

International Joint Commission

International Osoyoos Lake Board of Control

Work Plan

2014 - 2015



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CONTENTS

INTRODUCTION	1
DESCRIPTION OF THE WATERSHED	1
Physiography	1
Climate	3
Hydrology.....	4
WORK PLAN	5
Ongoing Core Activities.....	5
Priorities through 2015	5
Appendix A. IJC Directive to the International Osoyoos Lake Board of Control	7
Appendix B. Special Projects of the IJC International Watersheds Initiative.....	11

INTRODUCTION

The International Joint Commission (IJC or Commission) was created by Canada and the U.S. to help implement the Boundary Waters Treaty, which was signed by both countries in 1909. As part of its duties, the Commission established the International Osoyoos Lake Board of Control (IOLBC or Board) in 1946 and gave the Board a mandate to 1) ensure compliance with the provisions of the Commission's Orders of Approval for Osoyoos Lake¹, 2) act as an advisor to the Commission, and 3) provide a vehicle for local and regional interaction. The latest IJC directive outlining Board duties was issued April 16, 2013 (Appendix A).

To fulfill its mandate, the Board's efforts are focussed on water level management issues related to the operation of Zosel Dam. This dam is owned and operated by Washington State and impounds Osoyoos Lake, a water body located in both Canada and the U.S.

This document describes plans of the Board for its ongoing activities and priorities through 2015.

DESCRIPTION OF THE WATERSHED

Osoyoos Lake, an international body of water, is located on the Okanogan (U.S. spelling) River and extends from Oroville, Washington, to about 3.7 mi (6 km) north of Osoyoos, British Columbia (fig. 1). The lake is impounded by Zosel Dam on the Okanogan River at Oroville, about 1.6 mi (2.6 km) downstream from the outlet of Osoyoos Lake. Inflow to Osoyoos Lake consists primarily of regulated outflow from Okanagan (Canadian spelling) Lake in British Columbia.

Physiography

The Okanogan River Basin is tributary to the Columbia River. It covers about 8,400 mi² (21,750 km²) and most of it (74%) lies within British Columbia (Glenfir Resources, 2006). At Zosel Dam, the drainage area is 3,195 mi² (8,275 km²). The Similkameen River, which is the single largest tributary, enters the Okanogan River about 3 mi (4.8 km) downstream from Zosel Dam.

The Okanogan valley in Canada is a long, north-south trench in the Interior Plateau of British Columbia. It extends north from the Columbia Plateau, in Washington State, to the height of land separating the drainage basins of the Columbia and Fraser Rivers. The valley and the included lakes are an artifact of repeated periods of glacial activity which ended about 10,000 years ago (Roed, 2001).

The valley is wide, has a gentle slope and is defined by mountains on either side that rise to 8,200 ft (2,500 m). The Okanogan River runs about 33 mi from the outlet of Okanagan Lake (elevation 1,122 ft (342 m)) at Penticton, B.C., through Skaha and Vaseux Lakes to Osoyoos Lake

¹ Orders of Approval for Osoyoos Lake and related documents are available at the IJC website at http://ijc.org/en_/iolbc/Home.

