ANNUAL REPORT OF

THE COLUMBIA RIVER TREATY

CANADIAN AND UNITED STATES ENTITIES

FOR THE PERIOD

1 OCTOBER 2006 – 30 SEPTEMBER 2007

EXECUTIVE SUMMARY

General

The Canadian Treaty projects, Mica, Duncan and Arrow were operated during the 1 August 2006 – 30 September 2007 reporting period according to the 2006-07 and 2007-08 Detailed Operating Plans (DOPs), the 2003 Flood Control Operating Plan (FCOP), and several supplemental operating agreements described below. The Libby project was operated according to the Libby Coordination Agreement (LCA) dated February 2000, including the 21 April 2006 update to the Libby Operating Plan (LOP), and U.S. requirements for power and guidelines set forth in the U.S. Fish and Wildlife Service (USFWS) and U.S. National Marine Fisheries Service (NMFS) 2000 and 2004 Biological Opinions (BiOps). Canadian Entitlement power was delivered to Canada in accordance with the DOPs, the Entity Agreement on Aspects of the Delivery of the Canadian Entitlement dated 29 March 1999 and Entitlement related agreements described below.

Entity Agreements

Agreements approved by the Entities during the period of this report include:

- Columbia River Treaty Entity Agreement on the Assured Operating Plan (AOP) and Determination of Downstream Power Benefits for the 2011-12 Operating Year, signed 30 May 2007.
- Columbia River Treaty Entity Agreement on the DOP for Columbia River Storage 1 August 2007 through 31 July 2008, signed 17 July 2007.
- Columbia River Treaty Entity Agreement on the Carrying of Water between Operating Years 2006-07 to 2007-08 for Mutual Benefits and the Smoothing of Water Flows at Arrow Reservoir, signed 24 July 2007.

Columbia River Operating Committee Agreements

The Columbia River Operating Committee (CRTOC) completed three agreements during the reporting period:

- Columbia River Treaty Operating Committee (CRTOC) Agreement on the Provisional Storage for the Period 7 October 2006 through 6 April 2007, signed 16 October 2006.
- Columbia River Treaty Operating Committee Agreement on Operation of Treaty Storage for Nonpower Uses for 23 December 2006 through 31 July 2007, signed on 22 December 2006.
- Columbia River Treaty Operating Committee Agreement on Provisional Storage for 22 September 2007 through 5 April 2008, signed on 28 September 2007.

In addition to the CRTOC agreements listed here, the Bonneville Power Administration (BPA) and British Columbia Hydro and Power Authority (B.C. Hydro) developed a letter agreement utilizing available non-Treaty storage space to smooth Arrow outflows during the period 20 July 2007 through 17 August 2007, signed 20 July 2007.

System Operation

Under the 2006-07 and 2007-08 DOPs, Canadian Treaty Storage was operated according to criteria from the 2006-07 and 2007-08 AOPs, except for a maximum limitation to Arrow January outflows of 80 kcfs.

Canadian Treaty storage began the operating year below the DOP levels (by 370 cubic hectometer (hm^3) or 300 thousand acre feet (kaf)) determined in the Treaty Storage Regulation (TSR) study primarily due to inadvertent draft. During August and September 2006, Canadian Treaty Storage was operated to forecasted TSR levels, except for a small provisional draft authorized by the Libby Coordination Agreement. In accordance with a fall Supplemental Operating Agreement, Canadian Treaty storage filled in October 2006, ending the month 1,052 hm^3 (853 kaf) above TSR levels. In November and December, Canadian storage was operated in accordance with the fall Supplemental Operating Agreement although some inadvertent draft occurred in November 2006, with Canadian storage ending the month 323 hm^3 (262 kaf) below the TSR. This draft was caused by a large change in November composite Treaty storage content of about 3,267 hm^3 (2,650 kaf) in the TSR runs throughout the month. The TSR results were the result of large inflow changes that occurred during the late October/early November period. In accordance with a second Supplemental Operating Agreement, Canadian storage filled to about 1,726 hm^3 (1,400 kaf) above the TSR in January 2007, remained above the TSR through June, and returned to near TSR levels in July.

Canadian Entitlement

During the reporting period, the U.S. Entity delivered the Canadian Entitlement to downstream power benefits from the operation of Mica, Duncan and Arrow reservoirs to the Canadian Entity, at existing points of interconnection on the Canada-U.S. border. The amount returned, not including transmission losses and scheduling adjustments, was 488.5 aMW at rates up to 1,244 MW during 1 August 2006 through 31 July 2007, and 482.8 aMW at rates up to 1,241 MW during 1 August 2007 through 30 September 2007.

During the course of the Operating Year, no curtailment of Canadian Entitlement occurred due to transmission constraints, forced outages, or emergencies on either the U.S. or Canadian side of the border.

Treaty Project Operation

At the beginning of the 2006-07 operating year, 1 August 2006, actual Canadian storage was at 18.6 km^3 (15.0 Maf) or 97.1 percent full. Canadian storage ended the operating year on 31 July 2007, at 19.1 km^3 (15.4 Maf) or 99.2 percent full.

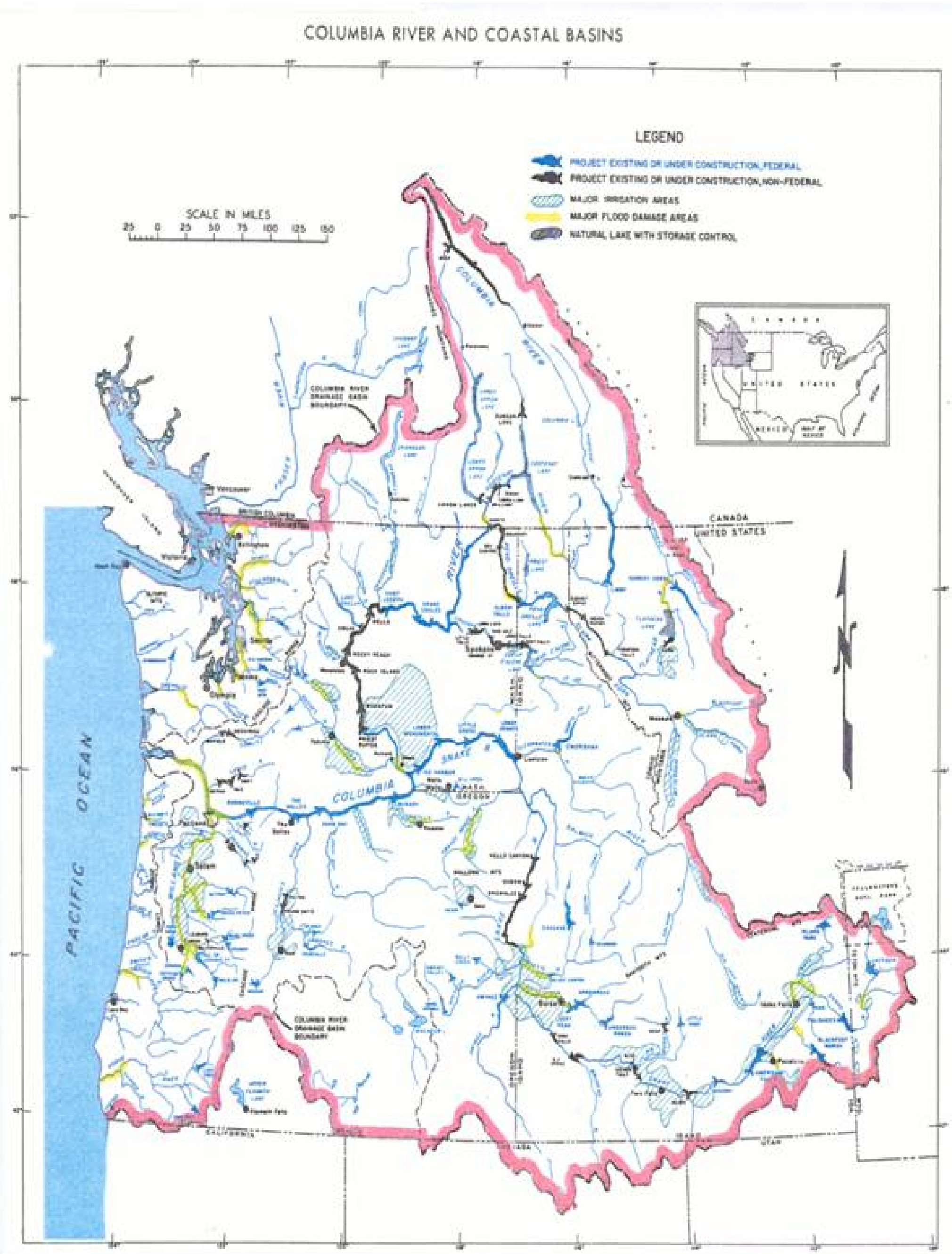
The Mica (Kinbasket) reservoir reached a maximum elevation of 751.96 m (2,467.1 ft) on 12 September 2006, 2.41 m (7.9 ft) below full pool. The reservoir was drawn down during the fall and winter to meet electrical demands and to prepare for the expected high runoff, reaching a minimum level of about 724.3 m (2,376.4 ft) on 27 April 2007. This level was 2.7 m (8.9 ft) lower than the 2006 minimum level of 727.0 m (2,385.2 ft). Reservoir releases were then reduced in May-June in response to lower electrical demands. As a result, the reservoir refilled to reach a maximum elevation of 754.3 m (2,474.8 ft) on 10 August 2007, 0.06 m (0.2 ft) from full.

The Arrow reservoir reached a maximum elevation of 439.82 m (1,443.0 ft) on 10 July 2006, 0.31 m (1.0 ft) below full pool. As inflows continued to recede throughout the fall and winter period and outflows increased to meet Treaty requirements, the reservoir drafted steadily reaching a minimum level of 427.3 m (1,402 ft) on 4 March 2007. Influenced by relatively good runoff conditions combined with storage under the NTSA, the reservoir refilled to its Treaty flood control level (maximum possible level) in April and May, and reached a maximum elevation of 438.6 m (1,439 ft) on 7 July 2007, 1.5 m (5 ft) from full pool.

Duncan reservoir refilled to full pool of 576.7 m (1,892 ft) on 23 August 2006. From September 2006 through April 2007, Duncan discharge was used to supplement inflow into Kootenay Lake and to provide spawning and incubation flows for fish. B.C. Hydro sought and received variance for February flood control to 552.5 m (1,812.5 ft). This was reached on 20 February 2007, and 551.0 m (1,807.7 ft) was reached on 15 March 2007. The reservoir drafted to a minimum elevation of 547.06 m (1,794.8 ft) on 7 May 2007, 0.19 m (0.6 ft) above empty. Reservoir discharge was reduced to a minimum of 3 m^3/s (100 cfs) on 1 June 2007 to initiate reservoir refill. The reservoir reached a maximum elevation of 576.70 m (1,892.06 ft), slightly above full pool on 21 July 2007.

The Libby (Kookanusa) Reservoir began July 2006 at elevation 748.84 m (2,456.87 ft) and drafted through the fall and winter period. By 31 December, the reservoir was at elevation 734.87 m (2,411 ft) and operated during the winter to the VARQ storage reservation diagram. The reservoir drafted to its lowest elevation of 727.28 m (2,386.1 ft) on 30 April. During the refill period, Libby Dam operated in strict accordance to the VARQ operating procedures and provided 1.44 km^3 (1.17 Maf) of storage for sturgeon releases. The reservoir filled to its maximum elevation of 748.03 m (2,454.16 ft) on 20 July 2007, 1.48 m (4.84 ft) from full pool. The project drafted to elevation 743.41 m (2,439 ft) by 31 August.

Columbia Basin Map



2007 Report of the Columbia River Treaty Entities

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Acronyms and Abbreviations

AER..Actual Energy Regulation
aMW……………………….. ....Average Megawatts
AOP…………………………...........Assured Operating Plan
B.C. Hydro..British Columbia Hydro and Power Authority
BiOp..Biological Opinion
BPA..Bonneville Power Administration
CEEA ....Canadian Entitlement Exchange Agreement
CEPA ....Canadian Entitlement Purchase Agreement
cfs..Cubic feet per second
CRC...Critical Rule Curve
CROHMS..Columbia River Operational Hydromet Management System
CRT...Columbia River Treaty
CRITFC...Columbia River Inter-Tribal Fish Commission
CRTHC ....Columbia River Treaty Hydrometeorological Committee
CRTOC ....Columbia River Treaty Operating Committee
CSPE ....Columbia Storage Power Exchange
CVSE ....Cross Validation Standard Error
DDPB...Determination of Downstream Power Benefits
DFO...Department of Fisheries and Oceans
DOP...Detailed Operating Plan
DRL...Duncan River below the Lardeau confluence)
FCOP...Flood Control Operating Plans
ft...feet
hm^3 ....Cubic hectometers
in ....inch
ICF ....Initial Controlled Flow
IJC ....International Joint Commission
kaf ....Thousand acre feet
kcfs...Thousand cubic feet per second
km^3 ....Cubic Kilometer (one million cubic meters)

Acronyms and Abbreviations (continued)

ksfd..Thousand second-foot-days (=kcfs x days)
LCA...Libby Coordination Agreement
LOP...Libby Operating Plan
m ....Meter
m^3/s ....Cubic meters per second
Maf...Million acre-feet
MW ....Megawatt
NMFS...National Marine Fisheries Service
NOAA F...NOAA Fisheries, formerly NMFS
NTSA ....Non-Treaty Storage Agreement
NWPCC ....Northwest Planning and Conservation Council
ORC ....Operating Rule Curve
OY..Operating Year
PEB ....Permanent Engineering Board
PEBCOM ....PEB Engineering Committee
PNCA...Pacific Northwest Coordination Agreement
PNW...Pacific Northwest
SOR..System Operational Requests
TMT ....Technical Management Team
TSR ....Treaty Storage Regulation
U.S. ....United States
USACE ....U.S. Army Corps of Engineers
USFWS ....U.S. Fish and Wildlife Service
VARQ ....Variable discharge flood control
VRC ....Variable refill curves
WSF ....Water Supply Forecast
WUP...Water Use Plan
WY...Water Year

I – INTRODUCTION

This annual Columbia River Treaty Entity Report is for the 2007 water year (WY), 1 October 2006 through 30 September 2007, with additional information on the operation of Mica, Arrow, Duncan, and Libby reservoirs during the reservoir system operating year, 1 August 2006 through 31 July 2007. The power and flood control effects downstream in Canada and the U.S. are described. This report is the 41st of a series of annual reports covering the period since the ratification of the Columbia River Treaty (CRT) in September 1964.

Duncan, Arrow and Mica reservoirs in Canada and Libby reservoir in the U.S. were constructed as required under the CRT, and Libby reservoir in the U.S. was constructed as provided for by the CRT. Treaty storage in Canada (Canadian storage) is operated for the purposes of flood control and increasing hydroelectric power generation in Canada and the U.S. In 1964, the Canadian and the U.S. governments each designated an Entity to formulate and carry out the operating arrangements necessary to implement the CRT. The Canadian Entity for these purposes is B.C. Hydro. The Canadian Entity for the limited purpose of making arrangements for disposal of all or portions of the Canadian Entitlement within the United States is the government of the Province of British Columbia. The U.S. Entity is the Administrator/Chief Executive Officer of Bonneville Power Administration (BPA) and the Division Engineer of the Northwestern Division, U.S. Army Corps of Engineers (USACE).

The following is a summary of key features of the CRT and related documents:

1. Canada was to provide 19.12 cubic kilometers (km^3) (15.5 million acre feet (Maf)) of usable storage. This has been accomplished with 8.63 km^3 (7.0 Maf) in Mica, 8.78 km^3 (7.1 Maf) in Arrow, and 1.73 km^3 (1.4 Maf) in Duncan.

2. For the purpose of computing downstream power benefits the U.S. base system hydroelectric facilities will be operated in a manner that makes the most effective use of the improved streamflow resulting from operation of the Canadian storage.

3. The U.S. and Canada are to share equally the downstream power benefits generated in the U.S. resulting from operation of the Canadian storage.

4. The U.S. paid Canada a lump sum of the $64.4 million (U.S.) for one half of the present worth of expected future flood control benefits in the U.S. to September 2024, resulting from operation of the Canadian storage.

5. The U.S. has the option of requesting the evacuation of additional flood control space above that specified in the CRT, for a payment of $1.875 million (U.S.) plus power losses for

each of the first four requests for this "on-call" storage. No requests under this provision have been made to date.

6. The U.S. had the option (which it exercised) to construct Libby Dam with a reservoir that extends 67.6 kilometers (42 miles) into Canada and for which Canada agreed to make the land available.

7. Both Canada and the U.S. have the right to make diversions of water for consumptive uses. In addition, since September 1984, Canada has had the option of making, for power purposes, specific diversions of the Kootenay River into the headwaters of the Columbia River.

8. Differences arising under the Treaty which cannot be resolved by the two countries may be referred to either the International Joint Commission (IJC) or to arbitration by an appropriate tribunal.

9. The Treaty shall remain in force for at least 60 years from its date of ratification, 16 September 1964, after which either Government has the option to terminate most sections of the Treaty with a minimum of 10 years advance notice.

10. In the Canadian Entitlement and Purchase Agreement (CEPA) of 13 August 1964, Canada sold its entitlement to downstream power benefits (Canadian Entitlement) to the Columbia Storage Purchase Exchange (CSPE - a consortium of U.S. utilities) for 30 years beginning at Duncan on 1 April 1968, Arrow on 1 April 1969, and Mica on 1 April 1973. That sale has now expired and all Canadian Entitlement has reverted to British Columbia provincial ownership and is being either delivered to the Canada-U.S. border or sold directly in the United States.

11. Canada and the U.S. each appointed Entities to implement Treaty provisions and jointly appointed a joint Permanent Engineering Board (PEB) to review and report on operations under the CRT.

II - TREATY ORGANIZATION

Entities

There was one meeting of the CRT Entities (including the Canadian and U.S. Entities and Entity Coordinators) during the year on the morning of 15 February 2007 in Vancouver, B.C. The members of the two Entities at the end of the period of this report were:

UNITED STATES ENTITY	CANADIAN ENTITY
Mr. Stephen J. Wright, Chairman Administrator & Chief Executive Officer Bonneville Power Administration Department of Energy Portland, Oregon	Mr. Robert G. Elton, Chair President & Chief Executive Officer British Columbia Hydro and Power Authority Vancouver, British Columbia
Brigadier General Gregg F. Martin, Member Division Engineer Northwestern Division U.S. Army Corps of Engineers Portland, Oregon	

The Entities have designated alternates to act on behalf of the primaries in their absence; appointed in the U.S. by a Memorandum of Agreement between Bonneville and Corps of Engineers, and in Canada by the B.C. Hydro Board of Directors. Mr. Wright's alternate is Bonneville Deputy Administrator Steven G. Hickok; Mr. Elton's Deputy position is currently vacant; and BG Martin's alternate is COL Steven R. Miles, when he has been designated as Acting Division Engineer.

The Entities have appointed Coordinators, Secretaries, and two joint standing committees to assist in CRT implementation activities that are described in subsequent paragraphs. The primary duties and responsibilities of the Entities as specified in the CRT and related documents are to:

1. Plan and exchange information relating to facilities used to obtain the benefits contemplated by the CRT.

2. Calculate and arrange for delivery of hydroelectric power to which Canada is entitled and the amounts payable to the U.S. for standby transmission services (latter is no longer in effect).

3. Operate a hydrometeorological system.

4. Assist and cooperate with the PEB in the discharge of its functions.

5. Prepare and implement Flood Control Operating Plans (FCOPs) for the use of Canadian storage.

6. Prepare Assured Operating Plans (AOP) for Canadian storage and determine the resulting downstream power benefits that Canada is entitled to receive.

7. Prepare and implement Detailed Operating Plans (DOPs) that may produce results more advantageous to both countries than those that would arise from operation under AOPs.

Additionally, the CRT provides that the two governments, by exchange of diplomatic notes, may empower or charge the Entities with any other matter coming within the scope of the CRT.

Entity Coordinators & Secretaries

The Entities have appointed Coordinators from members of their respective staffs to help manage and coordinate CRT related work, and Secretaries to serve as information focal points on all CRT matters within their organizations.

