

International Osoyoos Lake
Board of Control



Annual Report
to the
International Joint Commission
from the
International Osoyoos Lake Board of Control
for
Calendar Year **2004**



**INTERNATIONAL JOINT COMMISSION
UNITED STATES AND CANADA**



International Osoyoos Lake Board of Control

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March 18, 2005

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 2004 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

Cynthia Barton, Ph.D., LG, LHG
Chair, United States Section
Director, Washington Water Science Center
U.S. Geological Survey
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INTERNATIONAL OSOYOOS LAKE BOARD OF CONTROL
ANNUAL REPORT
for
CALENDAR YEAR 2004

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

On April 21, 2004, the Board participated in a video teleconference with the IJC. The Board presented an overview of Osoyoos Lake and the Orders of Approval, and a process for re-issuing the Orders which expire in 2013. To aid the Commission's effort of updating its 1998 report entitled "Unsafe Dams," the Board presented a brief overview describing four dams in the Columbia River Basin related to IJC Orders (Corra Linn, Waneta, Grand Coulee, and Zosel Dams).

On April 9, 2004, 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 2004 and summer lake levels would be managed between 910.5 and 913.0 feet (277.52 and 278.28 meters) per the Order.

Due to higher-than-forecast runoff in the Similkameen and Okanagan Basins, none of the drought criteria were met, and on July 2, 2004, the Board rescinded the drought declaration in a letter to the Washington State Department of Ecology. A summary of forecasted and actual hydrologic conditions in 2004 is presented below.

Table 1. Summary of drought criteria, forecasted conditions, and actual hydrologic conditions in 2004. [ac-ft, acre-feet; ft, feet]

Criteria for declaring a drought	Forecast value and (date issued)	Actual value in 2004	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	970,000 ac-ft (April 7, 2004)	1.14 million ac-ft	No
Net inflow to Okanagan Lake for the period April through July is less than 195,000 acre-feet	260,000 ac-ft (April 7, 2004)	260,000 ac-ft	No
Level of Okanagan Lake in June or July is less than 1,122.80 feet (Canadian Geodetic Survey Datum)	1,122.6 ft (April 7, 2004)	1122.8 ft	No

A formal meeting of the Board was held on October 26, 2004, at the Oroville-Osoyoos Port of Entry, which straddles the International Border. The meeting began with the announcement of the appointment of a new Board member, Glen Davidson, who replaced James Mattison as a member of the Canadian Section of the Board. During the meeting, the Board discussed several topics, including channel capacity of the Okanogan River below Osoyoos Lake, the re-issuance of the Osoyoos Orders of Approval in 2013, compliance with the Orders in 2004, and the drought declaration and subsequent rescindment in 2004.

A public meeting was held in the evening following the Board meeting. Twelve members of the public were in attendance. Board members gave presentations on the IJC and Osoyoos Lake Board of Control, hydrologic conditions and management of lake levels in 2004, and an update on the Orders renewal process. Following the presentations, members of the public had questions and comments regarding the water quality of the lake, drought criteria, drought frequency, and duration of the new Orders.

OSOYOOS LAKE LEVELS IN 2004

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 described in Condition 8 of the Order is declared in effect by the Board. Condition 9 of the 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.

