up the spawning grounds, so the Dam doesn't need to go to such low levels in October and run the risk of dewatering the reds?
>
> Ms. Kong: They operate to follow the Order and water license, which requires the reduction to 2.6kcfs (73.6cms). The Duncan Use Plan will be revisited and may change in the future.

There was clarification on the acronym BRD in the slides. It stands for the Brilliant Forebay Dam, which is downstream of Kootenay Lake (Corra Linn Dam).

No further questions or comments were made.

4.4 USACE Libby Dam Operations

US Section Secretary, Sonja Michelsen, presented a graph that showed the operations at Libby Dam and Koocanusa reservoir over water year 2023. Koocanusa began the water year near full and was drafted through the fall and winter to create storage space for the spring period. Due to the relatively dry winter and water supply forecasts for the basin, the reservoir exceeded the required storage space and drafted involuntarily (at minimum releases) through the late winter and early spring. The lowest elevation, 2401.5ft, was hit on April 10. There was an increased release due to the onset of freshet, but no sturgeon pulse flow occurred this year because of the drier conditions. After freshet the flows were decreased to reach the summer peak pool. A maximum elevation of 2452.4ft was reached on July 17. Drafting of Lake Koocanusa began at the end of the summer.

Dr. Young asked about the Libby Dam's discharge rate, and if there were any turbines not in service that had impacted outflows. He noted that drastic reduction to low flows (4kcfs) are detrimental to aquatic organisms and can impact the hatcheries.

> Ms. Michelsen did not know if there were any turbines under repair. She mentioned that in the reservoir drawdown period, the monthly water supply forecast determines the reservoir elevation target and the corresponding outflows. Additionally, when making outflow changes, there are strict ramping rate limits at Libby that limit how quickly flows can change overtime.

5. Business Items - Morning

5.1 Environmental Law Center = Canadian Fisheries Act Opinion

The Board discussed concerns surrounding the alleged Fisheries Act offences related to regulation of Kootenay Lake, particularly in the West Arm of Kootenay Lake. Evan Friesenhan explained that the Environmental Law Center has sent a letter to the Ministry of Fisheries and Oceans on behalf of their clients, the BC Wildlife Federation and the Lower Kootenay Band (Yaqan Nukiy). The Board is not named in the News Article but is mentioned in the letter. The Board has intentions to monitor the situation. In preparation for potential questions from the public, talking points were created by the IJC. Sonja added that the US section is aware of the situation and is waiting for the appropriate Canadian agency to respond. To date the Department of Fisheries and Oceans (Canada) have not reached out to the Board. FortisBC mentioned that they are aware of the report that was produced by the Environmental Law Center and are reviewing its contents. They are committed to protecting aquatic species around their operations and have provided information on the operations of their facilities and mitigation efforts to the Environmental Law Center.

5.2 Other Basin News Updates

Mr. Friesenhan began a discussion on the news articles that had been recently published addressing the elevated selenium concentrations in the Elk River Valley from coal mining operations. Mr. Friesenhan noted that this issue is outside the scope of the Board and although they have intentions to monitor the situation, there was not much the Board could contribute to the conversation at that time. The IJC added that the IJC commission staff will respond if needed and that they will only act when requested. Currently the responsibility to respond and act is with the provincial and federal governments. The KTOI mentioned that they have water quality data for Kootenay lake, however there is currently no need to share this information with the Board. The KTOI are monitoring the water quality situation in the whole Basin on behalf of the Ktunaxa.

Col. Kathryn Sanborn, US Sectio Co-Chair, mentioned that in late August, the Columbia River Treaty announced a transboundary collaborative group in the Kootenay/i. The group's purpose is to explore how the two countries can coordinate and support shared local regional interests in water management upstream of the Kootenay sub-basin. The group will focus on flood management, fisheries conservation and restoration, ecosystem function and reparation, and socio-economic concerns. This group is willing to work with other groups in the Basin. No other information was available at this time.

6. Guest Presentations

6.1 IJC Souris River Study Board Climate Change Study

Dr. Bruce Davison presented on his experience with the IJC Souris River Study Board Climate Change Study. He started by introducing himself to the Board and detailed his credentials. Dr. Davison has been working at ECCC with the National Hydraulic Service (NHS) since the completion of his masters degree and is now the Canadian co-chair of the IJC Souris Board. He was a study manager of the IJC Souris River Study Board Climate Change Study. Dr. Davison asked the Board what work they have done on the IKLBC Climate Change Vulnerability study. Martin Suchy responded by saying that no work had begun yet. There has been a statement of work written to develop some hydraulic and hydrologic models to determine a potential future climate. Mr. Suchy added that the upcoming study assessment will feed into a review of the Order. Dr. Davison emphasized that starting climate change modeling early will be a smart approach as it can be a challenge to get all the modeling done in time. Another challenge that he brought up was the complexity associated with having to merge all the models for the different components of a water cycle. As the models are added, their uncertainties and assumptions can compound, resulting in forecasts with high uncertainty. Public perception can be impacted by these uncertainties.

