

## **Meeting Minutes**

### **Annual Board Meeting, International Osoyoos Lake Board of Control (IOLBC)**

**Thursday, October 8, 2020  
12:30 – 3:30 PM**

**Virtual Meeting: Microsoft Teams**

#### List of Acronyms

IJC	International Joint Commission
IOLBC	International Osoyoos Lake Board of Control
OBWB	Okanagan Basin Water Board
USGS	U.S. Geological Survey
USACE	US Army Corps of Engineers
WADOE	Washington State Department of Ecology
BCFLNRORD	BC Ministry of Forest, Lands and Natural Resource Operations and Rural Development
ECCC	Environment and Climate Change Canada

#### Membership

	<b>United States</b>	<b>Canada</b>
Co-Chairs	Cindi Barton (host)	Dave Hutchinson
Members	John Arterburn Col. Xander Bullock Kris Kauffman Arnie Marchand	Ted White Sue McKortoff Brian Symonds Anna Warwick Sears
Secretaries	Andrew Gendaszek	Martin Suchy
IJC representatives	Jane Corwin, Robert Sisson, and Lance Yohe, (Commissioners, U.S. Section), Pierre Beland, Henry Lickers, and Merrell-Ann Phare, (Commissioners, Canadian Section), Wayne Jenkinson (Engineering Advisor, Canadian Section), Paul Allen (Communications, Canadian Section), Norman Barth (Senior Advisor, U.S. Section), Adam Greeley (AAAS Fellow, U.S. Section)	
Guests	Shaun Reimer (BC FLNRO), Al Josephy (WADOE), Anna Sharkova (Global Affairs Canada), Joel Trubilowicz (NHC), Piotr Kuras (Associated Engineering), Col. Karl Jansen (IRLWWB – U.S. Co-chair and Water Levels Committee Co-chair), Erika Klyszejko (IRLWWB – Canadian Water Levels Committee Co-chair), Todd Sellers (IRLWWB – Canadian Aquatic Ecosystem Health Committee Co-chair), Josh Cummings, (U.S. State Department), Chris Curran (U.S. Geological Survey), Chief Christopher Derickson (Okanagan Nation Alliance), Tessa Terbasket (Okanagan Nation Alliance), Howie Wright (Okanagan Nation Alliance), Richard Bussanich (Okanagan Nation Alliance), Jay O'Brien (OTID), Derek Mendoza (OTID), Joe Witzak (Ecology), Trevor Hutton (Ecology), Lt. Col. Mark DeSantis (USACE), Mary Verner (Ecology), Sage Park (Ecology), Jim Skalski (Ecology)	

### **1. Welcome and Introductions**

The meeting was opened at 12:00 p.m. by Cindi Barton (Board Chair, U.S. Section) with welcoming remarks and introductions of the Board members, IJC Commissioners, and guests who were in attendance.

## **2. Agenda**

The draft agenda was accepted without changes, except the presentations order for sections 4.3 and 4.4 were reversed.

## **3. Overview and History of IOLBC and IJC Order**

U.S. Co-Chair, Cindi Barton, presented an overview and history of the IJC and IOLBC. She then discussed the geography of the Okanogan/Okanagan and Similkameen River watersheds, the development of the IJC Orders of Approval for Osoyoos Lake, and allowable lake levels under the rule curve established under the 2013 Supplementary Orders of Approval, and the role of Washington State Department of Ecology as the owner of Zosel Dam and Applicant to the IJC Order. Finally, she provided an overview of the activities of the IOLBC during 2020, which included compliance of the Applicant with the IJC Orders of Approval, monitoring drought criteria in the Similkameen River and Okanagan Lake, quarterly conference calls and annual Board and Public meetings, communication of hydrologic conditions and Zosel Dam operations to the IJC and the public, and special projects to develop technical understanding of the Okanagan and Similkameen watersheds.

## **4. Implementation of 2013 Supplementary Order**

### *Hydrologic Conditions in 2020 and Order Compliance*

Andy Gendaszek (Secretary, U.S. Section) presented an overview of the 2020 hydrologic conditions and compliance with the IJC Orders of Approval for Osoyoos Lake. Although snowpack measured during the first part of the 2020 Water Year was at or below normal in both the Similkameen and Okanagan basins, as measured at the Blackwall Peak and Mission Creek snow pillows, respectively, increased snowfall beginning in January resulted in above normal snowpack for the remainder of the 2020 Water Year. In contrast, snowpack in both the Similkameen and Okanagan basins was below normal during the 2019 Water Year.