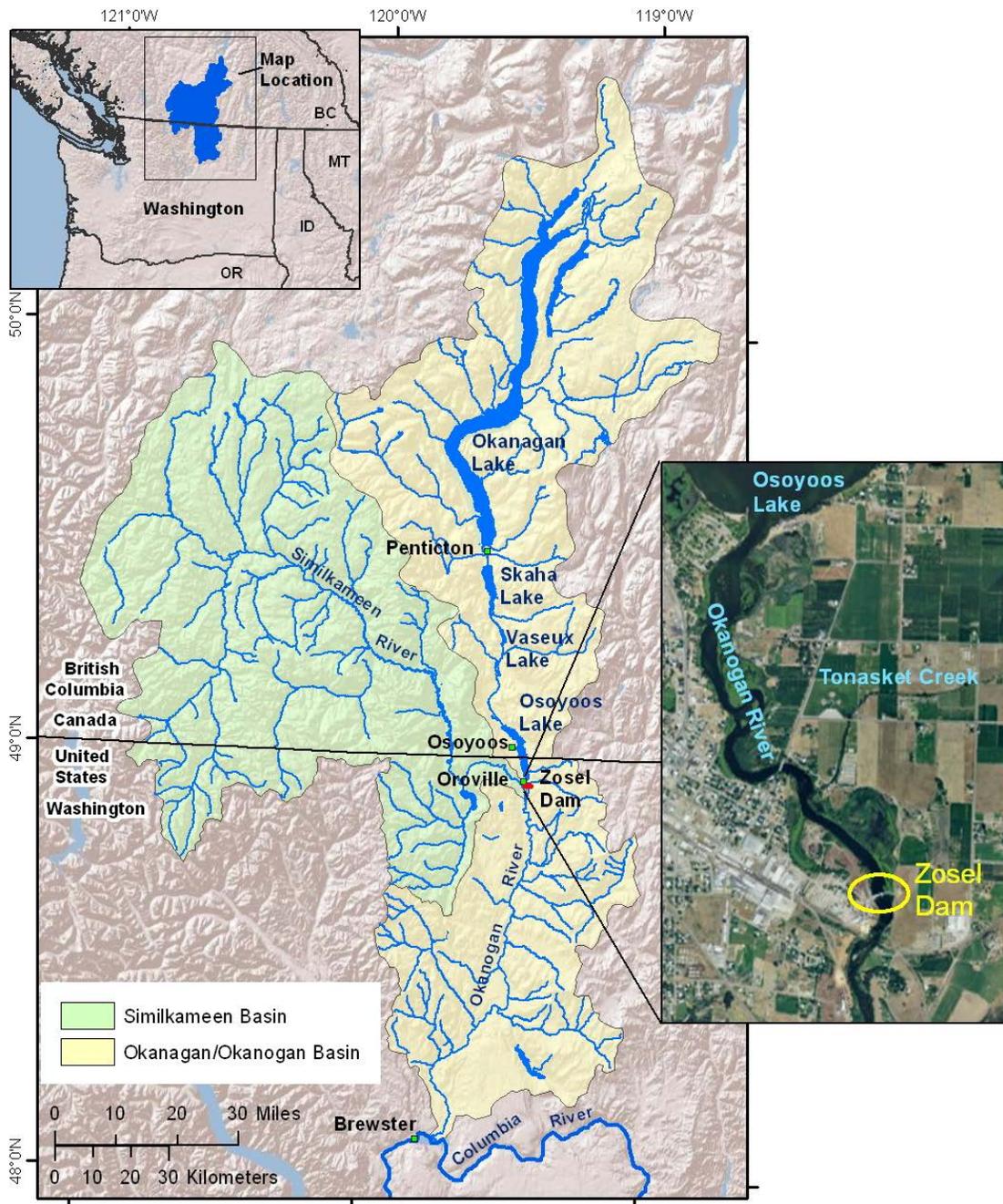


Figure 1. Location of the Okanogan (Canadian spelling is Okanagan) River Basin. The Similkameen River subbasin is shown in green.

(elevation 911 ft² (277 m)). The Okanogan River continues south from the outlet of Osoyoos Lake for about 79 mi (127 km) to Brewster, Washington, where it joins the Columbia River.

Osoyoos Lake is approximately 10 mi (16.1 km) long and typically about 1 mi (1.6 km) wide. The total surface area is 5,756 acres (2,329 ha) with approximately 2/3 in Canada. Average depth is about 50 ft (15.2 m); maximum depth is 208 ft (63.4 m). Lake bathymetry can be subdivided into 3 main zones: a deeper northern section, a shallow central section, and an intermediate-depth southern section. The natural minimum lake elevation is controlled to about 906 ft by a sill at the lake outlet, which is also the Zosel Dam gate sill elevation. Zosel Dam, located downstream of the natural lake outlet, controls lake elevations between 906 and 913 ft. The active storage between elevations 909 and 913 ft is 22,110 acre-ft (27.3 million m³) (Tran and others, 2011). The 2013 Supplementary Order of Approval limits the upper limit of the control range to 912.0 and 912.5 ft during normal and drought years, respectively.