Those personnel are:

UNITED STATES ENTITY
COORDINATORS
Stephen R. Oliver
Vice President, Generation Supply
Bonneville Power Administration
Portland, Oregon

Allen Chin
Director, Civil Works & Management
Northwestern Division
U.S. Army Corps of Engineers
Portland, Oregon

CANADIAN ENTITY
COORDINATOR
Renata Kurschner
Director
Generation Resource Management
B.C. Hydro
Burnaby, British Columbia

Allen Chin replaced Karen Durham-Aguilera as Corps Coordinator on 21 December 2006.

UNITED STATES ENTITY
SECRETARY
Dr. Anthony G. White
Regional Coordination
Power and Operations Planning
Bonneville Power Administration
Portland, Oregon

CANADIAN ENTITY
SECRETARY
Douglas A. Robinson
Generation Resource Management
B.C. Hydro
Burnaby, British Columbia

Columbia River Treaty Operating Committee

The Columbia River Treaty Operating Committee (CRTOC) was established in September 1968 by the Entities, and is responsible for preparing and implementing operating plans as required by the CRT, making studies and otherwise assisting the Entities as needed. The CRTOC consists of eight members as follows:

UNITED STATES SECTION
Richard M. Pendergrass, BPA, Alt. Chair
James D. Barton, USACE, Alt. Chair
Cynthia A. Henriksen, USACE
John M. Hyde, BPA

CANADIAN SECTION
Kelvin Ketchum, B.C. Hydro, Chair
Dr. Thomas K. Siu, B.C. Hydro
Gillian Kong, B.C. Hydro
Herbert Louie, B.C. Hydro

The CRTOC met six times during the reporting period to exchange information, approve work plans, and discuss and agree on operating plans and issues. The meetings were held every other month alternating between Canada and the U.S. During the period covered by this report, the CRTOC:

♦ Coordinated the operation of the CRT storage in accordance with the current hydroelectric operating plans and FCOPs;

♦ Reviewed scheduled delivery of the Canadian Entitlement according to the CRT and related agreements;

♦ Completed studies and documents for the 2011-12 AOP/Determination of Downstream Power Benefits (DDPB);

♦ Completed the 1 August 2007 through 31 July 2008 DOP;

♦ Completed three supplemental operating agreements for Canadian storage;

♦ Implemented the Libby Coordination Agreement (LCA) including the 21 April 2006 update to the Libby Operating Plan (LOP), and monitored downstream Canadian power effects from Variable Q flood control operation at Libby;

♦ Briefed the Permanent Engineering Board and Engineering Committee on Entity activities; and

♦ Prepared and presented draft and interim technical and other reports to the Entities, PEB and the PEB Engineering Committee, and representatives of the British Columbia Provincial Government on topics related to the CRT 2014/2014 Review.

These aspects of the CRTOC's work are described in following sections of this report, which have been prepared by the CRTOC with the assistance of others.

Pictured from left to right: Tony White (BPA U.S. Entity Secretary), Tom Siu (B.C. Hydro, Member), Herbert Louie (B.C. Hydro, Member), Rick Pendergrass (BPA, U. S. Alt. Chair), Gillian Kong (B.C. Hydro, Member), James Barton (USACE, U.S. Alt. Chair), John Hyde (BPA Member), Kelvin Ketchum (B.C. Hydro, Canadian Chair), Doug Robinson (B.C. Hydro, Canadian Entity Secretary), Cynthia Henriksen (USACE, Member)

Columbia River Treaty Hydrometeorological Committee

2006-07 Summary

The Columbia River Treaty Hydrometeorological Committee (CRTHC) was established in September 1968 by the Entities and is responsible for planning and monitoring the operation of data facilities in accordance with the Treaty and otherwise assisting the Entities as needed. The Committee consists of four members as follows:

UNITED STATES SECTION	CANADIAN SECTION
Nancy L. Stephan, BPA Co-Chair	Stephanie Smith, B.C. Hydro, Chair
Peter Brooks, USACE Co-Chair	Doug Smith*, B.C. Hydro, Member

* There were two changes in the Canadian Members in 2007. Wuben Luo replaced Doug McCollor as Canadian Member of committee on 7 November 2006. Doug Smith replaced Wuben Luo on 1 August 2007.

The CRTHC met once in the 2006-07 water year. The meeting took place 8 November 2006 in the B.C. Hydro offices in Burnaby.

Forecasting

B.C. Hydro completed the redevelopment of their water supply forecast procedures for the Canadian Treaty projects including new procedures for early-season to produce forecasts in November and December for the February through July forecast period. The CRTHC recommended the November through July forecast equations and their associated cross-validation standard errors (CVSEs) to the CRTOC at their 12 September 2006 meeting. The CRTOC approved the December through July equations and the new CVSEs, but decided not to use the November equations for Canadian projects. Although the CRTOC has approved using a November forecast equation at Dworshak, only the December early season forecast was used during the reporting period.

The new forecasting procedures developed over the last several years and some of the new techniques being used (such as using the cross-validation standard error rather than standard error) warranted an update to Principles and Procedures (POP). Appendix 8 of that document provided a summary of the Hydromet Committee's work on error statistics and forecast methodology and their use in TSR studies, including tables of monthly distribution factors, errors and hedges. The CRTOC chairs accepted the final draft of the Appendix 8 for inclusion in POP via email on 10 August 2007.

Data Exchange

It was a fairly quiet year for data exchange issues, with only one reported data discrepancy due to problems with loading the Queens Bay storage table correctly into CROHMS. The Committee initiated a data working group at the November 2006 meeting, but with few issues to discuss, the group has not been needed. With both the Corps and B.C. Hydro in the process of implementing new data management systems, the working group will no doubt start to become more active in the months ahead.

The Corps requested B.C. Hydro to provide information on disaster recovery plans for data systems in the event of a major system disruption. B.C. Hydro has yet to respond.

B.C. Hydro noted that the Northwest River Forecast Center (NWRFC) was publishing daily reservoir inflows and water levels for Canadian projects on their website that were in many cases incorrect. Given the sensitive nature of the information, B.C. Hydro requested that NWRFC remove all daily information about Canadian projects from their website. NWRFC will continue to publish water supply volumes and forecasts for Canadian projects, but detailed daily and hourly observations for the major reservoirs will no longer be available. These data are still available in CROHMS for Treaty purposes.

Stations

The Canadian Section has investigated five station issues this year in consultation with the U.S. One climate station (Tete Jaune) closed with no action taken as the site was just outside the Kinbasket watershed in the Upper Fraser, and was no longer used in forecasting. Two stations had issues resolved and will continue to operate, including the long-time problem climate station Fernie. Fernie is now able to report daily about 90 percent of the time. The second station was the Mount Templeman snow course that was in an avalanche zone. Further investigation revealed that only the helicopter landing site was in the avalanche zone, and by moving the landing site, the snow course will remain active.

There were two station issues identified this year that remain unresolved at this time. Environment Canada informed B.C. Hydro in January 2007 that the South Slocan climate station may be closing as the station is currently maintained by a Fortis BC employee who is retiring. As the station is used as an input by the NWRFC for their forecasting for Queens Bay, Slocan and Waneta, BPA requested that efforts be made to maintain the station. As of September 2007, the station is still operating, but data are only available during the workweek, and the future of the station has not yet been resolved.

B.C. Hydro was notified in January 2007 that the lease for the land where the Slocan River gauge is located expires as of November 2007, and that Water Survey of Canada (WSC) is having difficulties renegotiating with the current landowner to renew the lease. As this is an important gauging point with a long period of record, both B.C. Hydro and the Province of

British Columbia requested that every attempt be made to secure the site going forward. At the end of the operating year the issue was still unresolved, although WSC has an agreement to extend the lease for at least one year.

Permanent Engineering Board

Provisions for the establishment of the Permanent Engineering Board (PEB) and its duties and responsibilities are included in the CRT and related documents. The members of the PEB are presently:

UNITED STATES SECTION	CANADIAN SECTION
Stephen L. Stockton, Chair Washington, D.C.	Tom Wallace, Chair Ottawa, Ontario
Edward Sienkiewicz, Member Newberg, Oregon	Tim Newton, Member Vancouver, British Columbia
Robert A. Pietrowsky, Alternate-Nominee Washington, D.C.	James Mattison, Alternate Victoria, British Columbia
George E. Bell, Alternate Portland, Oregon	Ivan Harvie, Alternate Calgary, Alberta
Jerry W. Webb, Secretary Washington, D.C.	Darcy Blais, Secretary Ottawa, Ontario

Ivan Harvie, Canadian Section Alternate, replaced David Burpee effective 14 August 2007. Darcy Blais, Canadian Section Secretary, replaced Eve Jasmin effective 14 August 2007.

Under the CRT, the PEB is to assemble records of flows of the Columbia River and the Kootenay River at the international boundary. The PEB is also to report to both governments if there is substantial deviation from the hydroelectric or flood control operating plans, and if appropriate, include recommendations for remedial action. Additionally, the PEB is to:

- Assist in reconciling differences that may arise between the Entities.
- Make periodic inspections and obtain reports as needed from the Entities to assure that CRT objectives are being met.
- Prepare an annual report to both governments and special reports when appropriate.
- Consult with the Entities in the establishment and operation of a hydrometeorological system.

- ♦ Investigate and report on any other CRT related matters at the request of either government.

The Entities continued their cooperation with the PEB during the past year by providing copies of Entity agreements, operating plans, CRTOC agreements, updates to hydrometeorological documents, personnel appointments, pertinent correspondence, and the annual Entity report to the Board for their review. The annual joint meeting of the PEB and the Entities was held on 15 February 2007 in Vancouver, BC, where the Entities briefed the PEB on the preparation and implementation of operating plans, the delivery of the Canadian Entitlement, and other topics requested by the Board. The PEB and Permanent Engineering Board Engineering Committee (PEBCOM) asked the Entities to develop and present a joint Canada-U.S. framework for technical studies of Treaty scenarios and communications plans leading up to CRT 2014/2024 Review key dates, to work with the PEB on bringing CRT 2014/2024 Review issues to national governments' attentions, and to make an interim report to the PEB.

On 21 September 2007, the Entities and the CRTOC met with the PEB and PEB Engineering Committee in Portland, Oregon, in a special meeting to provide an update to the February 2007 discussions on the CRT 2014/2024 Review.

PEB Engineering Committee

The PEB has established a PEB Engineering Committee (PEBCOM) to assist in carrying out its duties. The members of PEBCOM at the end of the period of this report were:

<u>UNITED STATES SECTION</u>	<u>CANADIAN SECTION</u>
Jerry W. Webb, Chair Washington, D.C.	Roger S. McLaughlin, Chair Victoria, British Columbia
Michael S. Cowan, Member Lakewood, CO	Darcy Blais, Member Ottawa, Ontario
Kamau B. Sadiki, Member Washington, D.C.	Ivan Harvie, Member Calgary, Alberta
D. James Fodrea, Member Boise, ID	Dr. G. Bala Balachandran, Member Victoria, British Columbia

Ms. Jasmin was replaced by Darcy Blais on 14 August 2007.

The PEBCOM met with the CRTOC on 25 October 2006 in Portland, Oregon, and on 11 July 2007 in Portland, Oregon.

International Joint Commission

The International Joint Commission (IJC) was created under the Boundary Waters Treaty of 1909, between Canada and the U.S. Its principal functions are rendering decisions on the use of boundary waters, investigating important problems arising along the common frontier not necessarily connected with waterways, and making recommendations on any question referred to it by either government. If the Entities or the PEB cannot resolve a dispute concerning the CRT, that dispute may be referred to the IJC for resolution.

The IJC has appointed local Boards of Control to insure compliance with IJC orders and to keep IJC informed. There are three such boards west of the continental divide. These are the International Kootenay Lake Board of Control, International Columbia River Board of Control, and International Osoyoos Lake Board of Control. The Entities and IJC Boards conducted their CRT activities during the period of this report so that there was no known conflict with IJC orders or rules.

The U.S. Section Chair is Dennis L. Schornack of Williamston, MI. The Canadian Section Chair is The Right Honorable Herb Gray of Ottawa, Canada. Canadian members are Mr. Robert Gourd, Montreal, QUE., and Mr. Jack P. Blaney, Vancouver, B.C. U.S. members are Ms. Irene B. Brooks, Seattle, WA, and Mr. Allen I. Olson, Edina, MN.

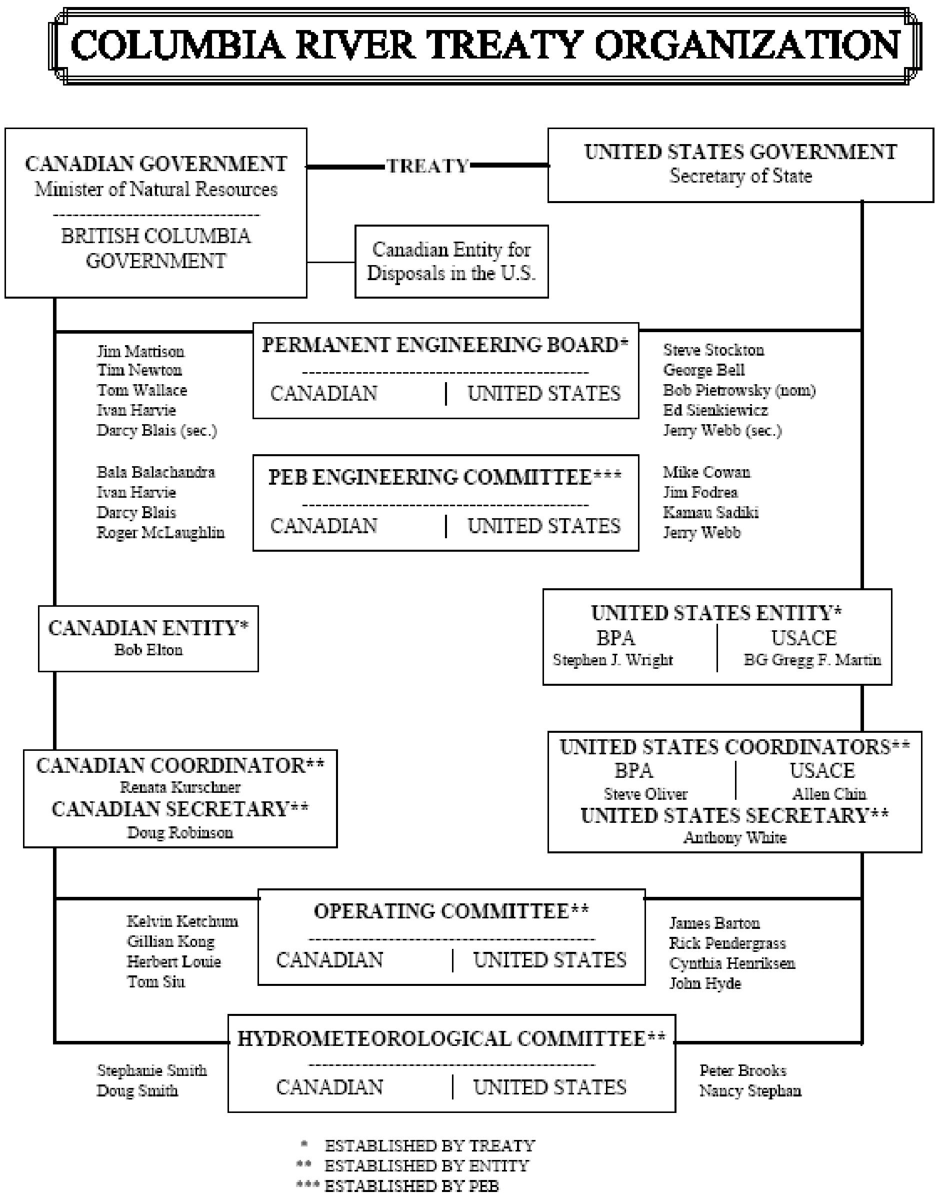
Presentations

During the period covered by this report, CRT personnel made presentations about the history, structure, operations, challenges and communications associated with the CRT to visitors and inquirers from professional, environmental, academic and civic groups and individuals; new employees; Northwest Power Planning Council staff; Columbia Basin Trust staff; the Lake Roosevelt Forum; and foreign visitors from Pakistan and Kyrgyzstan.

During the course of 2007 both Richard Pendergrass and John Hyde of BPA were recognized with the Administrator’s Awards for Excellence, in both cases in part as a result of their work on the CRTOC.

At a Kootenay Lake Board of Control meeting in Nelson, BC on 20 September 2007, the Corps of Engineers and B.C. Hydro made presentations about the operation of Duncan and Libby reservoirs as they relate to the 1938 International Joint Commission Order for Kootenay Lake. At this meeting, the Board was asked for an interpretation of the 1938 Order with respect to the operation of the upstream Duncan and Libby projects. The Board was asked if either or both of the upstream projects is required to reduce discharge to as low as inflow when the Kootenay Lake level exceeds the IJC rule curve

Columbia River Treaty Organization



III - OPERATING ARRANGEMENTS

Power and Flood Control Operating Plans

The CRT requires that the reservoirs constructed in Canada be operated pursuant to flood control and hydroelectric operating plans developed hereunder. Annex A of the CRT:

1. Stipulates that the U.S. Entity will submit FCOPs;
2. States that the Canadian Entity will operate in accordance with flood control storage diagrams or any variation which the Entities agree will not reduce the desired aim of the flood control plan; and
3. Provides for the development of assured hydroelectric operating plans for Canadian storage for the sixth succeeding year of operation.

Article XIV.2.k of the CRT provides that a DOP be developed that may produce results more advantageous than the AOP. The Protocol to the CRT provides further detail and clarification of the principles and requirements of the CRT.

The "Principles and Procedures for the Preparation and Use of Hydroelectric Operating Plans for Canadian Treaty Storage", signed December 2003 (as amended), together with the "Columbia River Treaty Flood Control Operating Plan" dated May 2003 (as revised), establish and explain the general criteria used to develop the AOP and DOP and operate CRT storage during the period covered by this report.

The planning and operation of CRT Storage as discussed on the following pages are for the operating year, 1 August 2006 through 31 July 2007. The operation of Canadian Storage was determined by the 2006-07 DOP and supplemental operating agreements. The DOP required a semi-monthly Treaty Storage Regulation (TSR) study to determine end-of-month storage obligations prior to any supplemental operating agreements. The TSR included all operating criteria from, and was based on, the Step I Joint Optimum Power Hydroregulation Study from the 2006-07 AOP, with agreed changes. Most of the hydrographs and reservoir charts in this report are for a 14-month period, August 2006 through September 2007.

Assured Operating Plans

During the reporting period, the Entities completed the 2011-12 AOP/DDPB using the load and resource streamline method developed for the prior AOP/DDPB and the procedures described in the 2003 Principles and Procedures document.

The 2011-12 AOP establishes Operating Rule Curves (ORCs), Critical Rule Curves (CRCs), Mica and Arrow Project Operating Criteria, and other operating criteria included in the Step I Joint Optimum Power Hydroregulation Study, to guide the operation of Canadian storage. The ORCs were derived from CRCs, Assured Refill Curves, Upper Rule Curves (Flood Control), Variable Refill Curves (VRC) and Operating Rule Curve Lower Limits, consistent with flood control requirements, as described in the 2003 Principles and Procedures document. They provide guidelines for draft and refill under a wide range of water conditions. The Flood Control Rule Curves conform to the 2003 FCOP, and are used to define maximum reservoir levels for the operation of Canadian storage. The 2011-12 AOP uses the 5.03/4.44 km^3 (4.08/3.6 Maf) Mica/Arrow flood control allocation. The CRCs are used to apportion draft below the ORC when the TSR determines additional draft is needed to meet the Coordinated System firm energy load carrying capability.

Determination of Downstream Power Benefits

For each operating year, the DDPB resulting from Canadian Treaty storage is made in conjunction with the AOP according to procedures defined in the CRT, Annexes, and Protocol and except as noted in the AOP/DDPB documents, the 2003 Principles and Procedures agreement. The total CRT downstream power benefits as a result of the operation of Canadian storage for operating years 2006-07 and 2007-08 were determined to be 977.0 MW and 963.6 MW average annual usable energy and 2,488.6 MW and 2,481.8 MW dependable capacity, respectively. These total downstream power benefits were determined by the 2006-07 and 2008 AOP-DDPB.