As a result of the above normal spring snowpack, the Similkameen River reached a peak instantaneous discharge of 20,700 cfs on June 1 during the spring freshet compared to 10,500 cfs on May 18, 2019. Elevated discharge of the Similkameen River contributed to reduced discharge of the Okanagan River at the outlet of Osoyoos Lake on several occasions during the spring freshet in May and early June 2020.

Drought criteria within the Similkameen River and Okanagan Lake outlined in the Orders of Approval for Osoyoos Lake were not met in 2020. Cumulative April – July flow volume for the Similkameen River was 1,733,411 acre-feet as measured at the USGS streamflow gaging station at Nighthawk, which was greater than the early April and early May forecasts; 1,005,000 and 1,189,000 acre-feet respectively. Cumulative net inflow to Okanagan Lake from April through July and peak Okanagan Lake level in June and July were forecasted to exceed the criteria for declaring a drought in both early April and early May. Actual Okanagan Lake net inflow and peak level exceeded earlier forecasts and reached 704,000 acre-feet and 1,124.54 feet, respectively.

Osoyoos Lake levels were largely within the allowable range of the standard (Condition 7) rule curve in 2020 except for the period between May 14 and July 18 when lake level exceeded the upper bound of the rule curve (912.0 feet). This exceedance was allowable under the Orders because all Zosel Dam gates were fully opened on May 11 and Zosel Dam no longer controlled

outflow from the Lake; instead, outflow was controlled by the stage of the Similkameen River during this period of the spring freshet. After Osoyoos Lake stage decreased below 912.0 feet on July 18, Zosel Dam resumed control of outflow from Osoyoos Lake for the rest of the year. Another increase in lake stage, which occurred entirely within the rule curve, occurred as a result of decreased capacity at the outlet of Osoyoos Lake due to an ice jam that formed during a period of cold weather in January. The Board monitored the development of ice jam and Osoyoos Lake stage during the ice-jam event until the jam thawed in late January and lake levels lowered.

Compliance of the discharge capacity of Zosel Dam with the IJC Orders was demonstrated from June 2 to June 7 when Okanagan River discharge exceeded 2,500 cfs and Osoyoos Lake level exceeded 913.0 feet.

Finally, the Board monitored the presence of wildfires within the Okanagan Basin in 2020, which included the Palmer Fire (18,000 acres), the Pearl Hill Fire (223,780 acres), and the Cold Springs Fire (190,000 acres). None of these fires directly impacted Osoyoos Lake or the Okanagan River.

#### *4.2 Personnel Updates at Ecology*

Mary Verner (Washington State Department of Ecology) announced that Al Josephy was stepping down from his role as the Applicant's technical and operational representative to the Board and that Trevor Hutton who is based of Ecology's Central Region in Union Gap, Washington is assuming his position. Mary thanked Al for his service. Joe Witczak remains as the dam safety contact. Mary Verner also announced that she was stepping down as the Applicant's administrative representative to the Board and Sage Park of Ecology's Central Region was assuming her duties.

#### *4.3 Operations of Zosel Dam*

Al Josephy (Washington State Department of Ecology) updated the Board about Washington State Department of Ecology's operation of Zosel Dam in 2020. Ecology's first goal for Zosel Dam operations is to adhere to the IJC Orders of Approval for Osoyoos Lake. While operating within the Orders, Ecology also seeks to protect water rights within the Okanagan River and the Columbia River Basin while working with fisheries organizations to maintain instream flows for fish.

Mr. Josephy described 2020 Osoyoos Lake levels in the context of the IJC rule curve, 2020 operational plan, and 2018 and 2019 Osoyoos Lake levels. In 2020, Osoyoos Lake levels followed the 2020 operational plan to gradually increase to about 911.7 feet during the summer until mid-May when backwater conditions resulting from elevated runoff in the Similkameen River decreased outflow from Osoyoos Lake. Zosel Dam gates were fully opened on May 11 such that increased lake levels above 912.0 feet resulting from the Similkameen River backwater were allowable under the IJC orders. Elevated lake levels persisted from mid-May until late July at which point regulation at Zosel Dam resumed along the 2020 operational plan.