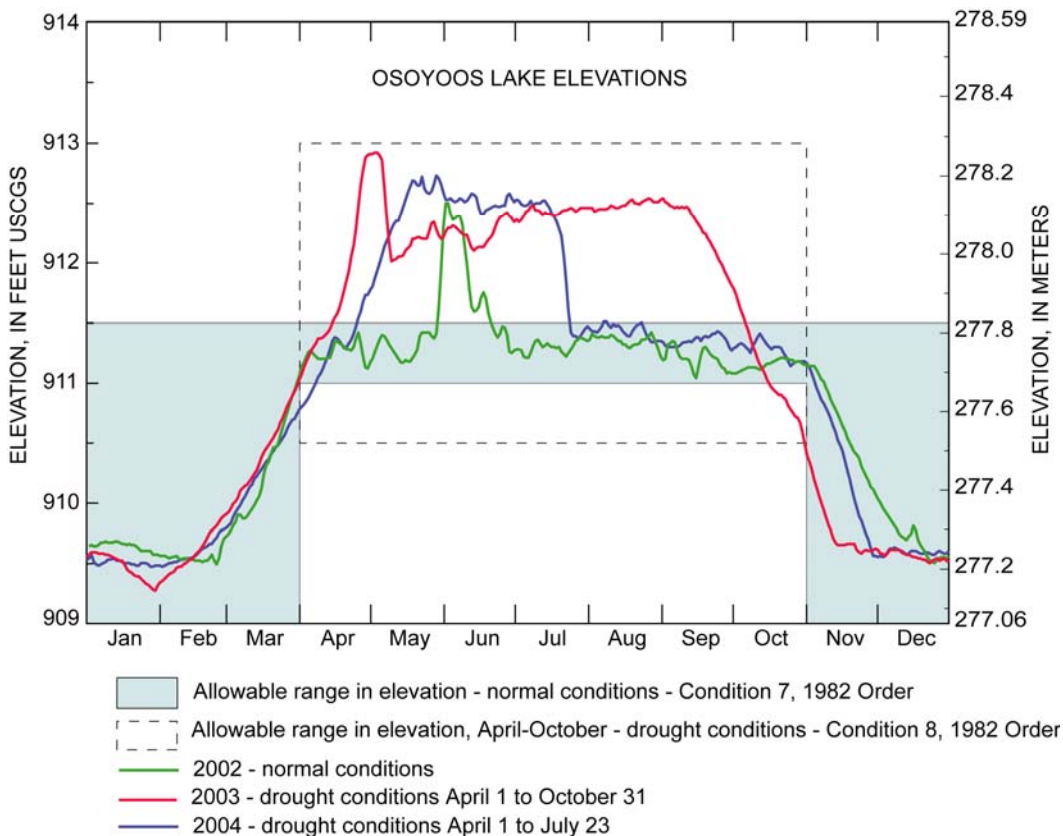


Figure 1. Osoyoos Lake Elevations, 2002-2004, in accordance with IJC Order of Approval dated December 9, 1982, and Supplementary Order of Approval dated October 17, 1985.

Lake levels in 2004 were maintained within ranges specified by the Orders of Approval, except on August 7-8, when daily-mean lake level was 911.51 ft (277.828 meters), or 0.01 ft (0.003 meter), above the permissible range. In addition, lake levels were technically out of range for the first six days of April until those days were retroactively included in the drought period with the drought declaration made on April 9, 2004. Following the drought declaration, lake levels began to rise and by April 25 lake levels exceeded 911.5 feet (277.83 meters). The drought rescindment of July 2, 2004, stipulated that lake levels be lowered to the normal non-drought range of 911.0-911.5 ft (277.67 to 277.83 meters) by July 23. During the evening of July 23, lake levels returned to this range.

The maximum instantaneous elevation on Osoyoos Lake of 912.78 ft (278.22 meters) occurred on May 22, 2004. The maximum daily-mean elevation of 912.73 ft (278.20 meters) occurred on May 28 (figure 1). High river discharges and stages created backwater conditions in the Okanogan River downstream from Osoyoos Lake for 35 days in 2004; however, the backwater conditions did not cause lake levels to rise above the authorized range in 2004. Backwater conditions did cause lake elevations above the authorized range in May and June 2002 (figure 1).

The maximum instantaneous discharge of the Okanogan River at Oroville occurred on July 23 and was 1,340 cubic feet per second (37.9 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 2004, 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). Data on Osoyoos Lake elevation and relevant river flows for 2004 are summarized in Appendix 1 and depicted in figures 2 and 3.