In conjunction with the 2011-12 AOP, the Entities completed the 2011-12 DDPB which showed a decrease in the downstream power benefits compared to the prior DDPB. The total CRT downstream power benefits as a result of the operation of Canadian storage for the 2011-12 operating year were determined to be 1,051.8 MW of average annual usable energy and 2,628.0 MW of dependable capacity.

Canadian Entitlement

For the period 1 August 2006 through 31 July 2007, the Canadian entitlement amount, before losses, was 488.5 aMW of energy, scheduled at rates up to 1,244 MW, and from 1 August 2007 through 30 September 2008, the amount, before losses, was 482.8 aMW of energy, scheduled at rates up to 1,241 MW. The Canadian Entitlement obligation was determined by the 2006-07 and 2007-08 AOP/DDPB's.

During the course of the Operating Year, there were no curtailments of Canadian Entitlement due to transmission constraints or emergencies on either the U.S. or Canadian side of the border.

Detailed Operating Plans

During the period covered by this report, the CRTOC used the 1 August 2006 through 31 July 2007 "Detailed Operating Plan for Columbia River Treaty Storage," dated May 2006, and the 1 August 2007 through 31 July 2008 DOP, dated July 2007, to guide Canadian storage operations. These DOPs established criteria for determining the ORCs, proportional draft points, and other operating data for use in actual operations. The 2006-07 and 2007-08 DOPs were based respectively on the 2006-07 AOP and 2007-08 AOP, loads and resources, rule curves, and other operating criteria with agreed changes for both Canadian and U.S. projects. The 2006-07 and 2007-08 AOPs included a flood control allocation of 4.43 km^3 (3.6 Maf) in Arrow and 5.03 km^3 (4.08 Maf) in Mica. The 2006-07 DOP and 2007-08 DOP operating criteria with agreed changes were used to develop the Treaty Storage Regulation (TSR) studies for implementation of Canadian Storage operations. The changes were mainly updates to hydro-independent data, addition of a maximum January outflow limit at Arrow of 2265 m^3/s (80 kcfs), incorporation of updated forecast errors and distribution factors, and updated Grand Coulee pumping estimates.

The TSR studies were updated twice monthly throughout the reporting period for current inflow forecasts, flood control curves and VRCs, and actual unregulated inflows for the prior month. The TSR and supplemental operating agreements, defined the end-of-month draft rights for Canadian storage. The VRCs and flood control requirements subsequent to 1 January 2007 were determined on the basis of seasonal volume runoff forecasts during actual operation. The VRC calculations for Canadian reservoirs and Libby for the 2006-07 operating year are shown in Tables 2 through 5. The tabular calculation in Table 5 for Libby’s VRCs was used in the TSR study only and is not used in real time operations.

The CRTOC directed the regulation of the Canadian storage, on a weekly basis throughout the year, in accordance with the applicable DOPs, the LCA, and supplemental operating agreements.

Libby Coordination Agreement

During the period covered by this report, the LCA procedures allowed the Canadian Entity to provisionally draft Arrow reservoir and exchange power with the U.S. Entity, and required delivery to the U.S. Entity of one (1) aMW, shaped flat, over the entire Operating Year.

The LOP had been previously updated in response to a new USFWS Biological Opinion dated 18 February 2006. Because of the new BiOp, the LOP was updated 21 April 2006 to reflect updated sturgeon operations, variable end of December flood control draft, and bull trout minimum flow.

Entity Agreements

During the period covered by this report, three joint U.S.-Canadian arrangements were approved by the Entities:

Date Signed by Entities	Description of Agreement
30-May-2007	Columbia River Treaty Entity Agreement on the Assured Operating Plan and Determination of Downstream Power Benefits for the 2011-12 Operating Year
17-Jul-2007	Columbia River Treaty Entity Agreement on the Detailed Operating Plan for Columbia River Storage 1 August 2007 through 31 July 2008.
24-Jul-2007	Columbia River Treaty Entity Agreement on the Carrying of Water between Operating Years 2006-07 and 2007-08 for Mutual Benefits and the Smoothing of Water Flows at Arrow Reservoir.

Columbia River Treaty Operating Committee Agreements

During the period covered by this report, the CRTOC approved the following joint U.S.-Canadian storage agreements:

Date Signed by Committee	Description	Authority
16-Oct-2006	Columbia River Treaty Operating Committee Agreement on Provisional Storage for the Period 7 October 2006 through 6 April 2007	Detailed Operating Plan 1 August 2006 through 31 July 2007, dated 22 June 2006
22-Dec-2006	Columbia River Treaty Operating Committee Agreement on Operation of Treaty Storage for Nonpower Uses For 23 December 2006 through 31 July 2007	Detailed Operating Plan 1 August 2006 through 31 July 2007, dated 22 June 2006
28-Sep-2007	Columbia River Treaty Operating Committee Agreement on Provisional Storage for the Period 22 September 2007 through 5 April 2008	Detailed Operating Plan 1 August 2007 through 31 July 2008, dated 17 July 2007

Long Term Non-Treaty Storage Agreement

An Entity agreement dated 9 July 1990 approved the contract between B.C. Hydro and BPA relating to the initial filling of non-Treaty storage, coordinated use of non-Treaty storage, and Mica and Arrow refill enhancement. The CRTOC, in accordance with that agreement, monitored the storage operations made under this agreement throughout the operating year to insure that they did not adversely impact operation of CRT storage. The Entity agreement dated 28 June 2002, gave approval for B.C. Hydro and BPA to extend the expiration date of the contract by one year, from 30 June 2003 to 30 June 2004, which was done. Two mid-Columbia parties, Eugene Water and Electric Board and Tacoma Utilities, elected to extend their NTSA Agreement with BPA for the same one-year period.

No further extension of the contract was completed, however, and as per contract terms, release rights under the Non-Treaty Storage Agreement (NTSA) terminated effective 30 June 2004. Progress was made towards refilling both parties' accounts in 2007. At the end of September 2007 the B.C. Hydro account stood at 88 percent of full, and the U.S. parties accounts stood at 69 percent of full. In the absence of a new agreement, the extended Provisions of the 1990 Agreement require that active Non-Treaty Storage Space in Mica be refilled prior to 30 June 2011.

IV - WEATHER AND STREAMFLOW

Weather

Summer of 2006 began warmer and wetter than normal across the Columbia Basin. Upper air high pressure contributed to above normal temperatures, and its occasional flattening allowed fronts to transit the region. Chart 1 shows the monthly temperature departures in the Columbia Basin for the calendar year. From these, June precipitation was 113 percent of normal at Columbia above Grand Coulee, 93 percent of normal at the Snake River above Ice Harbor, and 118 percent of normal at Columbia above The Dalles. Chart 2 shows the seasonal precipitation. The upper high caused June 2006 temperatures to finish +0.4 ºC (+0.8 ºF), with various high temperature records late in the month, including Portland at 38.9 ºC (102 ºF), and Salem at 37.8 ºC (100 ºF). The high pressure area further strengthened in early July, and temperatures responded accordingly. July's regional temperatures were +2.6 ºC (+4.6 ºF) from normal. Daily record high temperatures were reached at Pendleton, with 36.7 ºC (98 ºF), Medford at 41.1 ºC (106 ºF), 44.4 ºC (112 ºF) at Pasco, and 37.8 ºC (100 ºF) at Missoula. The strengthening of the high resulted in much drier weather, as July precipitation was 58 percent of normal at Columbia above Grand Coulee, 50 percent of normal at the Snake River above Ice Harbor, and 55 percent of normal at Columbia above The Dalles.

As August began, the upper high began to move off to the east, with another high building in from the Pacific. This began a sequence of cool, but dry weather systems into the region from the northwest. As such, record low temperatures occurred at several locations, including Eugene, with 7.2 ºC (45 ºF) and Idaho Falls, 5.6 ºC (42 ºF). The month balanced out at normal. August carried a dry weather pattern: precipitation was 19 percent of normal at Columbia above Grand Coulee, 14 percent of normal at the Snake River above Ice Harbor, and 16 percent of normal at Columbia above The Dalles. Cooler than normal weather continued into the first half of September with record low temperatures at Pocatello of -1.7 ºC (29 ºF), Missoula at 0.6 ºC (33 ºF), and Meacham at -2.2 ºC (28 ºF). As the high built further inland, regional temperatures warmed the second half of the month. The shifting of the high pressure brought precipitation at midmonth, mainly across U.S. districts. September precipitation was 77 percent of normal at

Columbia above Grand Coulee, 114 percent of normal at the Snake River above Ice Harbor, and 104 percent of normal at Columbia above The Dalles.

As El Niño conditions became more prominent during the fall, it's influence in the Columbia Basin weather became evident. In October, the Pacific high pressure area that had moved inland in September shifted westward, and this blocked significant precipitation from reaching the Basin. It also resulted in cooler temperatures, via a northerly flow. Yet, there were no record high or low temperatures. Regional temperatures departed a meager +0.1 ºC (+0.1 ºF). October precipitation was 87 percent of normal at Columbia above Grand Coulee, 101 percent of normal at the Snake River above Ice Harbor, and 88 percent of normal at Columbia above The Dalles. Later in the month, the Pacific high shifted well to the west, and was replaced by a low pressure area. This transition was quick and strong resulting in an abrupt precipitation increase the first part of November, and the rest of November experienced an all-time record precipitation.

November 2006 had a significant temperature duality, with many above normal readings during the first half and many below normal readings thereafter. This big swing averaged to a mean departure of +0.3 ºC (+0.6 ºF), regionwide, for the month. As a result of these extremes, November had record high temperatures early on; then, record lows. New, daily high temperatures in Oregon included Monument at 26.7 ºC (80 ºF), Pendleton, 24.4 ºC (76 ºF), Salem at 20.6 ºC (69 ºF) and Portland at 20 ºC (68 ºF). In Washington, Spokane registered records at 15.6 ºC (60 ºF) and Walla Walla at 22.8 ºC (73 ºF). In Idaho, Challis reached 22.2 ºC (72 ºF), and Bonners Ferry reached 16.1 ºC (61 ºF). Low temperature records were set at Pendleton, with -12.2 ºC (10 ºF), Bellingham, -11.1 ºC (12 ºF), Stanley, Idaho, -29.4 ºC (-21 ºF), Yakima, -13.3 ºC (8 ºF), and Redmond at -16.1 ºC (3 ºF). In terms of precipitation, the list of records is longer. A tropical airmass, responsible for the record high temperatures, carried abundant precipitation into the Columbia Basin. Daily records include North Bend, Oregon, with 3.8 centimeters (cm) (1.51 in.), Portland, 6.4 cm (2.53 in.), Mullan Pass, 8.4 cm (3.29 in.), and Bonners Ferry, 4.0 cm (1.58 in.). November precipitation was 182 percent of normal at Columbia above Grand Coulee, 135 percent of normal at the Snake River above Ice Harbor, and 176 percent of normal at Columbia above The Dalles. The warm storms prevented the initial building of the snowpack, but the onset of colder weather, with continued precipitation, made up for the slow start.

December closed 2006 with a little more typical winter storm pattern, with periods of heavy and record precipitation as tropical El Niño began to peak, but with overall milder than normal temperatures. The jetstream, crossed the Columbia Basin from the southwest, remained quite active in December, and two noteworthy fronts stalled within it: The result was another run at record daily temperatures and precipitation. Temperatures were: Pendleton at 18.3 ºC (65 ºF), La Grande at 13.3 ºC (56 ºF), and Roseburg and Quillayute at 16.1 ºC (61 ºF). These, among a few others, occurred later in the month, while some record low temperatures were reached early on, as leftovers from the cold run of late November. A few record low temperatures included Yakima at -15 ºC (5 ºF), Meacham at -14.4 ºC (6 ºF), and Mullan Pass at -12.2 ºC (10 ºF). December averaged +0.6 ºC (+1.1 ºF) from normal for the region. Daily precipitation records include The Dalles, 2.4 cm (0.94"), Ephrata, 1.1 cm (0.45"), Pendleton, 1.3 cm (0.50"), and Goldendale, 1.2 cm (0.47"). December precipitation was 78 percent of normal at Columbia above Grand Coulee, 100 percent of normal at the Snake River above Ice Harbor, and 99 percent of normal at Columbia above The Dalles. December 2006 closed on a wet note.

The New Year 2007 transitioned to drier and colder weather. The first week was mild; the second week of January 2007 an Arctic front moved into most of the Columbia Basin. Temperatures fell to between 5.6 and 8.3 ºC (10-15 ºF) below normal. As moisture arrived, and with cold air in place, snow fell to sea level. Snow accumulation occurred along the Oregon and Washington coasts. Chart 3 shows the Columbia Basin snowpack accumulations during the winter. Arctic high pressure kept central and eastern districts colder than normal for most of the month, while west of the Cascades, temperatures moderated. Regional temperatures departed -0.7 ºC (-1.3 ºF), but daily, high temperature records occurred early at Missoula with 10 ºC (50 ºF) and Pendleton, 15.6ºC (60 ºF). On the flip side, once the cold air settled in, record low temperatures occurred at Stanley (a cold site to begin with), -36.7 ºC (-34 ºF), Meacham, -27.2 ºC (-17 ºF), and Redmond, -18.3 ºC (-1 ºF). Precipitation peaked the first half of the month, with more daily records: St. Maries, Idaho, 3.0 cm (1.18 in.) and Medford, 2.4 cm (0.93 in.). January precipitation was 76 percent of normal at Columbia above Grand Coulee, 37 percent of normal at the Snake River above Ice Harbor, and 64 percent of normal at Columbia above The Dalles.

In February, there was a sharp pattern change as a very cold airmass settled in east of the Rockies and a mild one settled via strong high pressure aloft over the Columbia Basin. As such, February 2007 experienced record high temperatures, similar to the three previous months, but for a different reason. Regional departures averaged +1.1 ºC (+1.9 ºF). The following were some of the record, daily high temperatures: Redmond, 19.4 ºC (67 ºF), Meacham, 13.9 ºC (57 ºF), Pendleton, 23.3 ºC (74 ºF), and Lewiston, 17.8 ºC (64 ºF). Similar in some ways to January, the jetstream brought quite a bit of precipitation to southern Oregon, and the main storm track across the region missed the southeastern part of Idaho. At the end of the month, a more substantial storm with cooler air produced heavy coastal mountain snowfall. The region did not have too many record daily precipitation events in February. Monthly precipitation was 107 percent of normal at Columbia above Grand Coulee, 104 percent of normal at the Snake River above Ice Harbor, and 99 percent of normal at Columbia above The Dalles.

High pressure aloft broadened west to east into March, and this resulted in a generally warm and dry start to spring in the U.S. sector, while the storm track largely passed through British Columbia. In March 2007, there were exceptions to the overall mild and drier theme, as two significant storm systems crossed northwest Washington into British Columbia. These resulted in record daily amounts of 7.7 cm (3.05 in.), 8.9 cm (3.52 in.), and 7.1 cm (2.78 in.) at Quillayute and 3.0 cm (1.20 in.) at Porthill, Idaho. These storms contained tropical air, as the pattern was again reminiscent to the concurrent, yet weakening El Niño. The tropical airmass remained even after precipitation ended with the storms, and the result was more daily, record high temperatures. They included Bellingham, 20 ºC (68 ºF), Madras, 25 ºC (77 ºF), Eugene, 22.8 ºC (73 ºF), Burns, 21.1 ºC (70 ºF), and Idaho Falls, 17.8 ºC (64 ºF). Regional temperatures departed +2.1 ºC (+3.6 ºF) for March, and precipitation was 159 percent of normal at Columbia above Grand Coulee, only 57 percent of normal at the Snake River above Ice Harbor, and 107 percent of normal at Columbia above The Dalles. The see-saw temperature pattern of the winter carried into the first full month of spring.

April 2007 started out cold, but warmed from the middle to late in the month. The April chill brought record low temperatures to Redmond, at -11.7 ºC (11 ºF), Meacham with -8.3 ºC (17 ºF), Pendleton, -5.6 ºC (22 ºF), Yakima, -6.7 ºC (20 ºF), Hillsboro at -2.8 ºC (27 ºF), and Idaho Falls, -6.7 ºC (20 ºF). To balance things out, there were record highs at Olympia and Hillsboro, with 26.1 ºC (79 ºF), Portland, 25.6 ºC (78 ºF), and Dworshak with 26.1 ºC (79 ºF). April 2007 regional temperatures showed a +0.2 ºC (+0.4 ºF) departure. Western Montana was the warmest region, with respect to normal, even with the early April cold air. Precipitation for the month was 93 percent of normal at Columbia above Grand Coulee, 87 percent of normal at the Snake River above Ice Harbor, and 84 percent of normal at Columbia above The Dalles.

A drier trend became more prominent across the U.S. part of the Columbia Basin in May, while more storms persisted in Canada. Strengthening upper level high pressure ridged up from California in May, and developed 26.7 and 32.2 ºC (80 and 90 ºF) weather in U.S. valleys to the Pacific coast. There were fronts cutting across B.C. resulting in near normal temperatures and locally much above normal precipitation. The regional temperatures departed +0.9 ºC (+1.6 ºF) with some record, daily high temperatures; for example, Pendleton at 34.4 ºC (94 ºF). There were also some low temperature records, including Stanley at -11.7 ºC (11 ºF). Precipitation was 94 percent of normal at Columbia above Grand Coulee, 40 percent of normal at the Snake River above Ice Harbor, and 65 percent of normal at Columbia above The Dalles. Toward the end of May, the weather pattern adjusted to a summer upper level high pressure pattern strengthening over the interior West rather than California. As such, June 2007 temperatures spiked indicating a very warm start to summer 2007, followed by a prolonged heat wave.

The bulk of the heat came early in June and again late in June, as regional temperature departures were only +0.5 ºC (+0.9 ºF). There were many daily, record high temperatures set: Lewiston with 38.3 ºC (101 ºF), Moses Lake, 37.8 ºC (100 ºF), Pullman, 33.3 ºC (92 ºF), Meacham, 31.1 ºC (88 ºF), Missoula 36.7 ºC (98 ºF), and Kalispell, 33.3 ºC (92 ºF). As in May, there were some daily low temperature records, despite the heat: for example, Meacham at -1.7 ºC (29 ºF), and Eugene with 1.1 ºC (34 ºF). Precipitation was governed by low pressure systems that tracked along the Canada-U.S. border, similar to May. They slowed down near the Rockies, and consequently abundant, northern-tier, precipitation occurred in that vicinity. Again, as in May, localized heavier precipitation helped to contribute to the overall monthly average, which accumulated 89 percent of normal at Columbia above Grand Coulee, 65 percent of normal at the Snake River above Ice Harbor, and 99 percent of normal above The Dalles.

July 2007 was one of the hottest months ever across the Pacific Northwest. Upper air high pressure peaked in strength during this month and engaged the region, especially east of the Cascades, in a prolonged heat wave. Inland locations were very dry with heat, but strong low pressure well offshore picked up some moisture from west Pacific typhoon, Man-Yi, and delivered heavy northwest Washington precipitation, while the rest of the region stayed much drier. The heat predominated this month, with regional departures a robust 3.3 ºC (+5.9 ºF). For some sites, this was the hottest month on record, for any month of the year: Boise, Missoula, Pocatello, Kalispell and Butte fell into this category. Record daily high temperatures were reached at Jackson, WY, 32.2 ºC (90 ºF), Walla Walla, 43.3 ºC (110 ºF), Lewiston, 42.2 ºC (108 ºF), Boise, 38.3 ºC (104 ºF), Missoula, 38.9 and 41.7 ºC (102 and 107 ºF), Spokane, 38.3 ºC (101 ºF), Klamath Falls, 36.7 ºC (98 ºF), Grangeville, 34.4 ºC (94 ºF), West Glacier 36.7 ºC (98 ºF), Stanley, 33.3 ºC (92 ºF), Priest Rapids, 41.1 ºC (106 ºF), Portland, 38.9 ºC (102 ºF) and Hoquiam, 37.2 ºC (99 ºF). These were just some of the records. In terms of precipitation, the western quarter of the region led the way: July 2007 precipitation was 39 percent of normal at Columbia above Grand Coulee, 44 percent of normal at the Snake River above Ice Harbor, and 46 percent of normal at Columbia above The Dalles. Daily precipitation records occurred, mainly across western Washington and northwest Oregon, as this was the region closest to the brief, mid-month interaction with subtropical moisture: Olympia, 0.9 cm (0.36”), Quillayute, 1.9 cm and 2.7 cm (0.73” and 1.06”) and Hoquiam with 2.5 cm (0.99”).

