

Annual Report
to the
International Joint Commission
from the
International Osoyoos Lake Board of Control
for



Calendar Year 2005

INTERNATIONAL JOINT COMMISSION



International Osoyoos Lake Board of Control

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March 17, 2006

Ms. Elizabeth C. Bourget, P.E.
Secretary, United States Section
International Joint Commission
1250 23rd Street NW., Suite 100
Washington, DC 20037

Dr. Murray Clamen
Secretary, Canadian Section
International Joint Commission
234 Laurier Avenue W., 22nd Floor
Ottawa, Ontario K1P 6K6

Dear Ms. Bourget and Dr. Clamen:

We hereby submit the Calendar Year 2005 Annual Report of the International Osoyoos Lake Board of Control.

The report sets forth the operation of the control works on Osoyoos Lake under the terms of the Commission's Orders dated December 9, 1982, and October 17, 1985.

Respectfully submitted:

For the United States

For Canada

//s//

//s//

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Chair, United States Section
Center Director, Washington Water Science Center
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INTERNATIONAL OSOYOOS LAKE BOARD OF CONTROL

ANNUAL REPORT

for

CALENDAR YEAR 2005

The International Osoyoos Lake Board of Control was established on February 12, 1986, by the International Joint Commission (IJC) to carry out the provisions of the Commission's Order of Approval dated December 9, 1982, and the Supplementary Order of Approval dated October 17, 1985.

ACTIVITIES OF THE BOARD

Orders Renewal Process

In 2005, most of the Board's activities were involved with preparing for the renewal of the Osoyoos Lake Orders of Approval, which expire in 2013. More specifically, the Board focused its effort on preparing a Plan of Study document that would identify investigations necessary to inform the Commissioners prior to their making renewal decisions. In January 2005, the Board presented the Commission with a draft "charge" to a proposed team to whom the Commission would give the mandate to develop the Plan of Study.

On April 13, 2005, the Board participated by videoconference in the spring semi-annual IJC meeting. A primary topic of that meeting was the Orders renewal process.

In July 2005, concerns about completing the Plan of Study in a timely manner prompted the Board and Commission to adopt a new approach for preparing the document. The original idea of using a small team of experts to prepare the Plan was replaced with a new approach of using a contractor to work in close consultation with the Board and public for preparing the Plan.

In September 2005, Mr. Chris Bull, and his company Glenfir Resources, were selected to complete a penultimate draft of the Plan of Study. At the Board's annual Board and Public meetings held in Osoyoos, B.C., on October 4, 2005, the Plan of Study was a primary topic of discussion. Mr. Bull attended both meetings and made presentations on his approach for completing the penultimate draft. Also in October (October 20, 2005), the Board participated by videoconference in the fall semi-annual IJC meeting where Orders renewal was once again a primary topic.

In December 2005, Mr. Bull delivered the first draft of the Plan of Study to the Board and Commission. At the time of preparing this report (March 2006), Mr. Bull has since completed his contract by holding two public meetings to gather input on the draft Plan and delivering a penultimate draft of the Plan of Study to the Commission in February 2006.

Climate Change Meeting

On October 5, 2005, in Osoyoos, B.C., the Board listened to a series of presentations on climate change. A member of the U.S. Army Corps of Engineers gave a presentation on water management and policy challenges resulting from climate change. A member of Environment Canada reviewed a meteorological record for global warming and its impacts on the Okanogan Basin. Two presentations were given on climate change impacts to water management – one for the Columbia River Basin given by a researcher from the University of Washington, and one for the Okanogan Basin given by a member of Agriculture and Agri-Food Canada.

2005 Drought Declaration

On April 8, 2005, the Board notified the Washington State Department of Ecology in writing that based on the snowmelt-runoff forecast for the Similkameen River, drought conditions for operating Osoyoos Lake would be invoked in 2005 and summer lake levels would be managed between 910.5 and 913.0 feet (277.52 and 278.28 meters) per the Order. Forecasted or actual values for the other two criteria did not meet the drought criteria. The actual volume of flow in the Similkameen River for April-July (621,400 acre-feet) was only 48 percent of average and it ranked as the third lowest runoff volume in 77 years of record. A summary of forecasted and actual hydrologic conditions in 2005 is presented in table 1.