Tonasket Creek, with a drainage area of 60.1 mi² (156 km²), enters the river from the east between the lake outlet and Zosel Dam about 1.2 mi (1.9 km) downstream of the lake outlet and about 0.4 mi (0.6 km) upstream of Zosel Dam. Historically, unusually high discharge from Tonasket Creek carried an accumulation of rocks, sand, and gravel sufficient to block the natural channel of the Okanogan River. Information gathered in the 1943 Commission hearings established that blockages of this type occurred in 1916 and 1939.

Climate

The Okanogan Valley is located in the rain shadow of the Coast Mountains and receives westerly air masses that have been modified in two ways to give distinct climatic features. First, as moist Pacific air masses are forced up and over the Coast and Cascade Mountains, they are cooled and their moisture falls as rain or snow on the windward side of the mountains. Second, as these air masses are forced down the leeward side of the mountains they are warmed and become more stable. In turn, the drier, warmer air promotes further evaporation from the surrounding landscape.

The rain shadow effect leads to the lowest annual precipitation in Canada. Total precipitation at Osoyoos (Environment Canada Climate Station: Osoyoos West; 1971 – 2000 normals) averages 12.5 inches (317.6 mm), of which 1.95 inches (49.6 mm) (water equivalent) falls as snow between the months of October and March (Summit Environmental Consultants, 2010a).

The Okanogan Valley is not only semi-arid but also has high summer temperatures. In the Osoyoos Lake area, the July mean daily high is 84.7 °F (29.3 °C). On July 16, 1941, the temperature at Oliver reached 111 °F (43.9 °C). Mean daily temperatures at Osoyoos range from a high of 71.1 °F (21.7 °C) in July to a low of 28.2 °F (-2.1 °C) in January (Environment Canada, Climate Data for Stations: Osoyoos West and Oliver STP).

² Osoyoos Lake elevations in this document are expressed in feet referenced to the U.S. Coast and Geodetic Survey Datum (USCGS), which is equivalent to the National Geodetic Vertical Datum of 1929 (NGVD 1929).

Hydrology

Snowmelt between April and June is the primary source of runoff in the Okanogan River Basin. In addition, high intensity thunderstorms and late fall rainstorms are common, recharging soil moisture and producing short-duration peak flows. Low flows generally occur from the end of November to March and during the hot summer months, with the lowest flows commonly occurring in January or February. Osoyoos Lake water levels follow the Okanogan River Basin runoff regime; however, they are also governed by the Okanogan Lake Regulation System, which partially controls flows via dams on Okanogan, Skaha, and Vaseux Lakes, and by the operation of Zosel Dam (Summit Environmental Consultants, 2010a).

Average discharge in the Okanogan River is 2.2 million acre-ft per year (measured at USGS streamgauge "Okanogan River near Malott", 17 mi upstream of the confluence with the Columbia River). The Similkameen River, with an average discharge of 1.6 million acre-ft per year (measured at USGS streamgauge "Similkameen River at Nighthawk", 16 mi upstream of the confluence with the Okanogan River), is the source of most of the flow in the Okanogan River. Average discharge in the Okanogan River just downstream of Osoyoos Lake is 0.5 million acre-ft per year (USGS streamgauge "Okanogan River at Oroville").

The Similkameen River joins the Okanogan River just below Zosel Dam. Because the peak flow of the Similkameen River can be up to 10 times greater than that of the Okanogan River and because the land at the confluence is relatively flat, high water levels in the Similkameen River actually slow or block flow from the Okanogan River and Osoyoos Lake. With extreme high water in the Similkameen River (discharge rates greater than $10,000 \text{ ft}^3/\text{s}$ ($283 \text{ m}^3/\text{s}$)), flow in the Okanogan River may reverse and move upstream into Osoyoos Lake. This flow reversal, referred to as Similkameen backwater, is a rare occurrence. A more common scenario is for flows into Osoyoos Lake to exceed its outflow capacity when combined with limited outflow capacity due to high water in the Similkameen River. Either Similkameen backwater or extreme Okanogan River inflow can exceed the capability of Zosel Dam to control lake levels, which can temporarily rise above an elevation of 913.0 ft (Summit Environmental Consultants, 2010a).