August 2007 cooled dramatically, back to normal, across most of the Columbia Basin, certainly with respect to July’s heat, and even relative to monthly normal temperatures. The warmest departures were over central and southern Idaho, across western Montana, and in southeast Oregon. The strong high pressure ridge that brought the July heat weakened in August, and allowed some weak cool fronts to transit the Basin. Some of these intercepted Southwest U.S. monsoonal moisture, and as such, were fairly wet for August. This activity largely took place over eastern Basins, close to the Continental Divide. Regional temperatures, meanwhile, average +0.4 °C (+0.8 °F), with both record high and low readings balancing out the average. Some of the daily record high temperatures included 35.6 °C (96 °F) in Portland, 28.3 °C (83 °F) at Astoria, 40.6 °C (105 °F) at Monument, Oregon, and 38.9 °C (102 °F) at Pendleton. Record low temperatures were hit at Meacham with 0 °C (32 °F), Stanley at -0.5 °C (31 °F), Boundary Dam, Washington, at 2.8 °C (37 °F), and 8.3 °C (47 °F) at Ephrata. As far as precipitation, we also saw some daily records: 1.2 cm (0.48”) at Challis, 1.4 cm (0.57”) at La Grande, 0.4 cm (0.16”) at Sea-Tac, and 1.5 cm (0.59”) at Prineville. August precipitation was 46 percent of normal at Columbia above Grand Coulee, 65 percent of normal at the Snake River above Ice Harbor, and 56 percent of normal at Columbia above The Dalles. While August displayed a transition away from July’s heat, September made a definitive turn toward fall. Chart 4 shows the accumulated precipitation in the larger subsection of the Columbia Basin.

September contained two significant stormy periods, reminiscent more of October: One early in the month, and a more aggressive pattern, late. The latter was part of a pattern shift that would carry into October. Regional temperatures for September were normal, at +0.06 °C (+0.1 °F), with some daily record warmth offsetting any cooling. Tillamook broke a record at 33.9 °C (93 °F), Olympia at 30.6 °C (87 °F), Challis at 35 °C (95 °F), and Hoquiam at 30.6 °C (88 °F). On the cold side, we saw two record lows at Meacham, -6.7 and -2.8 °C (23 °F and 27 °F), -7.2 °C (24 °F) at Klamath Falls and Challis, and -3.3 °C (26 °F) at Davenport, Washington. We had a slightly wetter than normal September, with precipitation at 102 percent of normal at Columbia above Coulee, 105 percent of normal at the Snake River above Ice Harbor, and 96 percent of normal at the Columbia River above The Dalles. Snow levels plummeted at the close of month, with snow already accumulating in the higher elevations of Cascades and Rockies.

Streamflow

The observed inflow and outflow hydrographs for the Canadian reservoirs for the period 1 July 2006 through 31 July 2007 are shown on Charts 5-7. Libby hydrographs are shown in Chart 8. Observed flow, as well as computed unregulated flow hydrographs for the same 13-month period for Kootenay Lake, Columbia River at Birchbank, Grand Coulee, and The Dalles are shown on Charts 9-12, respectively. Observed and unregulated flow hydrographs at The Dalles during the April-July 2007 period, including a plot of flows occurring if regulated only by the four Treaty reservoirs, are provided in Chart 13. Composite operating year unregulated streamflows in the Basin above The Dalles were below normal and approximately 13 percent below last year's slightly above average streamflows. Month average unregulated inflows during spring runoff were highest in May 2007 at 89 percent of average at The Dalles. The August 2006 through July 2007 runoff for The Dalles was 150.9 km^3 (122.4 Maf), 89 percent of the 1971-2000 average. The peak-unregulated discharge for the Columbia River at The Dalles was 13,011 m^3/s (459,500 cfs) on 7 June 2007. The 2006-07 average monthly unregulated streamflows and their percentage of the 1971-2000 average monthly flows are shown in the following tables (metric and English) for the Columbia River at Grand Coulee and The Dalles. These flows have been adjusted to exclude the effects of regulation provided by storage reservoirs.

Columbia River Streamflow

Time Period	Columbia River at Grand Coulee			Columbia River at The Dalles		
	Natural Flow		Percent of Average	Natural Flow		Percent of Average
	cfs	M^3/s		cfs	m^3/s	
Aug. 2006	66,040	1,870	63	91,110	2,580	66
Sep. 2006	45,074	1,276	73	69,535	1,969	74
Oct. 2006	27,687	784	62	58,431	1,655	71
Nov. 2006	66,696	1,889	137	130,452	3,694	138
Dec. 2006	40,889	1,158	95	89,631	2,538	91
Jan. 2007	36,938	1,046	88	84,688	2,398	83
Feb. 2007	37,404	1,059	79	96,426	2,730	79
Mar. 2007	107,758	3,051	173	196,202	5,556	126
Apr. 2007	128,234	3,631	105	214,654	6,078	90
May. 2007	258,845	7,330	97	387,202	10,964	89
Jun. 2007	300,686	8,514	97	383,477	10,859	82
Jul. 2007	187,114	5,298	98	222,492	6,300	87
Period Average	**108,908**	**3,084**	**97**	**168,948**	**4,784**	**89**

Seasonal Runoff Forecasts and Volumes

April-August 2007 runoff volumes, adjusted to exclude the effects of regulation of upstream storage, are listed below for eight locations in the Columbia Basin:

Location	Volume in km^3	Volume in kaf	Percent of 1971-2000 Average
Libby Reservoir Inflow	5.53	6,822	109
Duncan Reservoir Inflow	1.92	2,370	116
Mica Reservoir Inflow	10.50	12,956	115
Arrow Reservoir Inflow	20.11	24,803	108
Columbia River at Birchbank	35.21	43,437	107
Grand Coulee Reservoir Inflow	46.49	57,350	95
Snake River at Lower Granite	10.91	13,458	59
Columbia River at The Dalles	64.00	78,939	85

Forecasts of seasonal runoff volume, based on precipitation and snowpack data, were prepared in 2007 for a large number of locations in the Columbia River Basin and updated each month as the season advanced. Table 1 and Table 1M list the April through August inflow volume forecasts for Mica, Arrow, Duncan, and Libby projects as well as The Dalles. The actual runoff volume for these five locations is also given in Tables 1 and 1M. The forecasts for Mica, Arrow, and Duncan inflow were prepared by B.C. Hydro. The forecasts for the lower Columbia River inflows were prepared by the National Weather Service River Forecast Center, in cooperation with the U.S. Army Corps of Engineers, National Resource Conservation Service, Bureau of Reclamation, and B.C. Hydro. The Libby inflow forecast is prepared by the U.S. Army Corps of Engineers. The 1 April 2007 forecast of January through July runoff for the Columbia River above The Dalles was 123 km^3 (100.0 Maf) and the actual observed runoff was 118 km^3 (95.7 Maf).

The following tabulations summarize the monthly forecasts since 1970 of the January-July runoff for the Columbia River above The Dalles compared with the actual runoff volume in km^3 and Maf. The average January-July runoff volume for the 1971-2000 period is 132.4 km^3 (107.3 Maf).

Historic Seasonal Runoff Forecasts and Volumes

The Dalles, OR Volume Runoff Forecasts in km^3 (Jan-Jul)

Year	Jan	Feb	Mar	Apr	May	Jun	Actual
1970	101.8	122.7	115.2	116.3	117.3	--	118.0
1971	136.8	159.7	155.4	165.3	164.1	166.5	169.6
1972	135.8	157.9	171.1	180.2	180.1	180.1	187.1
1973	114.8	111.6	104.5	102.4	99.2	97.1	87.8
1974	151.7	172.7	180.1	183.8	181.3	181.3	192.8
1975	118.5	131.0	141.5	143.9	142.1	139.4	138.6
1976	139.4	143.1	149.3	153.0	153.0	153.0	151.5
1977	93.4	76.7	69.0	71.7	66.4	70.8	66.4
1978	148.0	140.6	133.2	124.6	128.3	129.5	130.3
1979	108.5	97.0	114.7	107.7	110.6	110.6	102.5
1980	109.7	109.7	109.7	110.6	111.8	120.5	118.2
1981	130.7	104.2	104.2	101.0	102.6	118.3	127.5
1982	135.7	148.0	155.4	160.4	161.6	157.9	160.2
1983	135.7	133.2	139.4	149.3	149.3	146.8	146.4
1984	139.4	127.0	120.4	125.8	132.0	140.6	146.9
1985	161.6	134.4	129.5	121.6	121.6	123.3	108.2
1986	119.4	115.1	127.0	130.7	133.2	133.2	133.6
1987	109.7	101.0	96.2	98.7	94.6	93.5	94.4
1988	97.7	92.3	89.7	91.3	93.9	92.5	90.9
1989	124.6	125.8	116.2	122.7	121.6	119.5	111.8
1990	106.7	124.6	128.3	118.4	118.4	122.7	123.0
1991	143.1	135.7	132.0	130.7	130.7	128.3	132.1
1992	114.2	109.9	103.0	87.8	87.8	83.6	86.8
1993	114.2	106.7	95.3	94.5	88.7	106.2	108.5
1994	98.3	94.1	96.3	90.3	93.1	94.2	92.5
1995	124.7	122.9	116.3	122.9	122.9	120.8	128.3
1996	143.1	150.5	160.4	155.4	165.3	173.9	171.8
1997	170.2	178.9	175.2	183.8	188.7	196.1	196.1
1998	106.6	117.4	113.1	112.0	109.9	124.6	128.3
1999	143.1	148.0	160.4	157.9	153.0	151.7	153.1
2000	129.5	130.7	129.5	129.5	129.5	125.8	120.9
2001	99.2	81.9	72.3	69.2	69.7	68.5	71.8
2002	123.3	125.8	120.0	118.9	121.1	123.3	128.0
2003	99.3	93.3	92.4	105.2	111.3	110.1	108.2
2004	127.0	123.3	114.6	103.9	98.1	105.0	102.3
2005	105.6	101.6	87.2	91.0	92.1	98.4	100.3
2006	125.0	137.0	132.0	132.0	136.0	137.0	141.0
2007	129.5	124.6	123.3	123.3	122.2	118.9	118.1

The Dalles, OR Volume Runoff Forecasts in Maf (Jan-Jul)

Year	Jan	Feb	Mar	Apr	May	Jun	Actual
1970	82.5	99.5	93.4	94.3	95.1	--	95.7
1971	110.9	129.5	126.0	134.0	133.0	135.0	137.5
1972	110.1	128.0	138.7	146.1	146.0	146.0	151.7
1973	93.1	90.5	84.7	83.0	80.4	78.7	71.2
1974	123.0	140.0	146.0	149.0	147.0	147.0	156.3
1975	96.1	106.2	114.7	116.7	115.2	113.0	112.4
1976	113.0	116.0	121.0	124.0	124.0	124.0	122.8
1977	75.7	62.2	55.9	58.1	53.8	57.4	53.8
1978	120.0	114.0	108.0	101.0	104.0	105.0	105.6
1979	88.0	78.6	93.0	87.3	89.7	89.7	83.1
1980	88.9	88.9	88.9	89.7	90.6	97.7	95.8
1981	106.0	84.5	84.5	81.9	83.2	95.9	103.4
1982	110.0	120.0	126.0	130.0	131.0	128.0	129.9
1983	110.0	108.0	113.0	121.0	121.0	119.0	118.7
1984	113.0	103.0	97.6	102.0	107.0	114.0	119.1
1985	131.0	109.0	105.0	98.6	98.6	100.0	87.7
1986	96.8	93.3	103.0	106.0	108.0	108.0	108.3
1987	88.9	81.9	78.0	80.0	76.7	75.8	76.5
1988	79.2	74.8	72.7	74.0	76.1	75.0	73.7
1989	101.0	102.0	94.2	99.5	98.6	96.9	90.6
1990	86.5	101.0	104.0	96.0	96.0	99.5	99.7
1991	116.0	110.0	107.0	106.0	106.0	104.0	107.1
1992	92.6	89.1	83.5	71.2	71.2	67.8	70.4
1993	92.6	86.5	77.3	76.6	71.9	86.1	88.0
1994	79.7	76.3	78.1	73.2	75.5	76.4	75.0
1995	101.1	99.6	94.3	99.6	99.6	97.9	104.0
1996	116.0	122.0	130.0	126.0	134.0	141.0	139.3
1997	138.0	145.0	142.0	149.0	153.0	159.0	159.0
1998	86.4	95.2	91.7	90.8	89.1	101.0	104.0
1999	116.0	120.0	130.0	128.0	124.0	123.0	124.1
2000	105.0	106.0	105.0	105.0	105.0	102.0	98.0
2001	80.4	66.4	58.6	56.1	56.5	55.5	58.2
2002	100.0	102.0	97.3	96.4	98.2	100.0	103.8
2003	80.5	75.6	74.9	85.3	90.2	89.3	87.7
2004	103.0	100.0	92.9	84.2	79.5	85.1	83.0
2005	85.6	82.4	70.7	73.8	74.7	79.8	81.3
2006	101.0	111.0	107.0	107.0	110	111	114.7
2007	105.0	101.0	100.0	100.0	99.1	96.4	95.7

V - RESERVOIR OPERATION

General

The 2006-07 operating year began with Canadian storage at 97.1 percent full. Libby reservoir (Lake Koocanusa) was near full elevation 748.85 m (2,456.87 ft), at the start of the operating year and releasing water to meet objectives for flow augmentation for listed salmon species in the U.S.

The 2006–07 operating year water supply in the Columbia Basin above Grand Coulee was average. However, the Snake River water supply was well below average. The streamflow in March was well above average because of several storms in the Basin. These storms were characterized by warm temperatures as well. The remainder of the snowmelt season through July was characterized by average runoff above Grand Coulee.

The CRTOC signed two operating agreements during the 2007 operating year. The first was to enhance fishery operations at Arrow early in the year. The second was to enhance non-power uses in both the U.S. and B.C. At the end of the 2006–07 operating year Canadian storage was nearly full at 99.2 percent on 31 July 2007.

Canadian Treaty Storage Operation

At the beginning of the 2006-07 operating year on 1 August 2006, actual Canadian Treaty storage (Canadian storage) was at 18.6 km^3 (15. Maf) or 97.1 percent full. It drafted to a minimum of 3.9 km^3 (3.1 Maf) on 25 April 2007. Canadian composite storage nearly refilled by 31 July 2007, by filling to 19.1 km3 (15.4 Maf) or 99.2 percent full. This was the result of record high snowpack at some stations in B.C. Molson Creek had record snowpack in early June, and East Creek matched its record in early May. Kinbasket Reservoir filled to elevation 754.3 m (2,474.8 ft) on 10 August 2007.

As specified in the DOP, the release of Canadian storage is made effective at the Canadian-U.S. border. Accordingly, releases from individual Canadian projects can vary from the release required by the DOP TSR plus supplemental operating agreements, so long as this variance does not impact the ability of the Canadian system to deliver the sum of CRT outflows from Arrow and Duncan reservoirs. Variances from the DOP storage operation are accumulated in respective Flex accounts. An overrun in an account occurs when actual project releases are greater (contents are lower) than those specified by the DOP.

Conversely, an underrun occurs when actual project releases are less (contents are higher) than those specified by the DOP. Flex accounts for Mica, Revelstoke, Arrow, and Duncan are balanced at any point in time to ensure that under/overruns do not impact the total CRT release required at the Canadian-U.S. border. The terms under/overrun are used in the description of Mica Reservoir operations below.

Mica Reservoir

As shown in Chart 5, Mica (Kinbasket) reservoir was at elevation 751.58 m (2,465.8 ft) on 31 July 2006. The reservoir continued to refill to reach a maximum elevation of 751.96 m (2,467.1 ft) on 12 September 2006, 2.41 m (7.9 ft) below full pool. As inflows continued to recede throughout the fall and winter period and outflows increased to meet winter load requirements, the reservoir drafted steadily, reaching 741.76 m (2,433.6 ft) on 31 December 2006. In anticipation of high runoff and to meet generation requirements, the reservoir continued to draft January through late April 2006 reaching a minimum elevation of 724.3 m (2,376.4 ft) on 27 April 2007, 2.7 m (8.9 ft) lower than the 2006 minimum level of 727.0 m (2,385.2 ft). Mica outflows from May through June 2007 were generally lower than normal. This reduction in outflows was made to maximize generation at the Peace River powerplants in order to minimize the risk of spill at Williston Reservoir (Peace River). This condition combined with above normal inflows in May through July resulted in continued filling of the reservoir to a maximum elevation of 754.3 m (2,474.8 ft) on 10 August 2007, 0.06 m (0.2 ft) from full.

Earlier in the summer, B.C. Hydro had applied for, and received, permission from the provincial Water Comptroller to surcharge the Kinbasket Reservoir by up to 0.3 m (1 ft) in 2007. However, due to a timely recession in inflows as well as accelerated work to return a generating unit into service early, the reservoir level was kept below full pool.

Inflow into Mica reservoir was 75 percent of normal over the period August 2006 to December 2006. Over this same period, Mica outflow varied from a monthly average low of about 462 m^3/s (16,300 cfs) in October to a monthly average high of about 821 m^3/s (29,000 cfs) in December. Inflow into Mica reservoir was about 119 percent of normal over the period January 2007 to July 2007. Outflow over this same period varied from a monthly average high of 985 m^3/s (34,800 cfs) in February to a monthly average low of 153 m^3/s (5,400 cfs) in June.

The Mica project had an underrun of 277.2 cubic hectometers (hm^3) (113.3 thousand second-foot-days (ksfd)) on 31 July 2006. The maximum underrun for the year was 3,347.4 hm^3 (1,368.2 ksfd) on 25 November 2006 and the minimum was -1,566.8 hm^3 (-640.4 ksfd) on

2 May 2007. The underrun as of 31 July 2007 was 1,084.8 hm^3 (443.4 ksfd).

The B.C. Hydro Non-Treaty Storage Agreement (NTSA) active storage account was at 2159.0 hm^3 (882.5 ksfd) on 31 July 2006 and 2,452.8 hm^3 (1,002.6 ksfd) on 31 July 2007. The corresponding U.S. NTSA account was at 1,261.8 hm^3 (515.8 ksfd) and 1,904.1 hm^3 (778.3 ksfd), respectively. The combined U.S. and Canada NTSA storage space as of 31 July 2007 was about 78 percent full. The NTSA terminated, with respect to release rights, on 30 June 2004. Under the NTSA Extended Provisions, active storage accounts must be refilled no later than 30 June 2011.

Revelstoke Reservoir

During the 2006-07 operating year, the Revelstoke project was operated as a run-of-river plant with the reservoir level maintained generally within 0.91 m (3.0 ft) of its normal full pool elevation of 573.02 m (1,880.0 ft). During the spring freshet, March through July, the reservoir operated as low as elevation 571.65 m (1,875.5 ft), or 1.37 m (4.5 ft) below full pool, to provide additional operational space to control high local inflows. Changes in Revelstoke storage levels did not affect CRT storage operations.

Arrow Reservoir

As shown in Chart 6, the Arrow reservoir was at elevation 438.97 m (1,440.2 ft) on 31 July 2006, 1.16 m (3.8 ft) below full pool. As inflows continued to recede throughout the fall and winter period and outflows increased to meet Treaty requirements, the reservoir drafted steadily reaching 431.47 m (1,415.6 ft) on 31 December 2006, near normal for this date. The reservoir reached its minimum level of the year at elevation 427.3 m (1,402 ft) on 4 March 2007. Reservoir releases were reduced during the March-April period due to storage transactions under the NTSA. Operations under the NTSA, Treaty flex operations combined with high precipitation amounts in March, resulted in the Arrow Lakes reservoir refilling about a month earlier than normal in March instead of April up to its Treaty flood control level (maximum possible level) in April and May. The reservoir reached a maximum elevation for the year of 438.6 m (1,439 ft) on 7 July 2007, 1.5 m (5 ft) from full pool.