Table 1. Summary of drought criteria, forecasted conditions, and actual hydrologic conditions in 2005. [ac-ft, acre-feet; ft, feet]

Criteria for declaring a drought	Forecast value	Actual value in 2005	Drought criteria met?
Volume of flow in the Similkameen River at Nighthawk, WA, for the period April through July is less than 1 million acre-feet	620,000 ac-ft	621,400 ac-ft	Yes
Net inflow to Okanogan Lake for the period April through July is less than 195,000 acre-feet	396,000 ac-ft	328,900 ac-ft	No
Level of Okanogan Lake in June or July is less than 1,122.80 feet (Canadian Geodetic Survey Datum)	1,123.7 ft	1123.9 ft	No

On April 26, 2005, the Department of Ecology informed the Board that Washington had reached an informal agreement with British Columbia to raise the level of Osoyoos Lake no higher than 912.5 feet during the 2005 drought declaration in return for 2,850 acre-feet of water in the spring to assist the movement of sockeye smolts through Zosel Dam during their out-migration. In addition, the Department of Ecology indicated their plan was to maintain the lake level near 912.5 feet during spring and summer until water was needed for irrigation in late summer/early fall.

OSOYOOS LAKE LEVELS IN 2005

Throughout any given year, the level of Osoyoos Lake may fluctuate in accordance with criteria outlined in the IJC's Order of Approval dated December 9, 1982. Lake levels are influenced naturally by discharge in the Okanagan and Similkameen Rivers and by the operation of Zosel Dam, situated at the outlet of the lake. The Oroville-Tonasket Irrigation District operates Zosel Dam under authority from the State of Washington, Department of Ecology.

The blue area in figure 1 shows the authorized range of normal operating elevations, 909.0 to 911.5 feet (277.06 to 277.83 meters). The area contained within the dotted line in figure 1 shows the authorized range of elevations, 910.5 to 913.0 feet (277.52 to 278.28 meters), that may be used to manage storage from April 1 to October 31 if at least one of the drought criterion listed on table 1 is declared in effect by the Board. Condition 9 of the 1982 Order recognizes that backwater from high flow in the Similkameen River and (or) excessive flow in the Okanagan River may cause Osoyoos Lake levels to rise above the authorized range.