Dr. Davison gave an overview of the Souris River Basin, highlighting the three dams and reservoirs, wildlife refuges, tributaries, and non-contributing areas. Some unique qualities of this basin are the significant fluctuation of peak stream flows and run-off ratios that are a result of the non-contributing areas and sponge-like quality of the local geology. These characteristics proved challenging to model.

The study comprised of five elements, a literary review, non-stationery and trends analysis, an assessment of projected hydrometeorology, the development of a physically based hydrologic and surface model, and workflow development. The first three proved to work well, the last two were less helpful. An issue with transboundary modeling often arises when the models previously developed on

either side of the border stop at the international boundary. The IJC is funding finer scale atmospheric information along the transboundary, which will be useful in future studies.

Dr. Davison discussed the results of the study in high level detail. Temperatures are projected to increase, extremes are likely to increase and decrease, spring peak timing will happen earlier, and mega droughts are possible. There are some seasonal impacts on temperature and precipitation trends. Uncertainties do exist, Dr. Davison emphasized that the uncertainties surrounding stream flow were the highest.

When looking at academia, the atmospheric modeling community and hydrological modeling community have good experience working with one another and have developed common terms over the past 20 years. Dr. Davison referenced a figure from a paper by Clark, M.P., Wilby, R.L., Gutman et al that may be of interest to the IKLBC. The paper looks at reducing uncertainty associated with the hydrologic and atmospheric forecasts. Reducing uncertainty will be important to provide useful results from the upcoming CCVA.

Sonja Michelsen asked if any of the outcomes had been used.

No, outcomes from the study have not been used to support Souris Board activity yet.

Martin Suchy asked about the GCM analysis, and why only the RCP 8.5 (warming scenario) was used.

Ideally would have used more if they had more time. 8.5 was decided on because the more moderate scenarios are looking to be less likely.

Mr. Suchy made a comment that there should be more data downscaling available for the Kootenay Basin than there was for the Souris Basin. Dr. Davison added that more models are available for models that just require temperature and precipitation.

Mr. Suchy said he would add Dr. Davison's PowerPoint presentation to the Board SharePoint

7. Round Table

Gillian Kong said that she will not be present after lunch.

A brief conversation was had on the effectiveness and accuracy of hydrologic and hydraulic models and how compounding uncertainty can be a challenge. It was mentioned that it is good that there is Kootenay Basin data that crosses the Border. Having a conversation about variability vs uncertainty will be important. Shawn Young expressed that he doesn't like models. Mr. Friesenhan agreed that models are not perfect and stressed that models are tools are not the be-all-end-all.

8. Business Items - Afternoon

<u>8.1 Public Correspondence</u>

Martin Suchy reported on the public correspondence received since the last annual meeting. There was only one email received from the public and it had come in the week prior to the meeting. The person

had reached out to the IJC and did not use the Board website. The email asked for a visualization of the rule curve. A picture taken from the public presentation showing the rule curve was sent by Jeff Kart.

8.2 First Nation and Tribe Engagement / Board Expansion

Sonja Michelsen gave an overview of what has happened so far as a part of the First Nation and Tribe engagement and Board expansion processes. Last late summer the IJC approved the expansion of the Board, with the condition that the Board prioritize indigenous engagement. In February of 2023 the two Board chairs sent letters to the Tribes and Nations within the Kootenay / Kootenai Basin, offering options of membership and other levels of participation. Some responses were received. Shawn Young from the KTOI was in attendance at the Board meeting as an Observer. Two observers from the Confederated Kootenai and Salish Tribes (CSKT) were present virtually. The Ktunaxa Nation Council has indicated that Heather Suttie, Director of Operations for the Lower Kootenay Band, will be the contact point for their 4 Kootenay Bands. The response from the Ktunaxa was received on Friday and there was no one from the Canadian Bands present at the meeting. The Board secretaries will be following up with them.

Evan Friesenhan went on to talk about the Board expansion and stated that the plan is to first look at indigenous groups before asking other groups. Col. Sanborn mentioned that interest from other groups, such as agriculture or fisheries are an option. She recommended that the Board should wait to see what the interest level is from the groups they have already contacted before proceeding.

Conversations surrounding how each indigenous group would like to proceed will need to happen and a better understanding of the labels (i.e. observer, advisor, member, etc.) is paramount to these conversations. Adam Greeley clarified that a Board member serves in their personal and professional capacity, but there have been difficulties defining what this exactly means. Martin Suchy brought up that there had been an instance in which someone sat as an observer for a period before becoming a board member. Dr. Greeley confirmed that this had occurred over a period of roughly 10 years. It was also mentioned that other Boards have an Indigenous Advisory Council (IAC). Dr. Greeley was unable to comment in detail on the IACs as he is not an IJC liaison for any of those Boards but did mention that the commission is exploring more avenues for indigenous engagement and participation. It was stressed that the engagement is Board dependent and the IKLBC will have to determine what works best for them.