Local inflow into Arrow reservoir was 64 percent of normal over the period August to December 2006. Arrow outflow varied from a monthly average low of approximately 586 m^3/s (20,700 cfs) in November to a monthly average high of 1,863 m^3/s (65,800 cfs) in August. Daily outflows in December reached a peak of 1,331 m^3/s (47,000 cfs) on 19 December before ramping down to about 1,133 m^3/s (40,000 cfs) by the end of the month, in preparation for the start of whitefish spawning. Local inflow into Arrow reservoir was 112 percent of normal over the period January to July 2007. Outflow over this same period varied from a monthly average high of 1,974 m^3/s (69,700 cfs) in July to a monthly average low of 614 m^3/s (21,700 cfs) in March. During the same period, a number of ramping tests were conducted when flows were dropped at various rates for a couple of hours per day to assess potential impact on fish.

As in past years, the Non-Power Uses agreement was negotiated with the U.S. in order to manage Arrow Lakes Reservoir outflows to protect whitefish and rainbow trout spawning and incubation downstream of the Hugh Keenleyside Dam. As a result, from 1 January 2007 to 19 January 2007, Arrow outflow was held on average 1,274 m^3/s (45,000 cfs) to maintain low river levels during the whitefish peak spawning period. This operation reduced the number of eggs being dewatered during the incubation and emergence period in February and March 2007. Arrow outflow, from February through March 2007, was held above 425 m^3/s (15,000 cfs) to help protect deposited eggs. These flow changes resulted in a Tier 2 protection for whitefish for the 2006-07 operating year. During April and May 2007, Arrow outflows were maintained at or above 425 m^3/s (15,000 cfs) to ensure successful rainbow trout spawning below Arrow, at water levels that could be maintained until hatch. Storage under this agreement, as well as other supplemental agreements helped to increase the Arrow Lakes Reservoir level during the January through August period.

The CRTOC also negotiated and signed several other supplemental operating agreements to improve reservoir and river operations in Canada and the U.S. during 2006-07:

- The Fall Storage Agreement, signed in October, allowed Arrow discharges to be reduced in October and early November, storing additional water in the Arrow Lakes Reservoir. The two countries shared power and fisheries benefits from the agreement.
- The 2007 Summer Storage Agreement (not Treaty) between B.C. Hydro and the BPA was signed in July. Under this mutually beneficial arrangement, a portion of the water that was to be released from Arrow Lakes Reservoir during July was delayed until August, thereby improving Arrow Reservoir levels for July and August. This agreement resulted in the level of the Arrow Lakes Reservoir being about 1.2 m (4 ft) higher at the end of July than it would have been without the agreement. The agreement did not infringe on the Treaty or the 1990 Non-Treaty Storage Agreement (1990) storage operations.
- The Arrow Flow Smoothing Agreement was signed by the Treaty entities in late July. This agreement allowed Arrow Treaty releases to be reshaped between mid-July and mid-

August. Canadian benefits were primarily higher Arrow levels and a smoother pattern of discharges downstream in the Columbia River from Hugh Keenleyside Dam to the U.S. border.

Duncan Reservoir

Operation of the Duncan reservoir during the 2006-07 operating year attempted to implement most of the operational constraints agreed upon in the draft Duncan Water Use Plan (WUP). As shown in Chart 7, the Duncan reservoir reached 1,891 ft in July 2006 and was maintained within about 0.3 m (1.0 ft) below full pool from mid-July through August as a flood buffer and to support recreation on the reservoir. The reservoir reached a maximum full pool elevation of 576.7 m, (1,892 ft) on 23 August 2006.

The project passed inflows until 1 September 2006 when the reservoir started to draft. Discharges were increased to about 198 m^3/s (7,000 cfs) across September to facilitate drafting of the reservoir prior to the start of the kokanee and whitefish spawning downstream of Duncan Dam. There were a number of ramping tests conducted during the month when flows were dropped at various rates from 7 to 3 kcfs for several hours per day to assess potential impact on fish. For the first 3 weeks of October discharges were reduced to maintain a 73 m^3/s (2,600 cfs) flow at the Duncan River below the Lardeau confluence (DRL) gauging station to facilitate spawning at lower flows to limit the risk of over-winter dewatering of redds. Discharges were increased in the last week of October to bring DRL to a maximum flow of 110 m^3/s (3,900 cfs) and maintained until the year's end. For the first 3 weeks of January 2007, Duncan discharge was kept fairly high near 283 m^3/s (10,000 cfs) to draft the Duncan reservoir and to help reduce Arrow flows in aid of whitefish spawning. B.C. Hydro requested a variance to the Duncan Flood Control Curve for 28 February 2007 from 551.0 m (1,807.7 ft) to 552.4 m (1,812.5 ft), which was subsequently approved by the Corps of Engineers. The additional storage on 28 February increased the ability to maintain a minimum river flow at DRL of 73 m^3/s (2,600 cfs) for incubation of fish eggs during the March-April period as agreed to under the Duncan WUP. Flows were reduced and held near 125 m^3/s (4,400 cfs) for the balance of January and February in order to target a flood control level of 552.4 m (1,812.5 ft) on 28 February 2007. Discharges in March through early May 2006 were adjusted as required to provide a minimum flow of 73 m^3/s (2,600 cfs) at the DRL and to empty the reservoir prior to the freshet. The reservoir drafted to a minimum elevation of 547.06 m (1,794.8 ft) on 7 May 1007, 0.19 m (0.6 ft) above empty. Reservoir discharge was reduced to the minimum of 3 m^3/s (100 cfs) on 1 June 2007 to initiate refill. Duncan reservoir continued to pass the minimum flows until early July when discharges were gradually increased to control the rate of refill and minimize flood levels downstream of the dam. The reservoir reached a maximum elevation of 576.70 m (1,892.06 ft), slightly above full pool on 21 July 2007. After the reservoir was drafted to approximately 576.38 m (1,891 ft), Duncan reservoir was operated to pass inflows through to mid-August, when discharges were gradually increased to target a reservoir elevation of 1,888 ft by the end of August. The observed seasonal water supply at Duncan for the February through September period was 108 percent of normal.

Libby Reservoir

Operation of Libby Dam and Lake Koocanusa is shown in Chart 8 of this document. Lake Koocanusa began July 2006 at elevation 748.85 m (2,456.87 ft), 0.64 m (2.13 ft) from full. Inflow to the reservoir was near 646 m^3/s (23,000 cfs) at the beginning of July and receded to as low as 168.6 m^3/s (6,000 cfs) by the end of August 2006. Outflow from Libby Dam was 4.78 m^3/s (17,000 cfs) at the beginning of July. The State of Montana submitted a System Operations Request (SOR) to the regional forum Technical Management Team (TMT) on 31 May 2006 requesting that Libby reservoir draft only 3.0 m (10 ft) from full to elevation 746.5 m (2,449 ft) on 31 August in accordance with the Northwest Power and Conservation Council's mainstem amendments.

The regional forum did not reach agreement to implement this SOR until late July when the issue was raised to the policy level Implementation Team (IT). The IT agreed to a compromise operation for Libby for the remainder of the summer. Rather than draft the full 6.1 m (20 ft) to elevation 743.4 m (2,439 ft) by 31 August, the outflow from the dam was reduced to full load on three units, about 393 m^3/s (14,000 cfs) on 25 July, and that outflow was maintained through August. Lake Koocanusa ended August at elevation 744.7 m (2,443.26 ft), 4.8 m (15.74 ft) from full.

During September the outflow from the dam was reduced to 252 m^3/s (9,000 cfs). The reservoir ended September at elevation 742.9 m (2,437.38 ft), 6.5 m (21.62 ft) from full. In early October, the outflow from the dam was reduced to 123.64 m^3/s (4,400 cfs), which is near minimum project outflow. The reduction from 252 m^3/s (9,000 cfs) to 123.64 m^3/s (4,400 cfs) was performed over 6 days, as the slow reduction of outflow followed the ramp rates appropriate for listed bull trout species. The ramp rates are described in the U.S. Fish and Wildlife Service 2006 Biological Opinion.

In Water Year 2007, the project was operated to strict VARQ and did not include flexibility or deviations to achieve other operational goals. Therefore, the likelihood of achieving reservoir refill, and consequently the volume available for summer fish flows, was reduced compared to recent years because of strict adherence to VARQ operating procedures.

Outflow from Libby Dam remained at 123.64 m^3/s (4,400 cfs) through October. In November, the outflow was increased to 247.28 m^3/s (8,800 cfs), and weekly load shaping was completed for power objectives. Outflow from the dam was generally higher during the week and slightly less on weekends. The average outflow from the dam in November was nearly 281 m^3/s (10,000 cfs). All outflow changes continued to follow the ramp rate restrictions described in the U.S. Fish and Wildlife Biological Opinion. Libby Reservoir ended November at elevation 741.4 m (2,432.46 ft).

In December the outflow from Libby Dam increased, and flow was shaped with more outflows during the week and less outflow on weekends. The average outflow in December was nearly 491.75 m^3/s (17,500 cfs). In early December, a water supply forecast for the Libby Basin for the April through August season was prepared. The forecast was 9.56 km^3 (7.75 Maf), 122 percent of average. Because the forecast was well in excess of 94 percent of average, the end of December flood control evaluation quantity was 2.5 km^3 (2 Maf), and Libby reservoir was operated to be at elevation 734.9 m (2,411 ft) at the end of December.

In January through April, the dam was operated to target each end of month flood control elevation to meet the objectives of the National Oceanographic and Atmospheric Administration (NOAA) Fisheries Biological Opinion. The January final water supply forecast was 8.58 km^3 (6.955 Maf), 110 percent of average. The resultant end of January VARQ flood control upper limit was 729.5 m (2,393.7 ft). The month of January was punctuated with a cold snap from 12 – 14 January. In response to regional power demand, Libby Dam increased outflow during this period to nearly full powerhouse outflow and released 618.2 m^3/s (22,000 cfs). The month average outflow was about 356.87 m^3/s (12,700 cfs) and the reservoir ended the month at elevation 729.6 m (2,393.87 ft). The February and March water supply forecasts did not change much. The February final water supply forecast was 8.12 km^3 (6.582 Maf), 104 percent of average and March was 8.04 km^3 (6.516 Maf), 103 percent of average. The 15 and 31 March flood control upper limits were elevation 730.1m (2,395.5 ft). Although Libby Dam began releasing minimum outflow of 112.4 m^3/s (4,000 cfs) on 10 February, the reservoir had filled to within one half foot of the flood control upper limit on 27 March, when outflow from the dam increased. This was in response to some slight increases in inflow to the reservoir in mid-to-late March caused by local rain events.

The April final water supply forecast had increased slightly to 8.45 km^3 (6.847 Maf), 108 percent of average. The resultant 15 and 30 April flood control upper limits were 725.0 m (2,378.7 ft). However the spring freshet had not been declared at Kootenay Lake downstream. As a result, Libby passed inflow until the freshet was declared on 17 April. Once the freshet was declared, the outflow from Libby Dam was increased to maximum powerhouse outflow of 702.5 m^3/s (25,000 cfs) to try to draft to elevation 725.0 m (2,378.7 ft), the end of April flood control target. The lowest elevation the reservoir reached was 727.3 m (2,386.1 ft) on 30 April. On 28 April, project outflows were increased to operate to VARQ flood control requirements. Generally the VARQ outflow from Libby Dam is to begin 10 days prior to the Initial Controlled Flow (ICF) being reached at The Dalles. Based on the 27 April streamflow forecast, the ICF at The Dalles would be reached on 5 May. This implies the VARQ outflow should have begun on 25 April. Since 25 April had already passed, the outflow from Libby Dam was changed to the VARQ outflow of 533 m^3/s (19,300 cfs) on 29 April, as soon as was possible. By 3 May, the VARQ outflow was recomputed to be 404 m^3/s (14,400 cfs), and the outflow from Libby Dam was reduced to that level.

Based on the May final water supply forecast of 8.62 km^3 (6.99 Maf), the sturgeon volume was in Tier 4, and the computed volume for release for sturgeon was 1.44 km^3 (1.17 Maf). The U.S. Fish and Wildlife Service requested this volume begin to be released when Kootenai River temperatures at Bonners Ferry reached 8°C, and Koocanusa Reservoir warmed such that 20,000-25,000 cfs could be released through the turbines without decreasing Kootenai River temperatures by more than 1.5°C. The initial increase in outflow began on 18 May. After 4 days, the outflow was increased again to full powerhouse outflow near 702 m^3/s (25,000 cfs). Maximum powerhouse outflow was maintained for 14 days when the outflow was reduced to 562 m^3/s (20,000 cfs) and to 421 m^3/s (15,000 cfs) on 7 June, when the reservoir was at elevation 739.1 m (2,424.79 ft), 10.43 m (34.21 ft) from full. The reservoir outflow remained at 421 m^3/s (15,000 cfs) until the sturgeon release volume of 1.44 km^3 (1.17 Maf) was exhausted on 23 June. Outflow remained near 421 m^3/s (15,000 cfs) until 3 July when outflow was increased to about 486 m^3/s (17,300 cfs). The project was drafted to elevation 743.4 m (2,439 ft), 6.1 m (20 ft) from full by 31 August. Lake Koocanusa reached its maximum elevation of 748.0 m (2,454.23 ft) on 21 July. Although the State of Montana had submitted an SOR to TMT on 12 June requesting steady outflow of 421 m^3/s (15,000 cfs) until 21 July, followed by a reduced outflow to 337 m^3/s (12,000 cfs) through August and into September to keep Lake Koocanusa more full through September, the regional forum reached consensus to implement the request. The Montana SOR was discussed numerous times at TMT and raised to the Implementation Team. Ultimately the Montana SOR was brought to the Regional Executive level on 17 July. At the Regional Executive meeting, the Corps decided to continue to draft Libby Reservoir 6.1 m (20 ft) from full by end of August 2007.

As inflow receded in late August, the outflow from Libby Dam was reduced slightly using the U.S. Fish and Wildlife ramp rates, such that the outflow was 252 m^3/s (9,000 cfs) by 1 September. The elevation of Libby Reservoir was 743.4 m (2,439.1 ft) on 31 August 2007. The outflow continued at 252 m^3/s (9,000 cfs) until 17 September when it was reduced to 163 m^3/s (6,000 cfs). The end of September elevation was 742.1 m (2,435.01 ft).

Kootenay Lake

As shown in Chart 9, the level of Kootenay Lake at Queens Bay was at elevation 531.76 m (1,744.6 ft) on 31 July 2006. As runoff receded across August, Kootenay Lake reservoir began to draft and discharges were adjusted to control reservoir levels slightly below the IJC limits. When the Kootenay Lake level measured at Nelson was drafted below the trigger elevation of 531.36 m (1,743.32 ft) on 3 August 2006, discharges were adjusted to keep the lake level at or below the control level until the end of August 2006. By 31 December 2006, Kootenay Lake was at an elevation of 531.24 m (1,742.9 ft), 0.74 m (2.4 ft) below the maximum IJC level.

The Kootenay Lake elevation was increased during the first half of January, and then drafted from mid-January to 11 March 2006 to remain below the IJC Order level and to meet generation requirements. On 11 March 2007, Kootenay Lake reached its minimum elevation for the year of 530.4 m (1,740.3 ft). Due to high local inflows, the level of Kootenay Lake then increased and exceeded the reference IJC Order level on 15 March. Discharges from the lake were then increased to maximum possible through Grohman Narrows (a hydraulic restriction on lake discharges) to comply with the IJC Order. The high precipitation in March resulted in 244 percent of normal inflows into Kootenay Lake. Despite running to maximum possible discharge (limited by Grohman Narrows), Kootenay Lake exceeded the reference IJC Order level (Kootenay Lake Board of Control) from 15 March 2007 until 17 April 2007 when the Kootenay Lake Board of Control declared the commencement of the spring rise for the regulation of

Kootenay Lake. Following the declaration of spring freshet, Kootenay Lake was operated in accordance to the IJC lowering formula.

Kootenay Lake discharge was increased in accordance with the IJC order for Kootenay Lake. Inflow peaked at 2,738 m^3/s (96,700 cfs) on 5 June 2007. Discharge from the lake peaked at 2081 m^3/s (73,500 cfs) on 7 June 2007. Kootenay Lake reached a peak elevation of 533.48m (1,750.27 ft) on 7 June 2007.

As runoff receded during June, Kootenay Lake reservoir began to draft and discharges were adjusted to control reservoir levels slightly below the IJC limits. When the Kootenay Lake level measured at Nelson was drafted below the trigger elevation of 531.36 m (1,743.32 ft) on 9 August 2006, discharges were adjusted to keep the lake level at or below the control level until the end of August.

VI - POWER AND FLOOD CONTROL ACCOMPLISHMENTS

General

During the period covered by this report, Duncan, Arrow, and Mica reservoirs were operated for power, flood control, and other benefits in accordance with the CRT and operating plans and agreements described in Section III. Consistent with all DOPs prepared since the installation of generation at Mica, the 2006-07 and 2007-08 DOPs were designed to achieve optimum power generation at-site in Canada and downstream in Canada and the U.S., in accordance with paragraph 7 of Annex A of the CRT.

Power operations for the whole of Canadian Storage and the Treaty Storage Regulation (TSR) are determined by the ORC, CRCs, Mica/Arrow project operating criteria, and nonpower constraints. The ORC calculation includes the VRCs which are dependent upon the water supply in any given water year and the VRC is updated each month with the development of a new water supply forecast. The monthly VRC calculations for Mica, Arrow and Duncan are shown in Tables 2 – 4 and 2M – 4M. The calculations for Libby VRCs are shown in Tables 5 and 5M. Libby VRCs are used in the preparation of the TSR.

During the period covered by this report, Libby operated for power during October through December 2006 as described in the LOP and 2003 CRT FCOP. Libby operated to Principal Component Methodology water supply and flood control draft in December 2006. The December forecast was 122 percent of average, and the recommended draft for Libby reservoir was 2.46 km^3 (2 Maf), to elevation 734.9 m (2,411 ft) on 31 December.

Libby operated to its VARQ (Variable Flow) flood control storage reservation diagram in the January through spring period. Lake Koocanusa was above the end of April flood control elevation because Libby Dam was passing inflow from mid-March through mid-April, while Kootenay Lake was above the IJC elevation. During the refill period from late April through June, Libby Dam operated in strict accordance with the VARQ Operating Procedures and released 1.44 km^3 (1.17 Maf) sturgeon flow augmentation. The reservoir filled to within 1.53 m (5 feet) of full in July 2007.

Flood Control

The 2007 water supply forecasts averaged below normal across the Columbia River Basin, while the upper Columbia Basin averaged above normal and the Snake River Basin averaged well below normal. The reservoir system, including the Columbia River Treaty projects, was required to draft for flood control in preparation for the spring freshet. Inflow forecasts and reservoir regulation modeling were done weekly throughout the winter and spring. Projects were operated according to the May 2003 FCOP. The unregulated peak flow at The Dalles, Oregon, shown on Chart 13, is estimated at 3,011 cubic meters per second (m^3/s) (459,500 cfs) on 7 June 2007, and a regulated peak flow of 8.02 m^3/s (283,200 cfs) occurred on 14 May 2007 as measured at the United States Geological Survey gage at The Dalles, Oregon. The unregulated peak stage at Vancouver, Washington, was calculated to be 4.83 m (15.8 ft) on 8 June 2007, and the highest observed stage was 2.77 meters (m) (9.1 ft) on 16 May 2007.

Chart 14 shows the relative filling of Arrow and Grand Coulee during the filling period and compares the regulation to guidelines provided in Chart 6 of the Columbia River Treaty Flood Control Operating Plan. Low runoff conditions lasting the prior year and slightly below normal runoff conditions within the operating year caused Mica to be drafted very deeply for power. There were no daily operations specified for Arrow, and the projects were able to meet both fish flow and flood control objectives.

In operating year 2006-07, the Canadian Entity had selected to operate Mica and Arrow to the flood control storage allocations of 4.4 km^3 (3.6 Maf) maximum draft at Arrow and 5.03 km^3 (4.08 Maf) maximum draft at Mica, as allowed under the 2003 FCOP. The AOP for 2006-07 is the first year this allocation was incorporated.