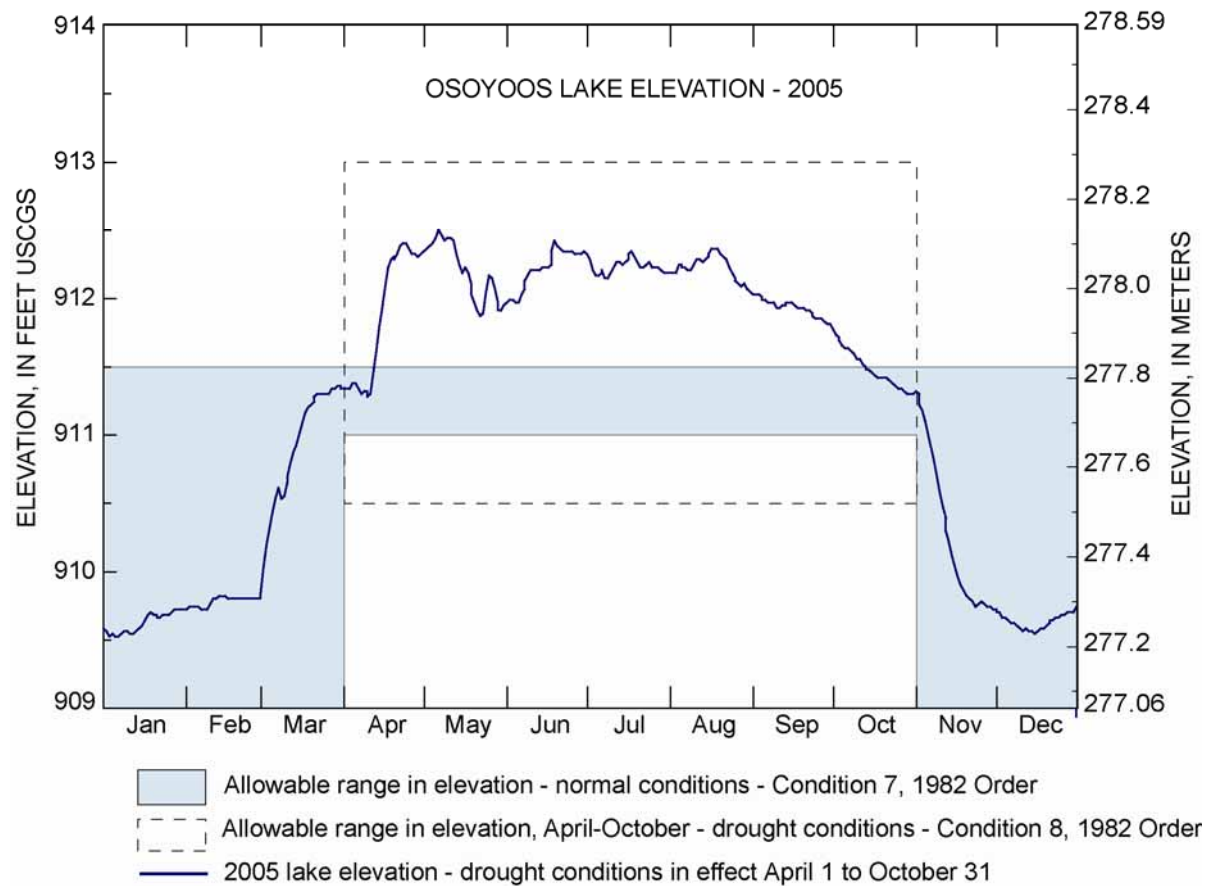


Figure 1. Osoyoos Lake elevation in 2005, and the range of lake levels permitted under the IJC Order of Approval dated December 9, 1982.

Lake levels in 2005 were maintained within ranges specified by the Orders of Approval. The maximum instantaneous elevation on Osoyoos Lake of 912.52 ft (278.14 meters) occurred on May 6, 2005. The maximum daily-mean elevation of 912.50 ft (278.13 meters) also occurred on May 6. Similkameen River discharges did not influence Osoyoos Lake levels in 2005.

RIVER DISCHARGES IN 2005

The maximum instantaneous discharge of the Okanogan River at Oroville (downstream from Zosel Dam) occurred on July 1 and was 2,000 cubic feet per second (56.6 cubic meters per second). Because a flow in excess of 2,500 cubic feet per second (70.8 cubic meters per second) was not observed in 2005, the capacity of the outlet channel was not verified in accordance with Condition 3 of the 1985 Order. The last occurrence of an instantaneous discharge in the Okanogan River at Oroville greater than 2,500 cubic feet per second was on June 9, 2002 (2,570 cubic feet per second). According to the Board's channel conveyance procedures, a field survey of the Okanogan channel conveyance is required in 2006. The procedures, which were presented to the Board in 1996 and approved in 1998, require that the four control cross sections in the lake outlet channel (which were last surveyed in 1996) be resurveyed at least once every 10 years.

The maximum instantaneous discharge of the Similkameen River occurred on April 24 and was 5,620 cubic feet per second (159 cubic meters per second). The maximum daily-mean discharge of 5,270 cubic feet per second (149 cubic meters per second) occurred on January 25 and May 17. The peak in May resulted from annual spring snowmelt runoff, whereas the peak in January resulted from both rainfall and snowmelt runoff generated by a warm and moisture laden weather system that moved across the Similkameen Basin during the week of January 16, 2005.

Data on Osoyoos Lake elevation and relevant river flows for 2005 are summarized in the Appendix and river hydrographs are depicted in figure 2.