More runoff occurred in 2020 than 2019 when near drought conditions occurred, but runoff in 2020 was less than 2018 when flooding around Osoyoos Lake occurred. 2020 runoff of the Similkameen River was less than the median from 1949 to 2020, but 2020 runoff of the Okanogan Rive at Oroville was greater than the 1949 to 2020 median. 2020 was near average

with respect to both precipitation and snow water equivalent within Washington State. Drought criteria were not met.

Ongoing maintenance at Zosel Dam included gate cycling, verifying limit switch operations, inspection of mechanical systems, and visual gate and seal inspection. Ecology has developed long-term planning for dam maintenance and will develop a project upgrade inspection and report for 2020.

In response to an inquiry about when WADOE is to develop a plan for zebra and quagga muscles, Al Josephy responded that WADOE is currently discussing its development during the transition of his duties to Trevor Hutton.

#### *4.4 Operations of Okanagan System*

Shaun Reimer (British Columbia – Forest, Lands, Natural Resources Operations and Rural Development) provided an overview of Okanagan system operations in 2020. Snowpack in 2020 at the north and east of the Okanagan Basin was above average and greater (as measured at Mission Creek snow pillow) than snowpack in the south and west of the Okanagan Basins measured at Brenda Mines snow pillow. In Spring 2020, Okanagan Lake was drawn down in anticipation of above average inflow forecasts to Okanagan Lake resulting from high snowpack. Inflow projections were above average from February through March but underestimated eventual inflow to Okanagan Lake because of higher-than-normal rain in May and June. A relatively dry summer with slightly lower than normal inflows into Okanagan Lake have allowed Okanagan Lake operations to return Okanagan Lake target levels by September. Lower snowpack in the southern part of the Okanagan Basin resulted in less runoff to the Okanagan River between Okanagan and Osoyoos Lakes allowing Okanagan Dam operations to pass higher flows through to Osoyoos Lake.

### **5. Special Presentations**

#### *5.1 Rainy-Lake of the Woods Board Presentation*

Todd Sellers and Scott Jutila of the International Rainy-Lake of the Woods Watershed Board (IRLWWB) presented an overview of the IRLWWB at its transformation into a watershed board. The Rainy-Lake of the Woods watershed covers a 70,000 square-kilometer area of Minnesota, Ontario, and Manitoba. The IRLWWB, which was created in 1925, has a mandate to coordinate management of water levels and flows on the Rainy and Namakan Lakes, monitor and report on ecological health and water quality of Lake of the Woods and Rainy Lake boundary waters aquatic ecosystem, and assist the IJC in preventing and resolving disputes regarding the boundary waters of the Rainy-Lake of the Woods watershed.

From 1925 to 1966, the Board's mandate was limited to water levels and flows, but in response to a 1959 reference to the IJC regarding pollution in the Watershed, the Rainy River Water Pollution Control Board was created in 1966. An IJC task force was created in 2010 to examine bi-national governance of the Lake of the Woods and Rainy River, which recommended amalgamation of the International Lake of the Woods Board of Control and the Rainy River Water Pollution Control Board, defined a new water-quality mandate, and a bi-national plan of study of transboundary water quality and water-level regulation of Lake of the Woods. A 2013 IJC directive created the International Rainy-Lake of the Woods Watershed Board (IRLWWB) as per the recommendations in 2012.

The watershed board had strong local support on both sides of the border that pushed all levels of government to form the watershed board and key pieces of legislation were introduced within the U.S. and Canada that supported the board including the Ontario Clean Water Act in 2006, changes to the Minnesota wetlands conservation legislation in the 1990's and 2000's, and 2010 Federal Private Members Bill in Canada and Minnesota legislative change seeking a reference from the IJC.

The Board is structured into four committees including: Adaptive Management Committee, Water Levels Committee, Engagement Committee, and Aquatic Ecosystem Health Committee. The Board has 20 members with equal representation from Canada and the United States and includes members from Tribes, First Nations, and Metis communities.