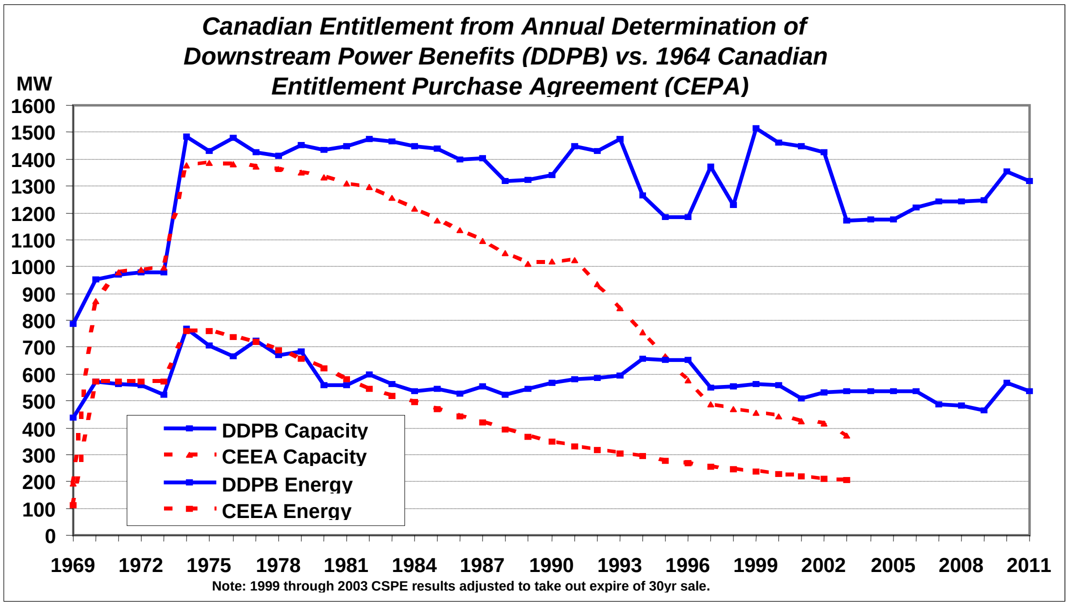
Computations of the Initial Controlled Flow (ICF) for system flood control operation were made in accordance with the Treaty Flood Control Operating Plan. For 2007, the computed ICF at The Dalles was 9,605.83 m^3/s (339,227 cfs) based on the January forecast; 9,260.88 m^3/s (327,045) based on the February forecast; 9,388.32 m^3/s (331,545 cfs) based on the March forecast; 8,920.80 m^3/s (315,035 cfs) based on the April forecast; and 8,765.57 m^3/s (309,553 cfs) based on the May forecast. As mentioned earlier, the observed peak flow at The Dalles was 8,019.33 m^3/s (283,200 cfs), and occurred on 14 May 2007. Table 6 shows data for the May ICF computation.

Canadian Entitlement and Downstream Power Benefits

From 1 August 2006 through 30 September 2007, the U.S. Entity delivered the Canadian Entitlement to downstream power benefits from the operation of Canadian Treaty storage to the Canadian Entity, at existing points of interconnection on the Canada-U.S. border. The amounts returned, not including transmission losses and scheduling adjustments, are listed in section III Operating Arrangements of this report, under the heading Canadian Entitlement.

No Entitlement power was disposed directly in the U.S. during 1 August 2006 through 30 September 2007, as allowed under specific provisions of the 29 March 1999 Agreement on "Disposals of the Canadian Entitlement within the U.S. for 4/1/98 through 9/15/2024."

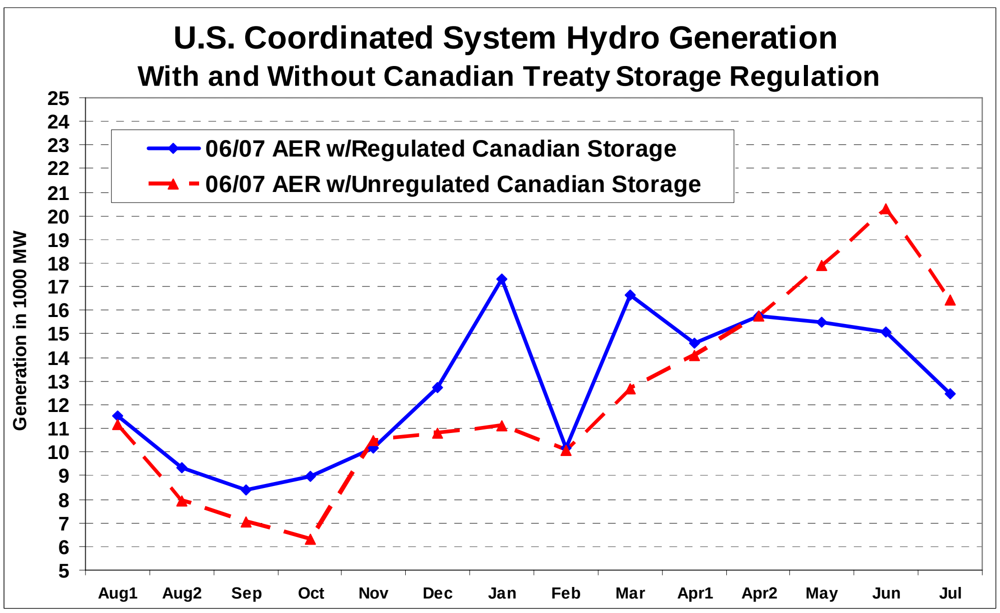
The following graph shows the historic Canadian Entitlement amounts from the DDPB studies as compared to the amount sold under the CEPA.



In accordance with the Canadian Entitlement Allocation Extension Agreement, dated April 1997, the non-federal downstream U.S. projects delivered to BPA their portion of the Canadian Entitlement, and the U.S. Entity granted permission for the non-federal downstream U.S. parties to make use of the U.S. one-half share of the CRT downstream power benefits (U.S. Entitlement).

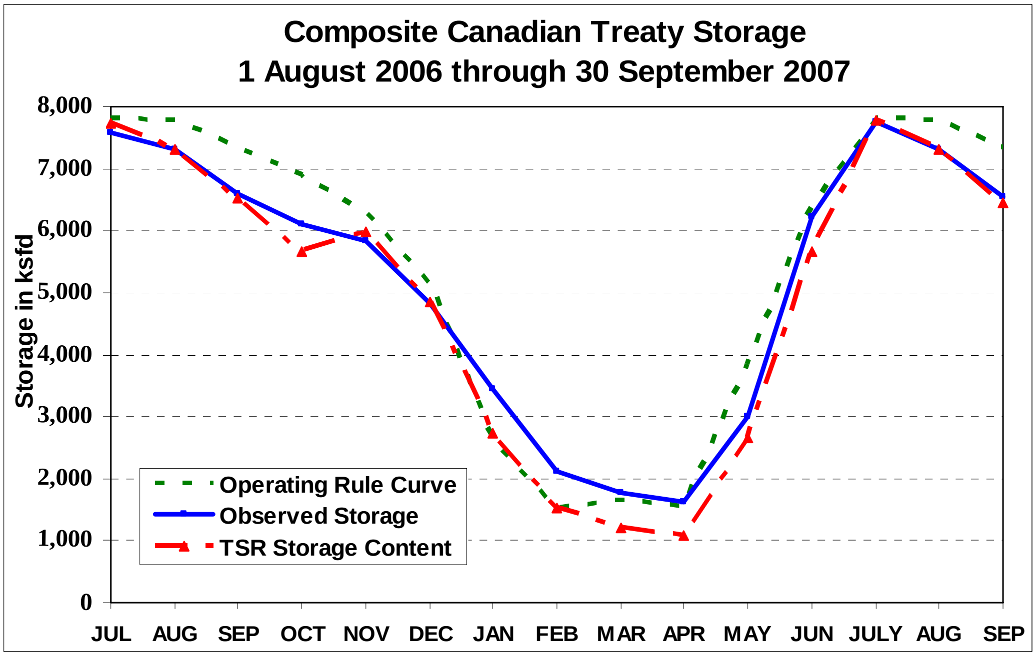
Power Generation and Other Accomplishments

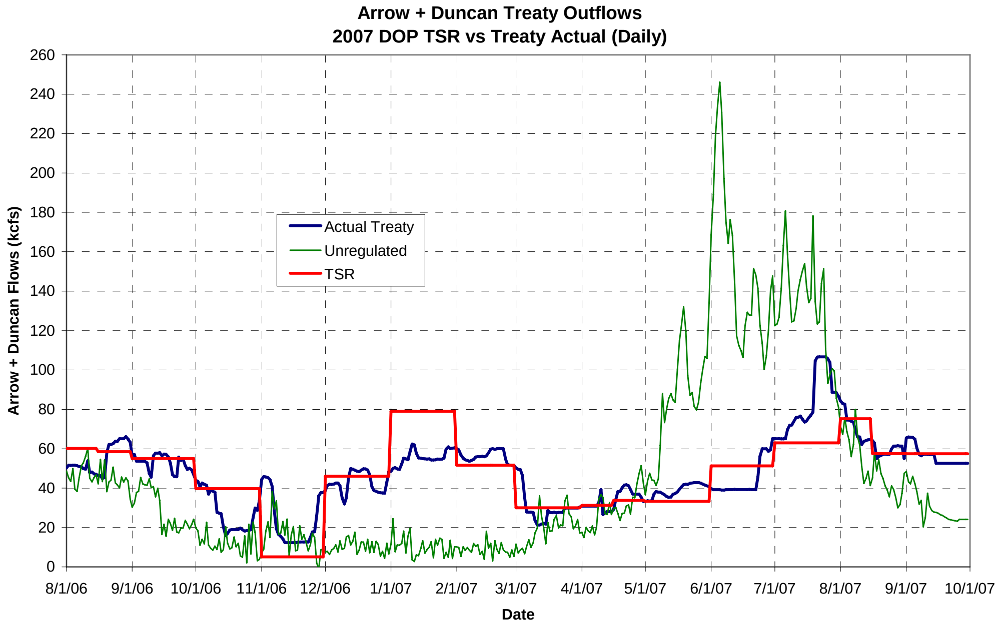
Actual U.S. power benefits from the operation of CRT storage are unknown and can only be roughly estimated. Treaty storage has such a large impact on the U.S. system operation that its absence would significantly affect operating procedures, non-power requirements, loads and resources, and market conditions, thus making any benefit analysis highly speculative. The following graph shows a rough estimate of the average monthly impact on downstream U.S. power generation during the 2006-07 operating year, with and without the regulation of Canadian storage, based on the Pacific Northwest Coordination Agreement (PNCA) Actual Energy Regulation (AER) that includes minimum flow and spill requirements for U.S. fishery objectives. The increase in average annual U.S. power generation due to the operation of Canadian storage, as measured by the PNCA AER, was 475 aMW. In addition to the increase in average annual U.S. power generation, the Treaty regulation also shifted the timing of generation from the low value freshet period, into higher value winter months. No quantification of this benefit is provided in this report.



Based on the authority from the 2006-07 and 2007-08 DOPs, the CRTOC completed supplemental operating agreements, described in section III Operating Arrangements, which resulted in power and other benefits both in Canada and the U.S. Other benefits include changes to streamflows below Arrow that enhanced trout and mountain whitefish spawning in Canada and the downstream migration of salmon in the U.S.

The following chart compares the actual operation of the composite Canadian Treaty Storage to the results of the DOP TSR study, and the subsequent graph shows the difference in Arrow plus Duncan regulated outflows in the DOP TSR and the actual daily CRT outflows due to these agreements. The daily unregulated streamflow is also shown for comparison purposes.





At the beginning of the 2006-07 operating year, the TSR storage level for Canadian storage was nearly full, and the actual Canadian Treaty storage was about 97 percent full.

In mid-August, under terms of the LCA, Canada released some LCA provisional draft which was returned in mid-September and early October. Beginning in mid-October and continuing into early November, the U.S. and Canada utilized a supplemental operating agreement to provisionally store above TSR levels by up to 1,519 hm^3 (621 ksfd). As has occurred several times in recent years, the TSR composite Treaty content changed significantly late in the month as a result of weather events. This occurred in November when the TSRs during the month increased the composite Treaty storage by about 3,278 hm^3 (1340 ksfd) resulting in a draft below TSR levels of about 318 hm^3 (130 ksfd). In November large changes in streamflows between the forecast used in the TSR available at the beginning of the month and the observed streamflows used in the final TSR for the month resulted in an operation that deviated from that intended relative to the TSR. The November operation targeted 1,277 hm^3 (522 ksfd) above the TSR content at the end of the month; however, the final month-end contents were about 318 hm^3 (130 ksfd) below the TSR.

In late November through much of December, Canada exercised their LCA provisional draft rights and drafted 274 hm^3 (112 ksfd) below TSR by 22 December 2006, with return of the provisional draft beginning in late December. During this period both the U.S. and Canada released a significant portion of their provisional storage. The net result was that at the end of the month Canadian Treaty storage was near TSR levels. Also in December, the U.S. and Canada reached agreement to shape flows from December through July to meet multiple system requirements and fishery needs.

Beginning in January and continuing into early February 2007, the U.S. stored water for flow augmentation in Mica resulting in an Arrow discharge reduction during the first three weeks of January from about 1,982 m^3/s (70 kcfs) down to about 1,274 m^3/s (45 kcfs) for whitefish spawning. The storage level above TSR reached about 1,725 hm^3 (705 ksfd) in January as storage was being managed to maintain smooth flow patterns for whitefish in January, to retain provisional storage, and to store April flow augmentation. In late March, Arrow actual outflows were reduced to about 425 m^3/s (15 kcfs) to balance the needs of Canadian trout spawning and whitefish. At the end of March with all LCA provisional draft returned and all provisional storage released, Canadian storage ended the month about 1,419 hm^3 (580 ksfd) above the TSR level.

During April through late June, Arrow outflows increased from about 425 m^3/s (15 kcfs) in an increasing pattern to balance the needs of B.C. trout spawning, U.S. fisheries needs, and system load requirements. Near the end of June, U.S. flow augmentation releases increased flow levels to about 1,982 m^3/s (70 kcfs). Flow augmentation releases continued through July resulting in relatively high Arrow outflows to help meet U.S. fisheries flows as inflows in the U.S. portion of the Basin receded. As a result of the high inflows experienced in the Canadian portion of the Basin as the projects approached Treaty full, an Entity agreement was reached to allow shaping of water from the 2007 Operating Year into the 2008 Operating Year. In addition, non-Treaty space was used during July and August under a letter agreement to smooth Arrow outflows. The sum of Canadian Treaty storage ended July below DOP TSR levels due to both Canada's use of provisional draft under the LCA and to inflow forecast uncertainties during the month. Treaty projects remained slightly below TSR levels through August and September as the Canadian Entity exercised provisional draft totaling 206 hm^3 (84 ksfd) under the LCA.

VI – TABLES

Table 1M (metric): Unregulated Runoff Volume Forecasts

Cubic Kilometers, 2007

Most Probable 1-April through 31-August Forecasts in km3

*** Most Probable 1-April through 30-September Forecasts in km3**

First of Month Forecast	*Duncan	*Arrow	*Mica	Libby	Columbia River at The Dalles, Oregon
January	2.75	29.76	15.13	8.01	113.21
February	2.88	33.23	17.24	7.90	109.37
March	2.84	31.74	16.12	7.82	109.49
April	3.00	34.22	17.48	8.01	105.65
May	3.05	33.85	17.36	8.13	104.41
June	3.06	33.73	17.48	8.63	100.94
Actual	3.14	32.66	17.22	8.46	97.89

Table 1: Unregulated Runoff Volume Forecasts

Million Acre-feet, 2007

Most Probable 1-April through 31-August Forecasts in Maf

*** Most Probable 1-April through 30-September Forecasts in Maf**

First of Month Forecast	*Duncan	*Arrow	*Mica	Libby	Columbia River at The Dalles, Oregon
January	2.22	24.00	12.20	6.46	91.30
February	2.32	26.80	13.90	6.37	88.20
March	2.29	25.60	13.00	6.31	88.30
April	2.42	27.60	14.10	6.46	85.20
May	2.46	27.30	14.00	6.56	84.20
June	2.47	27.20	14.10	6.96	81.40
Actual	2.53	26.34	13.89	6.82	78.94

Table 2M (metric): 2007 Variable Refill Curve

Mica Reservoir

		INITIAL	JAN 1	FEB 1	MAR 1	APR 1	MAY 1	JUN 1
PROBABLE DATE-31JULY INFLOW, km3			11.2	12.8	11.7	12.3	11.5	9.8
PROBABLE DATE-31JULY INFLOW, hm3	**		11196.1	12810.2	11703.8	12340.4	11533.3	9759.7
95% FORECAST ERROR FOR DATE, hm3			1803.1	1276.9	1113.9	1028.3	982.3	971.5
95% CONF.DATE-31JULY INFLOW, hm3	1/		9393.0	11533.3	10589.9	11312.1	10551.0	8788.2
ASSUMED FEB1-JUL31 INFLOW, % OF VOL.			100.0					
ASSUMED FEB1-JUL31 INFLOW, hm3	2/		9393.0					
FEB MINIMUM FLOW REQUIREMENT, m3/s	3/		85.0					
MIN FEB1-JUL31 OUTFLOW, hm3	4/		6410.1					
VRC JAN31 RESERVOIR CONTENT, hm3	5/		5651.6					
VRC JAN31 RESERVOIR CONTENT, METERS	6/		745.6					
JAN31 ORC, m	7/		741.5					
BASE ECC, m	8/	741.5						
LOWER LIMIT, m		732.0						
ASSUMED MAR1-JUL31 INFLOW, % OF VOL.			98.0	98.0				
ASSUMED MAR1-JUL31 INFLOW, hm3	2/		9202.9	11299.6				
MAR MINIMUM FLOW REQUIREMENT, m3/s	3/		85.0	85.0				
MIN MAR1-JUL31 OUTFLOW, hm3	4/		6204.6	6204.6				
VRC FEB28 RESERVOIR CONTENT, hm3	5/		5636.2	3539.5				
VRC FEB28 RESERVOIR CONTENT, METERS	6/		745.5	739.9				
FEB28 ORC, m	7/		741.4	740.0				
BASE ECC, m	8/	741.4						
LOWER LIMIT, m		730.0						
ASSUMED APR1-JUL31 INFLOW, % OF VOL.			95.6	95.6	97.6			
ASSUMED APR1-JUL31 INFLOW, hm3	2/		8980.2	11026.8	10334.2			
APR MINIMUM FLOW REQUIREMENT, m3/s	3/		85.0	85.0	85.0			
MIN APR1-JUL31 OUTFLOW, hm3	4/		5977.0	5977.0	5977.0			
VRC MAR31 RESERVOIR CONTENT, hm3	5/		5631.1	3584.8	4277.4			
VRC MAR31 RESERVOIR CONTENT, METERS	6/		745.5	740.1	742.0			
MAR31 ORC, m	7/		740.2	740.1	740.2			
BASE ECC, m	8/	741.4						
LOWER LIMIT, m		729.7						
ASSUMED MAY1-JUL31 INFLOW, % OF VOL.			90.7	90.7	92.5	94.8		
ASSUMED MAY1-JUL31 INFLOW, hm3	2/		8515.4	10455.5	9798.9	10726.1		
MAY MINIMUM FLOW REQUIREMENT, m3/s	3/		85.0	85.0	85.0	85.0		
MIN MAY1-JUL31 OUTFLOW, hm3	4/		5756.8	5756.8	5756.8	5756.8		
VRC APR30 RESERVOIR CONTENT, hm3	5/		5876.0	3935.8	4592.5	3665.3		
VRC APR30 RESERVOIR CONTENT, METERS	6/		746.1	741.1	742.8	740.4		
APR30 ORC, m	7/		740.2	740.2	740.2	740.2		
BASE ECC, m	8/	745.8						
ASSUMED JUN1-JUL31 INFLOW, % OF VOL.			71.7	71.7	73.2	75.0	79.1	
ASSUMED JUN1-JUL31 INFLOW, hm3	2/		6738.7	8273.9	7754.3	8488.2	8349.5	
JUN MINIMUM FLOW REQUIREMENT, m3/s	3/		962.8	962.8	962.8	962.8	962.8	
MIN JUN1-JUL31 OUTFLOW, hm3	4/		5529.3	5529.3	5529.3	5529.3	5529.3	
VRC MAY31 RESERVOIR CONTENT, hm3	5/		7425.2	5889.9	6409.6	5675.6	5814.3	
VRC MAY31 RESERVOIR CONTENT, METERS	6/		750.0	746.2	747.5	745.6	746.0	
MAY31 ORC, m	7/		744.7	744.7	744.7	744.7	744.7	
BASE ECC, m	8/	752.9						
ASSUMED JUL1-JUL31 INFLOW, % OF VOL.			36.3	36.3	37.0	48.0	40.0	50.6
ASSUMED JUL1-JUL31 INFLOW, hm3	2/		3409.1	4185.9	3922.9	4294.3	4224.1	4446.0
JUL MINIMUM FLOW REQUIREMENT, m3/s	3/		1132.7	1132.7	1132.7	1132.7	1132.7	1132.7
MIN JUL1-JUL31 OUTFLOW, hm3	4/		3033.8	3033.8	3033.8	3033.8	3033.8	3033.8
VRC JUN30 RESERVOIR CONTENT, hm3	5/		8259.2	7482.4	7745.4	7374.1	7444.3	7222.4
VRC JUN30 RESERVOIR CONTENT, METERS	6/		752.0	750.1	750.8	749.9	750.0	749.5
JUN30 ORC, m	7/		752.0	750.1	750.8	749.9	750.0	749.5
BASE ECC, m	8/	752.9						
JUL 31 ORC, m			2470.1	2470.1	2470.1	2470.1	2470.1	2470.1

** FORECAST START DATE IS 1FEB OR LATER. OBSERVED INFLOW FROM 1JAN-DATE IS SUBTRACTED.
1/ PROBABLE INFLOW MINUS (95% ERROR & JAN1-DATE INFLOW). 2/PRECEEDING LINE TIMES 1/.
3/ POWER DISCHARGE REQUIREMENTS. 4/ CUMULATIVE MINIMUM OUTFLOW FROM 3/,DATE TO JULY.
5/ FULL CONTENT (8634.54 hm3) PLUS 4/ MINUS /2. 6/ ELEV FROM 5/, INTERP FROM STORAGE CONTENT TABLE
7/ LOWER OF ELEV. FROM 6/ OR BASE ECC (INTIAL), NOT LESS THAN LOWER LIMIT, BUT NOT MORE THAN FLOOD CONTROL.