Osoyoos Lake water levels and Okanogan River discharges are also influenced by water extractions (primarily during summer months) from Osoyoos Lake and the Okanogan River by the Town of Osoyoos and the Oroville-Tonasket Irrigation District (OTID). The total annual Osoyoos Lake extraction demand for residential, commercial, municipal, and agricultural use is approximately 22,000 acre-ft (27.1 million m^3) (Tran and others, 2011a).

WORK PLAN

The Board has identified both ongoing core activities and priorities through 2015 that are based on input from the local community, other stakeholders, and the Commission.

Ongoing Core Activities

Ongoing core activities of the Board follow the IJC directive to the Board (Appendix A) and include the following:

1. Compile and analyze water level data for Osoyoos Lake and relevant tributaries to 1) ensure compliance with the terms of the 2013 Supplementary Order of Approval, 2) assess if drought declaration criteria have been reached and 3) declare or rescind drought declarations, as needed;
2. Communicate with Washington State, the operator of Zosel Dam, regarding changes in Osoyoos Lake water levels due to dam operations and other dam-related issues. These other issues include, but are not limited to, overall dam operations and maintenance, and dam-operation compliance with the 2013 Supplementary Order of Approval;
3. Keep the IJC informed of all matters related to the 2013 Supplementary Order of Approval, including lack of compliance and deviations from the rule curve;
4. Coordinate with stakeholders and Native American and First Nation governments in the U.S. and Canada, as needed;
5. Communicate the status and trends of Osoyoos Lake levels to the public;
6. Respond to public inquiries about Osoyoos Lake levels and flows in relation to the IJC Orders of Approval, and any other related questions and comments;
7. Hold annual Board meetings to review operations of the previous year;
8. Hold annual public meetings in the watershed at locations that alternate between Canada and the U.S. to provide an overview of operations of the previous year and solicit local community and other stakeholder feedback;
9. Hold annual meetings with Washington State, the operator of Zosel Dam (also known as the “applicant”), to review dam operations and water level issues of the previous year. This meeting is held in conjunction with the annual Board meeting;
10. Provide records of the annual Board, public, and applicant meetings to the IJC;
11. Prepare semi-annual updates and annual reports for the IJC; and
12. Provide technical advice to the IJC on issues that arise in the watershed.

Priorities through 2015

The Board has identified priorities through 2015 on which to focus its efforts. These priorities complement and build on the ongoing core activities and are based on input from the local community, other stakeholders, and the Commission. Priorities through 2015 are:

1. Review Washington State's updated Zosel Dam Operating Procedures and related documentation and provide feedback, as needed. The review provides the Board the opportunity to assess ramping rate criteria and similar operational guidance and is consistent with conditions specified in the IJC Order of Approval;
2. Develop a Communication Plan for the purpose of enhancing the effectiveness of communication between the Board, general public, stakeholders, and First Nations and Tribes. This plan would describe procedures for communicating drought declarations and rescissions, updating Board webpages on the IJC website, and communicating the status and trends of Osoyoos Lake levels. It would identify opportunities for engagement with First Nations and Tribes, and it would also explore avenues for educating the public on such topics as the natural factors affecting Osoyoos Lake levels;
3. Implement aspects of the Communication Plan;
4. Enhance engagement between the Board and First Nations and Tribes;
5. As opportunities arise, assist and possibly co-sponsor events with public outreach potential, such as the Osoyoos Lake Water Science Forum and similar events;
6. Identify and, if applicable, evaluate project proposal ideas for consideration of IJC funding under its International Watersheds Initiative. The purpose of these projects is to address issues and concerns that are common to most transboundary basins. More detailed information is provided in Appendix B.
7. Review the composition and structure of the Board and consider opportunities for greater local community engagement.