Ms. Michelsen enquired about the timeline for reaching out to other groups and if it was worth starting to reach out if it would take months to get anything going. The consensus was that the Board should wait. The IJC asked the Board to strive for parity. Mr. Suchy mentioned that Ms. Michelsen and he have begun creating a list of possible groups to reach out to and will attempt to do so with parity, although it may be difficult on the US side. The process of becoming a member was outlined. Mr. Suchy noted that the IOLBC has more local knowledge and participation on their Board and as it did undergo an expansion back in 2015.

Mr. Friesenhan concluded the discussion on Board expansion by stating that in the coming months there should be meaningful and transparent discussions with observers and indigenous tribes and nations.

8.3 Climate Change Vulnerability Assessment

Mr. Suchy gave an update on the progress of the Climate Change Vulnerability Assessment (CCVA). The Board secretaries, with the help of IJC Engineering Advisors, have developed a statement of work that has gone through numerous iterations, integrating feedback from the Board. The assessment has been split off into two seperate phases of work. Phase one is the identification of data, model framework, and additional criteria and the creation of a study plan. Phase two consists of data collection, modeling work, analysis, and report. IJC representatives Adam Greeley and Catherine Lee-Johnston have been helping with the statement of work and the contracting steps. Dr. Greeley explained that the US side is hoping to have a contract with Dr. Casey Brown finalized soon and that Ms. Lee-Johnston has been working to connect with the National Resource Council of Canada. Dr. Greeley and Ms. Lee-Johnston were expecting to have a call with Dr. Brown before the end of September.

Dr. Greeley referenced Dr. Davison's presentation and stressed that putting work in model selections will be valuable when trying to determine what work they can get done in the time allocated to phase two. Mr. Suchy agreed, and they both noted that this study is only the beginning of climate change work in the basin. Dr. Greeley let the Board know that they should hear about a project kickoff meeting soon. The process will be moving forward once the signatures are obtained on the contracts. The timeline for this project is approximately 16 months. A more accurate timeline will be available once the project starts.

Ms. Michelsen asked about the possibility of the Kootenay CCVA running into any of the same problems that the International Osoyoos Board of Control had in their contracting process. So far, the IKLBC has avoided some of the issues that the Osoyoos Board ran into likely because of the differences in their processes.

8.4 International Watershed Board

Mr. Friesenhan gave an update on the International Watershed Board Scoping process. Approximately a year ago the Board received a request from the IJC to begin IWB scoping. The Board responded saying that there is interest, but that the Board has multiple ongoing activities and projects to address first. The Board received a response from the IJC on the day of the board meeting, September 19th. The 19 Sept IJC letter indicated that the IJC would like the IWB scoping investigation to begin early in 2024, and that the Climate Change Vulnerability and Plan of Study development for the Order Review should begin immediately and occur concurrently. Due to the late-notice nature of the letter, the Board did not have sufficient time to review and discuss this correspondence at the meeting. Mr. Friesenhan stated that the Board will respond to the letter in due course.

Shawn Young asked if the IWB initiative had any connection with the contaminants issue. Commissioner Sisson responded that he couldn't speak to what is being done to address the contamination. However, he could confirm that the IWB initiative and the government's actions to address the contamination issue are separate issues.

Dr. Greeley stressed that building relationships and understanding the local issues early is important for the potential Order review process and plan of study. IWB scoping can help and the IJC will set up these meetings as a part of the scoping process.

Dr. Young expressed that reengineering the lost wetlands through the reconstruction of the flood plains is the best way to deal with the contamination issues the Basin is facing. Dr. Young vocalized his support of an IWB because of the holistic approach it takes to watershed management. He was in favor of bureaucracy that can best respond and better predict the climate as it is important for planning decisions. Dr. Greeley agreed with Dr. Young's statement of better forecasting being important when it comes to systems that need a longer lead time for better decision making.

Ms. Michelsen mentioned that the IJC timeline can be quite slow and so the letter's timeline is a little ambitious and is likely not feasible.

8.5 Work Plan Update

The 2023 workplan document was opened and the Board made suggestions and edits for the 2024 workplan. Mr. Suchy went over the priorities from last year: the Fortis BC Spillway project, the visualization tool (removed), Kootenay Lake Order Review, Board expansion, the communications plan, and news release push notifications (completed).

Realtime edits were made to the document including updating dates, updating language, reorganizing the priorities, and separating the CVAA and the Plan of Study from the Order Review bullet. Board members were given a few weeks to add additional comments to the document.

8.6 Communications Plan

The communications plan was not discussed at the meeting. The secretaries will follow up via email or it will be discussed at the next meeting.

8.7 Visualization Tool Overview

Due to meeting time running out, the Visualization Tool was also not discussed.

9. Round Table

Ms. Michelsen confirmed with Col. Sanborn that the next Board meeting will be in Early January. The dates for April and June will also be set soon. Topics for these meetings will include Board expansion updates and the climate change vulnerability assessment project.

10. Preparation for Public Meeting

The public meeting is set to start at 6:30pm at the Nelson Center of Commerce Visitors Info Center. The agenda was reviewed, and Mr. Friesenhan gave an overview of the topics that will be discussed. Board members are to arrive early and review talking points before the meeting. The expected turnout is high, as 38 people have registered for the virtual portion.

The meeting was adjourned at 3:35pm.