Table 2: 2007 Variable Refill Curve

Mica Reservoir

		INITIAL	JAN 1	FEB 1	MAR 1	APR 1	MAY 1	JUN 1
PROBABLE DATE-31JULY INFLOW, KAF			9076.9	10385.4	9488.5	10004.6	9350.2	7912.4
PROBABLE DATE-31JULY INFLOW, KSFD	**		4576.2	5235.9	4783.7	5043.9	4714.0	3989.1
95% FORECAST ERROR FOR DATE, KSFD			737.0	521.9	455.3	420.3	401.5	397.1
95% CONF.DATE-31JULY INFLOW, KSFD	1/		3839.2	4714.0	4328.4	4623.6	4312.5	3592.0
ASSUMED FEB1-JUL31 INFLOW, % OF VOL.			100.0					
ASSUMED FEB1-JUL31 INFLOW, KSFD	2/		3839.2					
FEB MINIMUM FLOW REQUIREMENT, CFS	3/		3000.0					
MIN FEB1-JUL31 OUTFLOW, KSFD	4/		2620.0					
VRC JAN31 RESERVOIR CONTENT, KSFD	5/		2310.0					
VRC JAN31 RESERVOIR CONTENT, FEET	6/		2446.1					
JAN31 ORC, FT	7/		2432.7					
BASE ECC, FT	8/	2432.7						
LOWER LIMIT, FT		2401.5						
ASSUMED MAR1-JUL31 INFLOW, % OF VOL.			98.0	98.0				
ASSUMED MAR1-JUL31 INFLOW, KSFD	2/		3761.5	4618.5				
MAR MINIMUM FLOW REQUIREMENT, CFS	3/		3000.0	3000.0				
MIN MAR1-JUL31 OUTFLOW, KSFD	4/		2536.0	2536.0				
VRC FEB28 RESERVOIR CONTENT, KSFD	5/		2303.7	1446.7				
VRC FEB28 RESERVOIR CONTENT, FEET	6/		2446.0	2427.4				
FEB28 ORC, FT	7/		2432.4	2427.8				
BASE ECC, FT	8/	2432.4						
LOWER LIMIT, FT		2395.0						
ASSUMED APR1-JUL31 INFLOW, % OF VOL.			95.6	95.6	97.6			
ASSUMED APR1-JUL31 INFLOW, KSFD	2/		3670.5	4507.0	4223.9			
APR MINIMUM FLOW REQUIREMENT, CFS	3/		3000.0	3000.0	3000.0			
MIN APR1-JUL31 OUTFLOW, KSFD	4/		2443.0	2443.0	2443.0			
VRC MAR31 RESERVOIR CONTENT, KSFD	5/		2301.6	1465.2	1748.3			
VRC MAR31 RESERVOIR CONTENT, FEET	6/		2445.9	2428.2	2434.4			
MAR31 ORC, FT	7/		2428.4	2428.3	2428.4			
BASE ECC, FT	8/	2432.5						
LOWER LIMIT, FT		2394.1						
ASSUMED MAY1-JUL31 INFLOW, % OF VOL.			90.7	90.7	92.5	94.8		
ASSUMED MAY1-JUL31 INFLOW, KSFD	2/		3480.5	4273.5	4005.1	4384.1		
MAY MINIMUM FLOW REQUIREMENT, CFS	3/		3000.0	3000.0	3000.0	3000.0		
MIN MAY1-JUL31 OUTFLOW, KSFD	4/		2353.0	2353.0	2353.0	2353.0		
VRC APR30 RESERVOIR CONTENT, KSFD	5/		2401.7	1608.7	1877.1	1498.1		
VRC APR30 RESERVOIR CONTENT, FEET	6/		2447.9	2431.4	2437.1	2429.0		
APR30 ORC, FT	7/		2428.4	2428.4	2428.4	2428.4		
BASE ECC, FT	8/	2446.9						
ASSUMED JUN1-JUL31 INFLOW, % OF VOL.			71.7	71.7	73.2	75.0	79.1	
ASSUMED JUN1-JUL31 INFLOW, KSFD	2/		2754.3	3381.8	3169.4	3469.4	3412.7	
JUN MINIMUM FLOW REQUIREMENT, CFS	3/		34000.0	34000.0	34000.0	34000.0	34000.0	
MIN JUN1-JUL31 OUTFLOW, KSFD	4/		2260.0	2260.0	2260.0	2260.0	2260.0	
VRC MAY31 RESERVOIR CONTENT, KSFD	5/		3034.9	2407.4	2619.8	2319.8	2376.5	
VRC MAY31 RESERVOIR CONTENT, FEET	6/		2460.6	2448.1	2452.4	2446.3	2447.4	
MAY31 ORC, FT	7/		2443.2	2443.2	2443.2	2443.2	2443.2	
BASE ECC, FT	8/	2470.0						
ASSUMED JUL1-JUL31 INFLOW, % OF VOL.			36.3	36.3	37.0	48.0	40.0	50.6
ASSUMED JUL1-JUL31 INFLOW, KSFD	2/		1393.4	1710.9	1603.4	1755.2	1726.5	1817.2
JUL MINIMUM FLOW REQUIREMENT, CFS	3/		40000.0	40000.0	40000.0	40000.0	40000.0	40000.0
MIN JUL1-JUL31 OUTFLOW, KSFD	4/		1240.0	1240.0	1240.0	1240.0	1240.0	1240.0
VRC JUN30 RESERVOIR CONTENT, KSFD	5/		3375.8	3058.3	3165.8	3014.0	3042.7	2952.0
VRC JUN30 RESERVOIR CONTENT, FEET	6/		2467.1	2461.0	2463.1	2460.2	2460.7	2458.9
JUN30 ORC, FT	7/		2467.2	2461.0	2463.1	2460.2	2460.7	2459.0
BASE ECC, FT	8/	2470.1						
JUL 31 ORC, FT			2470.1	2470.1	2470.1	2470.1	2470.1	2470.1

** FORECAST START DATE IS 1FEB OR LATER. OBSERVED INFLOW FROM 1JAN-DATE IS SUBTRACTED.
1/ PROBABLE INFLOW MINUS (95% ERROR & JAN1-DATE INFLOW). 2/PRECEEDING LINE TIMES 1/.
3/ POWER DISCHARGE REQUIREMENTS. 4/ CUMULATIVE MINIMUM OUTFLOW FROM 3/,DATE TO JULY.
5/ FULL CONTENT (3529.2 KSFD) PLUS 4/ MINUS /2. 6/ ELEV FROM 5/, INTERP FROM STORAGE CONTENT TABLE
7/ LOWER OF ELEV. FROM 6/ OR BASE ECC (INTIAL), NOT LESS THAN LOWER LIMIT, BUT NOT MORE THAN FLOOD CONTROL.
8/ HIGHER OF ARC OR CRC1 IN DOP

Table 3M (metric): 2007 Variable Refill Curve

Arrow Reservoir

		INITIAL	JAN 1 Total	FEB 1 Total	MAR 1 Total	APR 1 Total	MAY 1 Total	JUN 1 Total
PROBABLE DATE-31JULY INFLOW, km3			23.9	26.7	24.7	25.6	23.4	17.8
& IN hm3	**		23893.5	26700.2	24726.8	25620.1	23404.2	17799.5
95% FORECAST ERROR FOR DATE, IN hm3			3628.1	2680.3	2335.3	1981.5	1769.9	1662.5
95% CONF.DATE-31JULY INFLOW, hm3	1/		20265.4	24020.0	22391.5	23638.6	21634.3	16137.0
ASSUMED FEB1-JUL31 INFLOW, % OF VOL.			100.0					
ASSUMED FEB1-JUL31 INFLOW, hm3	2/		20265.4					
MIN FEB1-JUL31 OUTFLOW, hm3	3/		8930.1					
UPSTREAM DISCHARGE, hm3	4/		4551.4					
VRC JAN31 RESERVOIR CONTENT, hm3	5/		1973.9					
VRC JAN31 RESERVOIR CONTENT, METERS	6/		425.5					
JAN31 ORC, m	7/		425.5					
BASE ECC, m	8/	432.0						
LOWER LIMIT, m		421.8						
ASSUMED MAR1-JUL31 INFLOW, % OF VOL.			97.7	97.7				
ASSUMED MAR1-JUL31 INFLOW, hm3	2/		19801.3	23470.0				
MIN MAR1-JUL31 OUTFLOW, hm3	3/		8587.6	8587.6				
UPSTREAM DISCHARGE, hm3	4/		4579.5	5095.0				
VRC FEB28 RESERVOIR CONTENT, hm3	5/		2123.6	0.3				
VRC FEB28 RESERVOIR CONTENT, METERS	6/		425.8	420.0				
FEB28 ORC, m	7/		425.8	420.1				
BASE ECC, m	8/	432.2						
LOWER LIMIT, m		420.1						
ASSUMED APR1-JUL31 INFLOW, % OF VOL.			94.8	94.8	97.1			
ASSUMED APR1-JUL31 INFLOW, hm3	2/		19219.8	22780.5	21733.9			
MIN APR1-JUL31 OUTFLOW, hm3	3/		8208.3	8208.3	8208.3			
UPSTREAM DISCHARGE, hm3	4/		5032.7	5049.8	5032.7			
VRC MAR31 RESERVOIR CONTENT, hm3	5/		2779.1	44.6	265.0			
VRC MAR31 RESERVOIR CONTENT, METERS	6/		427.5	420.1	420.8			
MAR31 ORC, m	7/		427.5	420.1	420.8			
BASE ECC, m	8/	432.7						
ASSUMED MAY1-JUL31 INFLOW, % OF VOL.			88.0	88.0	90.1	92.8		
ASSUMED MAY1-JUL31 INFLOW, hm3	2/		17834.0	21137.9	20166.8	21934.3		
MIN MAY1-JUL31 OUTFLOW, hm3	3/		7841.4	7841.4	7841.4	7841.4		
UPSTREAM DISCHARGE, hm3	4/		5032.7	5032.7	5032.7	5032.7		
VRC APR30 RESERVOIR CONTENT, hm3	5/		3797.9	494.0	1465.0	47.4		
VRC APR30 RESERVOIR CONTENT, METERS	6/		429.9	421.5	424.2	420.1		
APR30 ORC, Fm	7/		429.9	421.5	424.2	420.1		
BASE ECC, m	8/	430.3						
ASSUMED JUN1-JUL31 INFLOW, % OF VOL			65.4	65.4	66.9	68.9	74.3	
ASSUMED JUN1-JUL31 INFLOW, hm3	2/		13244.7	15698.4	14977.1	16289.7	16067.1	
MIN JUN1-JUL31 OUTFLOW, hm3	3/		7462.1	7462.1	7462.1	7462.1	7462.1	
UPSTREAM DISCHARGE, hm3	4/		3321.7	3321.7	3321.7	3321.7	3321.7	
VRC MAY31 RESERVOIR CONTENT, hm3	5/		6297.1	3843.4	4564.6	3252.0	3474.7	
VRC MAY31 RESERVOIR CONTENT, METERS	6/		435.3	430.0	431.6	428.6	429.1	
MAY31 ORC, m	7/		434.4	430.0	431.6	428.6	429.1	
BASE ECC, m	8/	436.2						
ASSUMED JUL1-JUL31 INFLOW, % OF VOL.			30.6	30.6	31.3	32.3	34.8	46.8
ASSUMED JUL1-JUL31 INFLOW, hm3	2/		6200.2	7348.9	7011.2	7625.6	7521.3	7554.1
MIN JUL1-JUL31 OUTFLOW, hm3	3/		3792.2	3792.2	3792.2	3792.2	3792.2	3792.2
UPSTREAM DISCHARGE, hm3	4/		375.3	1152.1	889.1	1260.5	1190.3	1412.2
VRC JUN30 RESERVOIR CONTENT, hm3	5/		6818.8	6981.7	7022.4	7022.4	7059.0	7169.0
VRC JUN30 RESERVOIR CONTENT, METERS	6/		436.3	436.7	436.7	436.7	436.8	437.1
JUN30 ORC, m	7/		436.3	436.7	436.7	436.7	436.8	437.1
BASE ECC, m	8/	437.6						
JUL 31 ECC, m			1444.0	1444.0	1444.0	1444.0	1444.0	1444.0

** FORECAST START DATE IS 1FEB OR LATER. OBSERVED INFLOW FROM 1JAN-DATE IS SUBTRACTED.
1/ PROBABLE INFLOW MINUS (95% ERROR & JAN1-DATE INFLOW). 2/PRECEEDING LINE TIMES 1/.
3/ CUMMULATIVE MINIMUM OUTFLOW FROM DATE TO JULY, USING POWER DISCHARGE REQUIREMENTS
4/ UPSTREAM DISCHARGE REQUIREMENT. 5/ MAXIMUM(FULL CONTENT (8757.85 hm3) MINUS 2/ PLUS 3/ MINUS /4 OR LOWER LIMIT)
6/ ELEV. FROM 5/, INTERP. FROM STORAGE CONTENT TABLE
7/ LOWER OF ELEV. FROM 6/ OR BASE ECC (INTIAL), NOT LESS THAN LOWER LIMIT, BUT NOT MORE THAN FLOOD CONTROL.

Table 3: 2007 Variable Refill Curve

Arrow Reservoir

		INITIAL	JAN 1 Total	FEB 1 Total	MAR 1 Total	APR 1 Total	MAY 1 Total	JUN 1 Total
PROBABLE DATE-31JULY INFLOW, KAF			19370.9	21646.3	20046.4	20770.6	18974.2	14430.4
& IN KSFD	**		9766.0	10913.2	10106.6	10471.7	9566.0	7275.2
95% FORECAST ERROR FOR DATE, IN KSFD			1482.9	1095.5	954.5	809.9	723.4	679.5
95% CONF.DATE-31JULY INFLOW, KSFD	1/		8283.1	9817.7	9152.1	9661.8	8842.6	6595.7
ASSUMED FEB1-JUL31 INFLOW, % OF VOL.			100.0					
ASSUMED FEB1-JUL31 INFLOW, KSFD	2/		8283.1					
MIN FEB1-JUL31 OUTFLOW, KSFD	3/		3650.0					
UPSTREAM DISCHARGE, KSFD	4/		1860.3					
VRC JAN31 RESERVOIR CONTENT, KSFD	5/		806.8					
VRC JAN31 RESERVOIR CONTENT, FEET	6/		1395.9					
JAN31 ORC, FT	7/		1395.9					
BASE ECC, FT	8/	1417.4						
LOWER LIMIT, FT		1383.9						
ASSUMED MAR1-JUL31 INFLOW, % OF VOL.			97.7	97.7				
ASSUMED MAR1-JUL31 INFLOW, KSFD	2/		8093.4	9592.9				
MIN MAR1-JUL31 OUTFLOW, KSFD	3/		3510.0	3510.0				
UPSTREAM DISCHARGE, KSFD	4/		1871.8	2082.5				
VRC FEB28 RESERVOIR CONTENT, KSFD	5/		868.0	0.1				
VRC FEB28 RESERVOIR CONTENT, FEET	6/		1397.1	1377.9				
FEB28 ORC, FT	7/		1397.1	1378.4				
BASE ECC, FT	8/	1418.0						
LOWER LIMIT, FT		1378.4						
ASSUMED APR1-JUL31 INFLOW, % OF VOL.			94.8	94.8	97.1			
ASSUMED APR1-JUL31 INFLOW, KSFD	2/		7855.7	9311.1	8883.3			
MIN APR1-JUL31 OUTFLOW, KSFD	3/		3355.0	3355.0	3355.0			
UPSTREAM DISCHARGE, KSFD	4/		2057.0	2064.0	2057.0			
VRC MAR31 RESERVOIR CONTENT, KSFD	5/		1135.9	18.2	108.3			
VRC MAR31 RESERVOIR CONTENT, FEET	6/		1402.4	1378.4	1380.6			
MAR31 ORC, FT	7/		1402.4	1378.4	1380.6			
BASE ECC, FT	8/	1419.5						
ASSUMED MAY1-JUL31 INFLOW, % OF VOL.			88.0	88.0	90.1	92.8		
ASSUMED MAY1-JUL31 INFLOW, KSFD	2/		7289.3	8639.7	8242.8	8965.2		
MIN MAY1-JUL31 OUTFLOW, KSFD	3/		3205.0	3205.0	3205.0	3205.0		
UPSTREAM DISCHARGE, KSFD	4/		2057.0	2057.0	2057.0	2057.0		
VRC APR30 RESERVOIR CONTENT, KSFD	5/		1552.3	201.9	598.8	19.4		
VRC APR30 RESERVOIR CONTENT, FEET	6/		1410.3	1382.8	1391.6	1378.4		
APR30 ORC, FT	7/		1410.3	1382.8	1391.6	1378.4		
BASE ECC, FT	8/	1411.6						
ASSUMED JUN1-JUL31 INFLOW, % OF VOL			65.4	65.4	66.9	68.9	74.3	
ASSUMED JUN1-JUL31 INFLOW, KSFD	2/		5413.5	6416.4	6121.6	6658.1	6567.1	
MIN JUN1-JUL31 OUTFLOW, KSFD	3/		3050.0	3050.0	3050.0	3050.0	3050.0	
UPSTREAM DISCHARGE, KSFD	4/		1357.7	1357.7	1357.7	1357.7	1357.7	
VRC MAY31 RESERVOIR CONTENT, KSFD	5/		2573.8	1570.9	1865.7	1329.2	1420.2	
VRC MAY31 RESERVOIR CONTENT, FEET	6/		1428.0	1410.6	1415.9	1406.1	1407.8	
MAY31 ORC, FT	7/		1425.1	1410.6	1415.9	1406.1	1407.8	
BASE ECC, FT	8/	1431.0						
ASSUMED JUL1-JUL31 INFLOW, % OF VOL.			30.6	30.6	31.3	32.3	34.8	46.8
ASSUMED JUL1-JUL31 INFLOW, KSFD	2/		2534.2	3003.7	2865.7	3116.8	3074.2	3087.6
MIN JUL1-JUL31 OUTFLOW, KSFD	3/		1550.0	1550.0	1550.0	1550.0	1550.0	1550.0
UPSTREAM DISCHARGE, KSFD	4/		153.4	470.9	363.4	515.2	486.5	577.2
VRC JUN30 RESERVOIR CONTENT, KSFD	5/		2787.0	2853.6	2870.3	2870.3	2885.2	2930.2
VRC JUN30 RESERVOIR CONTENT, FEET	6/		1431.5	1432.6	1432.9	1432.9	1433.1	1433.9
JUN30 ORC, FT	7/		1431.5	1432.6	1432.9	1432.9	1433.1	1433.9
BASE ECC, FT	8/	1435.6						
JUL 31 ECC, FT			1444.0	1444.0	1444.0	1444.0	1444.0	1444.0