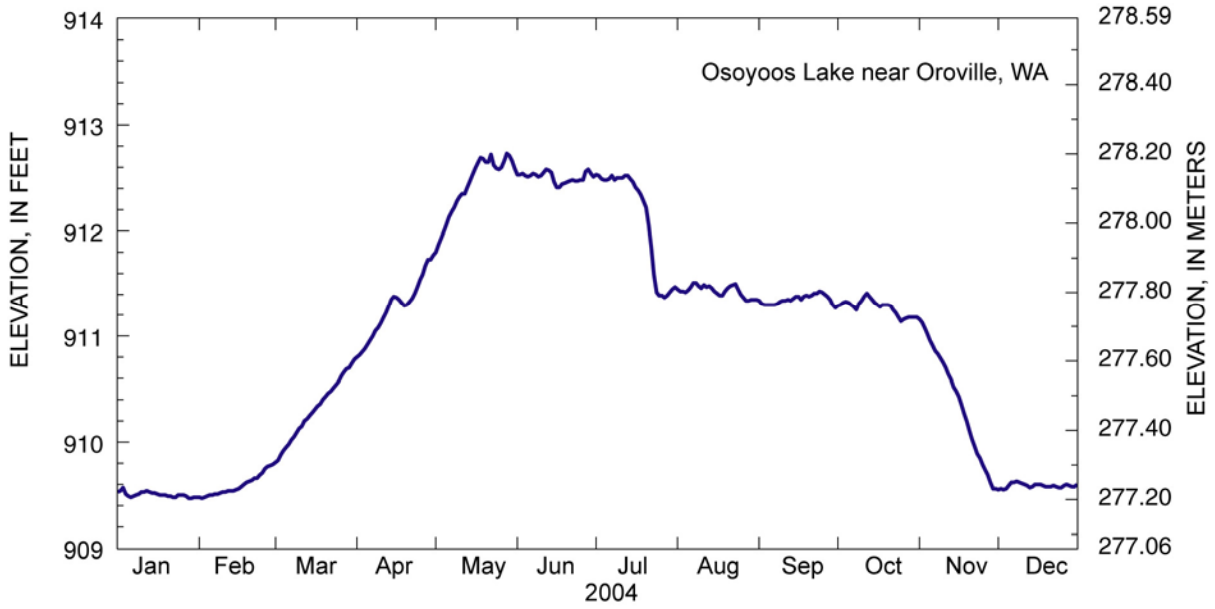


Figure 2. Hydrograph of Osoyoos Lake elevation.