### *5.2 Similkameen Hydrologic Model Update*

Joel Trubilowicz (Northwest Hydraulic Consultants) presented an update on the Hydrologic Model of the Similkameen Basin that was funded by the IJC International Watersheds Initiative. The long-term goals of this modeling effort are to integrate Similkameen and Okanagan River models, predict potential changes in Lake Osoyoos water levels, and prepare for possible modifications to operations and management of the system. In the current phase of the project, a hydrologic model of the Similkameen River basin is being constructed and an ensemble of projected changes in climate are being used to assess future peak flows and low flows in the Similkameen. The analysis will subsequently evaluate the frequency of meeting the Similkameen drought criteria by comparing historic conditions with future.

The models were constructed using RAVEN, which is open source and is a flexible platform that allows estimation and interpolation of watershed forcings and simulation of hydrologic processes. The Similkameen RAVEN model was constructed for 34 sub-basins and 913 hydrologic response units using 3 soil profiles and 6 landcover/land-use profiles and gridded meteorological data. Hydrologic processes were simulated at a daily timestep. A historic and future water demand model developed by Associated Engineering was used in the Canadian part of the Similkameen Basin and historic and future water demand within the U.S. was assumed to be equal to fully licensed allocation.

NHC has completed a soft calibration of the Similkameen RAVEN model that shows that incorporates the water-demand model, a snow-pillow assessment of snow-water equivalent, and an annual water balance. NHC is in the process of using the program Ostrich to automatically calibrate the model, integrating an ensemble of climate data, and estimating future changes in peak flows and low flows.

### *5.3 USGS Similkameen Sediment Study*

Chris Curran (U.S. Geological Survey) presented interim results of an in-progress study (started in 2019) of sediment impounded behind the 54 ft high Enloe Dam on the Similkameen River. Historic mining within the Similkameen River basin (both Canadian and U.S. side) has contributed to concerns that contaminated sediment has accumulated behind Enloe Dam. The construction of Enloe Dam was completed in 1923 and was used to generate hydropower until operation of the powerplant ceased in 1958 by the Okanogan Public Utility District. The USGS has been assessing the chemistry of sediment collected by hand and within sediment cores. In addition to analytes include mercury, copper, arsenic, lead, gold, silver, and platinum, sediment samples were analyzed for grain size, carbon,  $^{15}\text{N}$ ,  $^{137}\text{Cs}$ , and  $^{210}\text{Pb}$ . The volume of sediment impounded behind Enloe Dam was estimated through bathymetric surveys and geophysical

surveys using ground-penetrating radar to map the sediment/bedrock interface. A key concern from the Board is the potential impact on the Okanogan River channel and the effect on the backwater effect should sediments be released following dam dismantling.

## **6. Special Projects Updates**

### *6.1 Similkameen and Okanagan Models: Phase 2*

Andy Gendaszek (Secretary, U.S. Section) updated the Board on the status of the Board's proposal to the IJC's International Watershed Initiative to fund integration of the hydrologic model of the Similkameen River Basin currently being developed by NHC. The IOLBC submitted a proposal in April to the IJC-IWI to integrate the Similkameen model with a model of the Okanagan basin previously funded by the OBWB. This second phase would complete the assessment of the impact of projected climate change on the IJC Orders of Approval for Osoyoos Lake. The IJC-IWI selected the second phase of this project for funding by the U.S. Section of the IJC in Spring 2021 following the completion of the Similkameen basin model. The Board Secretaries are working with the IJC to implement the project.

### *6.2 Osoyoos Lake Science Forum*

The IJC-IWI selected the Osoyoos Lake Science Forum for funding by the U.S. Section. The Forum will tentatively be held in Osoyoos, BC in Fall 2021. A steering committee and several sub-committees are being formed to develop the program and funding for the Forum.

### *6.3 High-Water Monuments*

The High-Water Monument was installed in Spring 2019 in Osoyoos, BC and the U.S. monument was to be installed in Spring 2020 in Veterans Memorial Park but was not yet installed because of COVID-related travel restrictions.

### *6.4 A River Film and Vignettes*

Ascent films developed five five-minute vignettes from "A River Film" about agriculture, native fisheries, fisheries, infrastructure, and the temperature-oxygen squeeze. The Board and the IJC posted these vignettes on their respective websites and the Board Secretaries posted them on the Board website.

## **7. Concluding Remarks**

The Board reviewed the Review of the 2019-2020 work plan and development of the 2021-2022 work plan was rescheduled to the Board's quarterly conference call in December.

## **8. Meeting Adjourned at 3:30 PM**