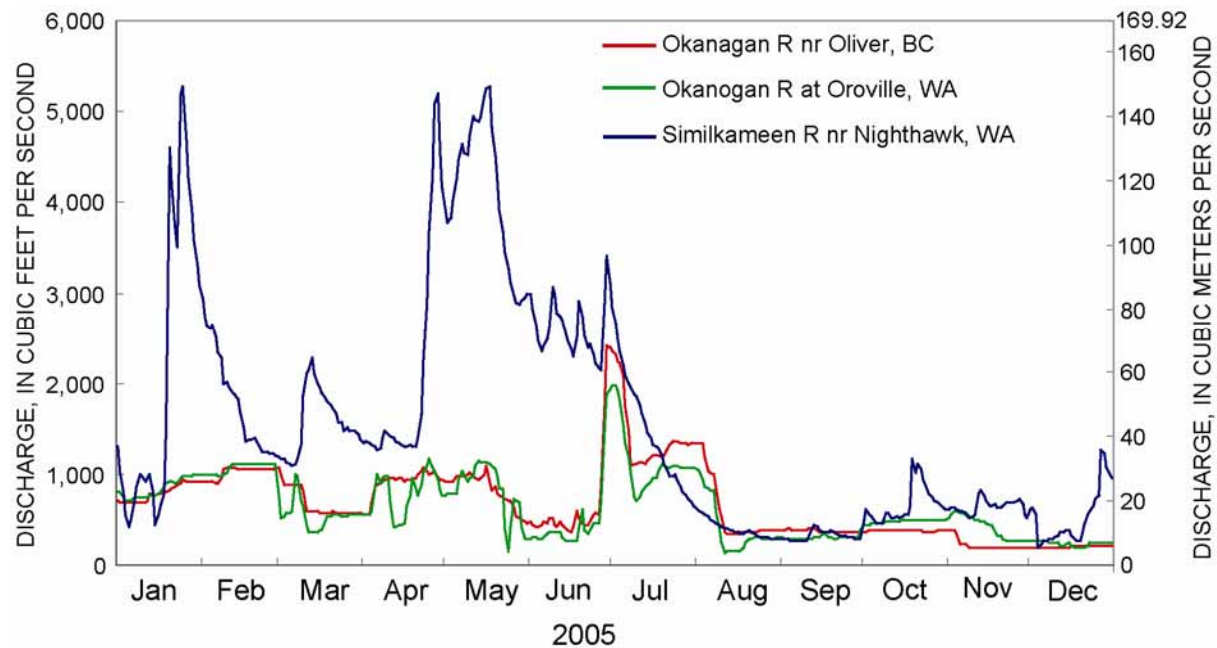


Figure 2. Hydrographs of discharge for the Similkameen and Okanogan (Okanagan in Canada) Rivers, 2005.

APPENDIX

OSOYOOS LAKE LEVELS, INFLOWS, AND OUTFLOWS

[cubic feet per second, cfs; cubic meters per second, cms]

A. International gaging stations in operation throughout the year:

(1) For Stage Records

Osoyoos Lake near Oroville, Washington
Okanogan River at Oroville, Washington (auxiliary gage)

(2) For Discharge Records

Okanogan River near Oliver, British Columbia
Okanogan River near Oroville, Washington (base gage)
Similkameen River near Nighthawk, Washington

(3) Reports

Monthly summary reports of stage and discharge data were forwarded to the International Joint Commission and to the Board of Control members.

B. Compliance with the lake levels specified in the Orders of Approval is measured at the station "Osoyoos Lake near Oroville," where elevations are expressed in terms of USCGS datum.

C. Osoyoos Lake

Maximum daily mean elevation	912.50 feet (278.130 meters)– May 6
Maximum instantaneous elevation	912.52 feet (278.136 meters)– May 6
Minimum instantaneous elevation	909.52 feet (277.222 meters)– January 6
Lake elevation at time of peak flow for Okanogan River at Oroville	912.33 feet (278.078 meters)– July 1

D. Okanogan River at Oroville



Maximum instantaneous discharge	2,000 cfs (56.6 cms)– July 1
Maximum daily mean discharge	1,970 cfs (55.8 cms)–July 1 and 2
Annual mean discharge	629 cfs (17.8 cms)

The annual mean discharge was 92 percent of the 63-year average of 682 cfs.

E. Similkameen River near Nighthawk

Maximum instantaneous discharge	5,620 cfs (159 cms)– April 24
Maximum daily mean discharge	5,270 cfs (149 cms)– January 25 and May 17

High Similkameen River discharges did not create variable backwater at the Okanogan River at Oroville gaging station this year.

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