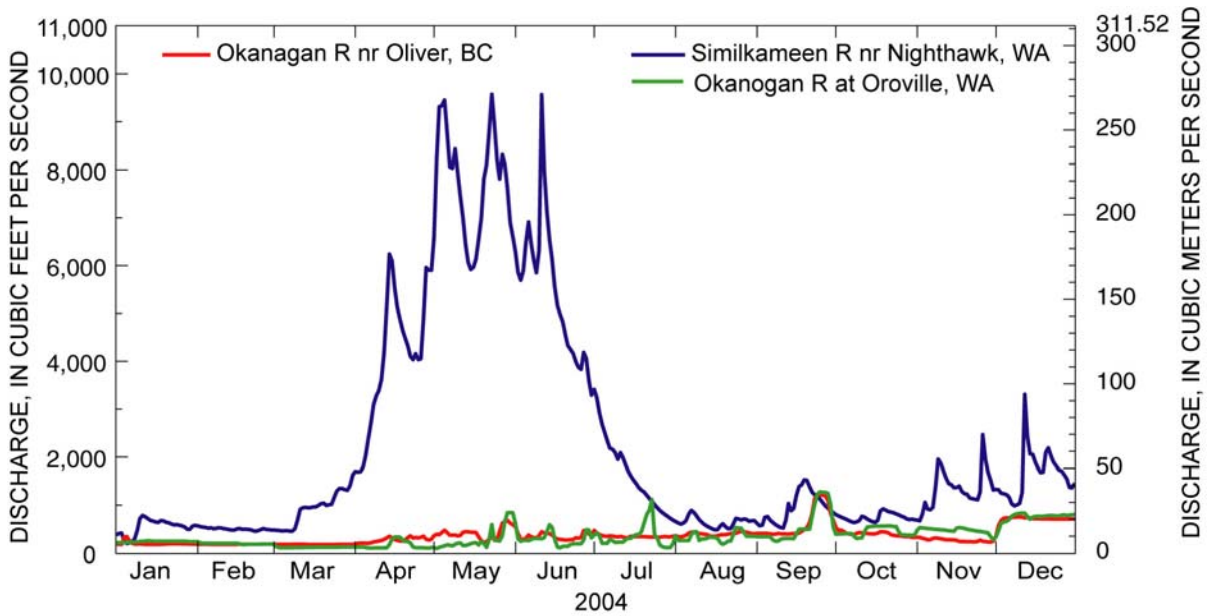


Figure 3. Hydrographs of discharge for the Similkameen and Okanogan (Okanagan in Canada) Rivers.

APPENDIX 1.—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	912.73 feet (278.200 meters)– May 28
Maximum instantaneous elevation	912.78 feet (278.215 meters)– May 22
Minimum instantaneous elevation	909.46 feet (277.203 meters)– January 28-31
Lake elevation at time of peak flow for Okanogan River at Oroville	911.56 feet (277.843 meters)– July 23

D. Okanogan River at Oroville



Maximum instantaneous discharge	1,340 cfs (37.9 cms)– July 23
Maximum daily mean discharge	1,280 cfs (36.2 cms)– September 25
Annual mean discharge	353 cfs (10.0 cms)

The annual mean discharge was 52 percent of the 62-year average of 683 cfs.

E. Similkameen River near Nighthawk

Maximum instantaneous discharge	10,300 cfs (292 cms)– June 11
Maximum daily mean discharge	9,570 cfs (271 cms)– May 23 and June 11

High river discharges and stages created backwater conditions for the Okanogan River at Oroville gaging station for 35 days.

International Osoyoos Lake Board of Control Membership	
 Canadian Membership	 U.S. Membership
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<p>James Mattison (through April 1, 2004) Executive Director, Strategic Initiatives Div. Land and Water British Columbia Inc. P.O. Box 9475 STN PROV GOVT V8W 9W6 5th Floor – 609 Broughton Street Victoria, British Columbia Phone: (250) 387-1649 Fax: (250) 952-6237 Email: Jim.Mattison@gems7.gov.bc.ca</p>	<p>Colonel Debra M. Lewis District Engineer Seattle District U.S. Army Corps of Engineers P.O. Box 3755 Seattle, Washington 98124-3755 Phone: (206) 764-3690 Fax: (206) 746-6544 Email: Debra.Lewis.COL@nws02.usace.army.mil</p>
<p>Glen Davidson (beginning June 1, 2004) Director, Water Management Land and Water British Columbia Inc. P.O. Box 9340 STN PROV GOVT Victoria, British Columbia V8W 9M1 Phone: (250) 387-6949 Fax: (250) 356-0605 Email: Glen.Davidson@gems6.gov.bc.ca</p>	<p>Kris Kauffman Civil Engineer 12228 Nyanza Road SW. Lakewood, Washington 98499-1444 Phone: (253) 581-9752 – Message Email: waterrightsinc@msn.com</p>
<p>Brian Symonds Head, Flood Hazard Management Ministry of Water, Land and Air Protection 102 Industrial Place Penticton, British Columbia V2A 7C8 Phone: (250) 490-8255 Fax: (250) 490-2231</p>	<p>Robert Kimbrough Secretary, U.S. Section Assistant Director for Hydrologic Data Washington Water Science Center U.S. Geological Survey 1201 Pacific Avenue, Suite 600 Tacoma, Washington 98402-4300 Phone: (253) 428-3600 x 2608 Fax: (253) 428-3614 Email: rakimbrow@usgs.gov</p>
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