Appendix A. IJC Directive to the International Osoyoos Lake Board of Control

The IJC issued the following directive to the IOLBC on April 16, 2013:

1. The International Joint Commission (Commission) issued an Order of Approval for Zosel Dam on 12 September 1946 pursuant to the Boundary Waters Treaty of 1909; it issued a replacement Order on 9 December 1982 regarding the construction and operation of a replacement structure for Zosel Dam, which was subsequently amended via Supplementary Orders issued 17 October 1985 and January 29, 2013.
2. The Commission established the International Osoyoos Lake Board of Control (Board) in accordance with Condition 14 of its 1982 Order to ensure the carrying out of the provisions of the Order.
3. The Board's mandate is to ensure compliance with the provisions of the Commission's Order, to act as an adviser to the Commission, and to provide a vehicle for local/regional interaction.
4. The Board's duties shall be to:
 - a) Ensure compliance with the terms of the Order and with any instructions of the Commission issued with respect to the Order. Whenever, in the opinion of the Board, the terms of the Order are not being complied with, the Board shall so inform dam owners and operators and make such recommendations as it considers appropriate. At the earliest opportunity, the Board shall report to the Commission such apparent lack of compliance with the Order, the circumstances under which it occurred, the action taken by the Board, and the action, if any, taken by or on behalf of the dam owners and operators.
 - b) Keep the Commission currently informed of all matters relating to the Order. Alert the Commission to existing or potential Osoyoos Lake water levels above the Order's upper limit of the rule curve or below the Order's lower limit of the rule curve, as may happen from time to time under certain watershed conditions; provide the reason for the excursion outside the rule curve and, for significant excursions, the anticipated maximum or minimum water level and anticipated duration of the excursion.
 - c) Maintain awareness of water management issues within the watershed with potential impact on the management of Zosel Dam. Apprise the Commission of such water management issues as appropriate.
 - d) Meet annually with the applicant to discuss water level issues that have occurred during the previous year. Locations of such meetings shall typically alternate between the United States and Canada.

- e) Convene a public meeting at least annually to report on the Board's work and receive the views of the public. Facilitate provision of timely and pertinent information on Board activities in the most appropriate manner including electronic means, such as on the Board's page on the Commission website. Ensure notifications are issued regarding unusual Osoyoos Lake water level and outflow conditions, such as anticipated significant excursions from the Order's rule curve, so that the public at large may be informed and have such advance warning as is feasible.
- f) Coordinate with appropriate Native American or First Nation representatives, government agencies, and other institutions in both countries as may be needed or desirable.
- g) Carry out such other studies or activities as the Commission may, from time to time, request.
- h) Prepare an annual work plan including both routine board activities and new initiatives planned to be conducted in the subsequent year. The work plan shall be submitted annually to the Commission for review.
- i) Submit a report covering Board activities annually to the Commission, at least three weeks in advance of the Commission's spring semi-annual meeting, and submit such other reports as the Commission may request or the Board may desire.

The Board shall consist of a United States Section and a Canadian Section, comprising an equal number of members from each country. The Commission shall normally appoint each member for a three-year term. Appointments may be renewed for additional terms. Members shall act in their personal and professional capacity, and not as representatives of their nations, agencies, or institutions.

The Commission shall appoint one member from each Section to be chair of that Section.

At the request of any member, the Commission may appoint an alternate member to act in the place and stead of such member whenever the said member, for any reason, is not available to act as a member of the Board.

The chairs of the two Sections shall be co-chairs of the Board and shall be responsible for maintaining proper liaison between the Board and the Commission, and among the Board members.

Co-chairs shall ensure that all members of the Board are informed of all instructions, inquiries, and authorizations received from the Commission and also of activities undertaken by or on behalf of the Board, progress made, and any developments affecting such progress.

Co-chairs may appoint secretaries of the Board who, under the general supervision of the co-chairs, shall carry out such duties as are assigned by the co-chairs or the Board as a whole.

The Board may establish such committees and working groups as may be required to fulfill its responsibilities in a knowledgeable and effective manner. The Commission shall be kept informed of the duties and composition of any committee or working group.

Unless other arrangements are made, members of the Board, committees, or working groups shall make their own arrangements for reimbursement of necessary expenditures for travel or other related expenses.

The chairs shall keep the Commission currently informed of the Board's plans and progress and of any developments or cost impediments, actual or anticipated, which are likely to impede, delay, or otherwise affect the carrying out of the Board's responsibilities.

The Board shall inform the Commission in advance of plans for any meetings, or other means of involving the public in Board deliberations, and report to the Commission, in a timely manner, on these and any other presentations or representations made to the Board.

The Board shall conduct its public outreach activities in accordance with the Commission's public information policies and shall maintain files in accordance with the Commission policy on segregation of documents.

Reports shall be submitted in a format suitable for public release, with electronic copies provided to each of the Commission's section offices. Reports shall normally be available only to the Commission and to members of the Board and its committees until their release has been authorized by the Commission. Annual reports, however, shall be an exception: the Board shall produce annual reports in a format suitable for public release (ideally via the Board's page on the Commission's website as well as via printed copy) and shall make annual reports available to the public upon request normally one week after formal receipt by the Commission at its semi-annual meetings unless directed otherwise by the Commission. The Board shall provide minutes of Board meetings to the Commission within 45 days of the close of the meeting in keeping with the Commission's April 2002 Policy Concerning Public Access to Minutes of Meetings. The minutes will subsequently be put on the Commission's website. Prior to their release, the Board shall provide the text of media releases and other public information materials to the Secretaries of the Commission for review by the Commission's Public Information Officers.

If, in the opinion of the Board or of any member, any instruction, directive, or authorization received from the Commission lacks clarity or precision, the matter shall be referred promptly to the Commission for appropriate action.

The Board shall operate by consensus. In the event of any disagreement among the members of the Board which they are unable to resolve, the Board shall refer the matter forthwith to the Commission for decision.

The Commission may amend existing instructions or issue new instructions to the Board at any time.

Signed this 16th day of April, 2013,

Dr. Charles A. Lawson Secretary
United States Section

Camille Mageau Secretary Canadian
Section

Appendix B. Special Projects of the IJC International Watersheds Initiative

The IJC is inviting proposal ideas from the IOLBC and other IJC Boards for strategic projects that could be funded by the IJC's International Watersheds Initiative (IWI). Project proposals should focus on issues or concerns that span the U.S. – Canada boundary and are common to most transboundary basins.

Examples of focus areas are:

- aspects of climate change and its impact on the responsibilities of the Boards,
- the role and needs of adaptive management,
- water flow needs for fisheries,
- other significant water quality challenges beyond eutrophication that are shared, and/or
- the need to assess international water quality objectives.

While the IOLBC is not currently a formal IWI Board, this distinction does not preclude the Board from seeking IWI funding for special projects. The IOLBC may develop project proposals at the Board level and/or consider proposals from stakeholders. Each project proposal has to identify a lead entity, defined as an entity that coordinates the entire project from writing the proposal to producing the final product. The Board may take on a primary technical review role if the lead entity is an agency, university, non-profit organization, or contractor.

The IOLBC may evaluate project pre-proposals at its annual Board meeting to determine if it will recommend one or more project ideas to the IJC for possible IWI funding. Project ideas identified for recommendation to the IJC will require a complete proposal with a scope of work, objectives/goals, approach, deliverables, timelines, funding requirements, and descriptions of the qualifications of the lead entity and supporting investigators. The Board will review full proposals before submitting them to the IJC for consideration of IWI funding. As part of its review, the board will consider the following criteria:

1. Is the proposed project consistent with the mandate of the Board, as listed in the IJC Directive?
2. Does the proposed project address a transboundary issue that is a priority for the Board?
3. Does the proposed project address the IJC requirement that the issue to be addressed is shared by most transboundary basins?
4. Are the project scope and budget reasonable and is the lead entity qualified to conduct the proposed work?