** FORECAST START DATE IS 1FEB OR LATER. OBSERVED INFLOW FROM 1JAN-DATE IS SUBTRACTED.
1/ PROBABLE INFLOW MINUS (95% ERROR & JAN1-DATE INFLOW). 2/PRECEEDING LINE TIMES 1/.
3/ CUMMULATIVE MINIMUM OUTFLOW FROM DATE TO JULY, USING POWER DISCHARGE REQUIREMENTS
4/ UPSTREAM DISCHARGE REQUIREMENT. 5/ MAXIMUM(FULL CONTENT (3579.6 KSFD) MINUS 2/ PLUS 3/ MINUS /4 OR LOWER LIMIT)
6/ ELEV. FROM 5/, INTERP. FROM STORAGE CONTENT TABLE
7/ LOWER OF ELEV. FROM 6/ OR BASE ECC (INTIAL), NOT LESS THAN LOWER LIMIT, BUT NOT MORE THAN FLOOD CONTROL.
8/ HIGHER OF THE ARC OR CRC1 IN DOP

Table 4M (metric): 2007 Variable Refill Curve

Duncan Reservoir

		INITIAL	JAN 1	FEB 1	MAR 1	APR 1	MAY 1	JUN 1
PROBABLE DATE-31JULY INFLOW, km3			2.2	2.3	2.2	2.2	2.1	1.7
& IN hm3	**		2212.9	2262.6	2183.6	2241.1	2123.6	1701.6
95% FORECAST ERROR FOR DATE, IN hm3			309.0	255.2	256.9	229.5	212.6	190.8
95% CONF.DATE-31JULY INFLOW, hm3	1/		1903.9	2007.4	1926.7	2011.6	1911.0	1511.0
ASSUMED FEB1-JUL31 INFLOW, % OF VOL.			100.0					
ASSUMED FEB1-JUL31 INFLOW, hm3	2/		1903.9					
FEB MINIMUM FLOW REQUIREMENT, m3/s	3/		2.8					
MIN FEB1-JUL31 OUTFLOW, hm3	4/		517.5					
VRC JAN31 RESERVOIR CONTENT, hm3	5/		340.3					
VRC JAN31 RESERVOIR CONTENT, METERS	6/		554.7					
JAN31 ORC, m	7/		554.7					
BASE ECC, m	8/	566.2						
LOWER LIMIT, m		553.2						
ASSUMED MAR1-JUL31 INFLOW, % OF VOL.			98.1	98.1				
ASSUMED MAR1-JUL31 INFLOW, hm3	2/		1867.0	1968.5				
MAR MINIMUM FLOW REQUIREMENT, m3/s	3/		2.8	2.8				
MIN MAR1-JUL31 OUTFLOW, hm3	4/		510.6	510.6				
VRC FEB28 RESERVOIR CONTENT, hm3	5/		370.4	268.9				
VRC FEB28 RESERVOIR CONTENT, METERS	6/		555.3	553.3				
FEB28 ORC, m	7/		551.0	551.0				
BASE ECC, m	8/	563.3						
LOWER LIMIT, m		549.7						
ASSUMED APR1-JUL31 INFLOW, % OF VOL.			95.7	95.7	97.6			
ASSUMED APR1-JUL31 INFLOW, hm3	2/		1822.2	1921.3	1880.5			
APR MINIMUM FLOW REQUIREMENT, m3/s	3/		2.8	2.8	2.8			
MIN APR1-JUL31 OUTFLOW, hm3	4/		503.0	503.0	503.0			
VRC MAR31 RESERVOIR CONTENT, hm3	5/		407.6	308.5	349.4			
VRC MAR31 RESERVOIR CONTENT, METERS	6/		556.0	554.1	554.9			
MAR31 ORC, m	7/		551.0	551.0	554.9			
BASE ECC, m	8/	558.4						
LOWER LIMIT, m		547.1						
ASSUMED MAY1-JUL31 INFLOW, % OF VOL.			89.8	89.8	91.6	93.8		
ASSUMED MAY1-JUL31 INFLOW, hm3	2/		1709.4	1802.2	1764.0	1887.1		
MAY MINIMUM FLOW REQUIREMENT, m3/s	3/		51.0	51.0	51.0	51.0		
MIN MAY1-JUL31 OUTFLOW, hm3	4/		495.7	495.7	495.7	495.7		
VRC APR30 RESERVOIR CONTENT, hm3	5/		513.1	420.3	458.5	335.4		
VRC APR30 RESERVOIR CONTENT, METERS	6/		557.9	556.1	556.9	554.6		
APR30 ORC, m	7/		551.0	551.0	555.8	551.0		
BASE ECC, m	8/	559.6						
ASSUMED JUN1-JUL31 INFLOW, % OF VOL.			67.6	67.6	68.9	70.6	75.3	
ASSUMED JUN1-JUL31 INFLOW, hm3	2/		1286.7	1356.6	1327.8	1420.5	1438.4	
JUN MINIMUM FLOW REQUIREMENT, m3/s	3/		56.6	56.6	56.6	56.6	56.6	
MIN JUN1-JUL31 OUTFLOW, hm3	4/		359.2	359.2	359.2	359.2	359.2	
VRC MAY31 RESERVOIR CONTENT, hm3	5/		799.3	729.3	758.2	665.5	647.6	
VRC MAY31 RESERVOIR CONTENT, METERS	6/		562.8	561.6	562.1	560.6	560.3	
MAY31 ORC, m	7/		562.8	561.6	562.1	560.6	560.3	
BASE ECC, m	8/	565.9						
ASSUMED JUL1-JUL31 INFLOW, % OF VOL.			32.6	32.6	33.2	34.0	36.3	48.2
ASSUMED JUL1-JUL31 INFLOW, hm3	2/		619.7	653.5	639.5	684.3	692.9	727.9
JUL MINIMUM FLOW REQUIREMENT, m3/s	3/		79.3	79.3	79.3	79.3	79.3	79.3
MIN JUL1-JUL31 OUTFLOW, hm3	4/		212.4	212.4	212.4	212.4	212.4	212.4
VRC JUN30 RESERVOIR CONTENT, hm3	5/		1319.5	1285.7	1299.6	1254.9	1246.3	1261.0
VRC JUN30 RESERVOIR CONTENT, METERS	6/		570.8	570.3	570.5	569.9	569.7	570.0
JUN30 ORC, m	7/		570.8	570.3	570.5	569.9	569.7	570.0
BASE ECC, m	8/	571.4						
JUL 31 ECC, m			576.7	576.7	576.7	576.7	576.7	576.7

** FORECAST START DATE IS 1FEB OR LATER. OBSERVED INFLOW FROM 1JAN-DATE IS SUBTRACTED.
1/ PROBABLE INFLOW MINUS (95% ERROR & JAN1-DATE INFLOW). 2/PRECEEDING LINE TIMES 1/.
3/ POWER DISCHARGE REQUIREMENTS. 4/ CUMULATIVE MINIMUM OUTFLOW FROM 3/,DATE TO JULY.
5/ FULL CONTENT (1726.81 hm3) PLUS 4/ MINUS /2. 6/ ELEV FROM 5/, INTERP FROM STORAGE CONTENT TABLE.
7/ LOWER OF ELEV. FROM 6/ OR BASE ECC (INTIAL), NOT LESS THAN LOWER LIMIT, BUT NOT MORE THAN FLOOD CONTROL.

Table 4: 2007 Variable Refill Curve

Duncan Reservoir

		INITIAL	JAN 1	FEB 1	MAR 1	APR 1	MAY 1	JUN 1
PROBABLE DATE-31JULY INFLOW, KAF			1794.1	1834.3	1770.3	1816.9	1721.7	1379.5
& IN KSFD	**		904.5	924.8	892.5	916.0	868.0	695.5
95% FORECAST ERROR FOR DATE, IN KSFD			126.3	104.3	105.0	93.8	86.9	78.0
95% CONF.DATE-31JULY INFLOW, KSFD	1/		778.2	820.5	787.5	822.2	781.1	617.6
ASSUMED FEB1-JUL31 INFLOW, % OF VOL.			100.0					
ASSUMED FEB1-JUL31 INFLOW, KSFD	2/		778.2					
FEB MINIMUM FLOW REQUIREMENT, CFS	3/		100.0					
MIN FEB1-JUL31 OUTFLOW, KSFD	4/		211.5					
VRC JAN31 RESERVOIR CONTENT, KSFD	5/		139.1					
VRC JAN31 RESERVOIR CONTENT, FEET	6/		1819.9					
JAN31 ORC, FT	7/		1819.9					
BASE ECC, FT	8/	1857.5						
LOWER LIMIT, FT		1814.9						
ASSUMED MAR1-JUL31 INFLOW, % OF VOL.			98.1	98.1				
ASSUMED MAR1-JUL31 INFLOW, KSFD	2/		763.1	804.6				
MAR MINIMUM FLOW REQUIREMENT, CFS	3/		100.0	100.0				
MIN MAR1-JUL31 OUTFLOW, KSFD	4/		208.7	208.7				
VRC FEB28 RESERVOIR CONTENT, KSFD	5/		151.4	109.9				
VRC FEB28 RESERVOIR CONTENT, FEET	6/		1821.8	1815.3				
FEB28 ORC, FT	7/		1807.8	1807.8				
BASE ECC, FT	8/	1848.0						
LOWER LIMIT, FT		1803.4						
ASSUMED APR1-JUL31 INFLOW, % OF VOL.			95.7	95.7	97.6			
ASSUMED APR1-JUL31 INFLOW, KSFD	2/		744.8	785.3	768.6			
APR MINIMUM FLOW REQUIREMENT, CFS	3/		100.0	100.0	100.0			
MIN APR1-JUL31 OUTFLOW, KSFD	4/		205.6	205.6	205.6			
VRC MAR31 RESERVOIR CONTENT, KSFD	5/		166.6	126.1	142.8			
VRC MAR31 RESERVOIR CONTENT, FEET	6/		1824.1	1817.9	1820.5			
MAR31 ORC, FT	7/		1807.8	1807.8	1820.5			
BASE ECC, FT	8/	1832.1						
LOWER LIMIT, FT		1795.1						
ASSUMED MAY1-JUL31 INFLOW, % OF VOL.			89.8	89.8	91.6	93.8		
ASSUMED MAY1-JUL31 INFLOW, KSFD	2/		698.7	736.6	721.0	771.3		
MAY MINIMUM FLOW REQUIREMENT, CFS	3/		1800.0	1800.0	1800.0	1800.0		
MIN MAY1-JUL31 OUTFLOW, KSFD	4/		202.6	202.6	202.6	202.6		
VRC APR30 RESERVOIR CONTENT, KSFD	5/		209.7	171.8	187.4	137.1		
VRC APR30 RESERVOIR CONTENT, FEET	6/		1830.4	1824.6	1827.2	1819.6		
APR30 ORC, FT	7/		1807.8	1807.8	1823.6	1807.8		
BASE ECC, FT	8/	1835.8						
ASSUMED JUN1-JUL31 INFLOW, % OF VOL.			67.6	67.6	68.9	70.6	75.3	
ASSUMED JUN1-JUL31 INFLOW, KSFD	2/		525.9	554.5	542.7	580.6	587.9	
JUN MINIMUM FLOW REQUIREMENT, CFS	3/		2000.0	2000.0	2000.0	2000.0	2000.0	
MIN JUN1-JUL31 OUTFLOW, KSFD	4/		146.8	146.8	146.8	146.8	146.8	
VRC MAY31 RESERVOIR CONTENT, KSFD	5/		326.7	298.1	309.9	272.0	264.7	
VRC MAY31 RESERVOIR CONTENT, FEET	6/		1846.4	1842.6	1844.2	1839.1	1838.1	
MAY31 ORC, FT	7/		1846.4	1842.6	1844.2	1839.1	1838.1	
BASE ECC, FT	8/	1856.5						
ASSUMED JUL1-JUL31 INFLOW, % OF VOL.			32.6	32.6	33.2	34.0	36.3	48.2
ASSUMED JUL1-JUL31 INFLOW, KSFD	2/		253.3	267.1	261.4	279.7	283.2	297.5
JUL MINIMUM FLOW REQUIREMENT, CFS	3/		2800.0	2800.0	2800.0	2800.0	2800.0	2800.0
MIN JUL1-JUL31 OUTFLOW, KSFD	4/		86.8	86.8	86.8	86.8	86.8	86.8
VRC JUN30 RESERVOIR CONTENT, KSFD	5/		539.3	525.5	531.2	512.9	509.4	515.4
VRC JUN30 RESERVOIR CONTENT, FEET	6/		1872.8	1871.2	1871.8	1869.7	1869.2	1870.0
JUN30 ORC, FT	7/		1872.8	1871.2	1871.8	1869.7	1869.2	1870.0
BASE ECC, FT	8/	1874.7						
JUL 31 ECC, FT			1892.0	1892.0	1892.0	1892.0	1892.0	1892.0

** FORECAST START DATE IS 1FEB OR LATER. OBSERVED INFLOW FROM 1JAN-DATE IS SUBTRACTED.
1/ PROBABLE INFLOW MINUS (95% ERROR & JAN1-DATE INFLOW). 2/PRECEEDING LINE TIMES 1/.
3/ POWER DISCHARGE REQUIREMENTS. 4/ CUMULATIVE MINIMUM OUTFLOW FROM 3/,DATE TO JULY.
5/ FULL CONTENT (705.8 KSFD) PLUS 4/ MINUS /2. 6/ ELEV FROM 5/, INTERP FROM STORAGE CONTENT TABLE.
7/ LOWER OF ELEV. FROM 6/ OR BASE ECC (INTIAL), NOT LESS THAN LOWER LIMIT, BUT NOT MORE THAN FLOOD CONTROL.
8/ HIGHER OF ARC OR CRC1 IN DOP

Table 5M (metric) - 2007 Variable Refill Curve

Libby Reservoir

		INITIAL	JAN 1	FEB 1	MAR 1	APR 1	MAY 1	JUN 1
PROBABLE DATE-31JULY INFLOW, km3			8.6	7.9	8.0	8.8	8.9	8.9
PROBABLE DATE-31JULY INFLOW, hm3			8553.1	7928.9	8046.1	8776.2	8936.7	8886.1
95% FORECAST ERROR FOR DATE, hm3			1593.7	1195.2	1118.8	1084.3	980.6	941.2
OBSERVED JAN1-DATE INFLOW, IN hm3			0.0	264.0	460.2	1085.6	1925.5	4433.2
95% CONF.DATE-31JULY INFLOW, hm3	1/		6959.4	6469.8	6467.1	6606.6	6030.6	3511.8
ASSUMED FEB1-JUL31 INFLOW, % OF VOL.			96.9					
ASSUMED FEB1-JUL31 INFLOW, hm3	2/		6743.6					
FEB MINIMUM FLOW REQUIREMENT, m3/s	3/		113.3					
MIN FEB1-JUL31 OUTFLOW, hm3	4/		2666.8					
VRC JAN31 RESERVOIR CONTENT, hm3	5/		2065.4					
VRC JAN31 RESERVOIR CONTENT, METERS	6/		721.8					
JAN31 ORC, m	7/		721.8					
BASE ECC, m	9/	734.1						
LOWER LIMIT, m		720.1						
ASSUMED MAR1-JUL31 INFLOW, % OF VOL.			94.1	97.1				
ASSUMED MAR1-JUL31 INFLOW, hm3	2/		6548.8	6282.1				
MAR MINIMUM FLOW REQUIREMENT, m3/s	3/		113.3	113.3				
MIN MAR1-JUL31 OUTFLOW, hm3	4/		2392.8	2392.8				
VRC FEB28 RESERVOIR CONTENT, hm3	5/		1986.1	2252.8				
VRC FEB28 RESERVOIR CONTENT, METERS	6/		721.1	723.5				
FEB28 ORC, m	7/		721.1	723.5				
BASE ECC, m	9/	733.2						
LOWER LIMIT, m		711.5						
ASSUMED APR1-JUL31 INFLOW, % OF VOL.			90.6	93.5	96.3			
ASSUMED APR1-JUL31 INFLOW, hm3	2/		6305.1	6049.2	6227.8			
APR MINIMUM FLOW REQUIREMENT, m3/s	3/		113.3	113.3	113.3			
MIN APR1-JUL31 OUTFLOW, hm3	4/		2089.4	2089.4	2089.4			
VRC MAR31 RESERVOIR CONTENT, hm3	5/		1926.5	2182.4	2003.8			
VRC MAR31 RESERVOIR CONTENT, METERS	6/		720.5	722.9	721.2			
MAR31 ORC, m	7/		720.5	722.9	721.2			
BASE ECC, m	9/	732.3						
LOWER LIMIT, m		699.9						
ASSUMED MAY1-JUL31 INFLOW, % OF VOL.			87.9	90.6	93.4	96.9		
ASSUMED MAY1-JUL31 INFLOW, hm3	2/		6117.3	5861.5	6040.4	6401.8		
MAY MINIMUM FLOW REQUIREMENT, m3/s	3/		113.3	113.3	113.3	113.3		
MIN MAY1-JUL31 OUTFLOW, hm3	4/		1942.6	1942.6	1942.6	1942.6		
VRC APR30 RESERVOIR CONTENT, hm3	5/		1967.6	2223.2	2044.4	1683.0		
VRC APR30 RESERVOIR CONTENT, METERS	6/		720.9	723.3	721.6	718.1		
APR30 ORC, m	7/		720.9	723.3	721.6	718.1		
BASE ECC, m	9/	731.9						
ASSUMED JUN1-JUL31 INFLOW, % OF VOL.			55.2	57.0	58.7	62.9	67.0	
ASSUMED JUN1-JUL31 INFLOW, hm3	2/		3841.7	3687.8	3796.1	4155.6	4040.6	
JUN MINIMUM FLOW REQUIREMENT, m3/s	3/		283.2	283.2	283.2	283.2	283.2	
MIN JUN1-JUL31 OUTFLOW, hm3	4/		1492.4	1492.4	1492.4	1492.4	1492.4	
VRC MAY31 RESERVOIR CONTENT, hm3	5/		3793.0	3946.9	3838.5	3479.1	3594.1	
VRC MAY31 RESERVOIR CONTENT, METERS	6/		735.6	736.7	735.9	733.5	734.3	
MAY31 ORC, m	7/		735.6	736.7	735.9	733.5	734.3	
BASE ECC, m	9/	739.3						
ASSUMED JUL1-JUL31 INFLOW, % OF VOL.			19.7	20.4	21.0	22.5	24.0	35.8
ASSUMED JUL1-JUL31 INFLOW, hm3	2/		1371.1	1319.7	1358.1	1486.6	1447.4	1257.3
JUL MINIMUM FLOW REQUIREMENT, m3/s	3/		283.2	283.2	283.2	283.2	283.2	283.2
MIN JUL1-JUL31 OUTFLOW, hm3	4/		758.4	758.4	758.4	758.4	758.4	758.4
VRC JUN30 RESERVOIR CONTENT, hm3	5/		5529.6	5580.7	5542.5	5414.1	5453.2	5643.3
VRC JUN30 RESERVOIR CONTENT, METERS	6/		746.2	746.5	746.2	745.5	745.7	746.8
JUN30 ORC, m	7/		746.2	746.5	746.2	745.5	745.7	746.8
BASE ECC, m	9/	749.5						
JUL 31 ORC, m			749.5	749.5	749.5	749.5	749.5	749.5
JAN1-JUL31 FORECAST,-EARLYBIRD, km3	8/		129.5	124.6	123.3	123.3	122.2	118.9

1/ PROBABLE INFLOW MINUS (95% ERROR & JAN1-DATE INFLOW) MINUS OBSERVED INFLOW. 2/PRECEEDING LINE TIMES 1/.
3/ POWER DISCHARGE REQUIREMENTS. 4/ CUMULATIVE MINIMUM OUTFLOW FROM 3/,DATE TO JULY.
5/ FULL CONTENT (2510.5 KSFD) PLUS 4/ MINUS /2. 6/ ELEV FROM 5/, INTERP FROM STORAGE CONTENT TABLE.A143
7/ LOWER OF ELEV. FROM 6/ OR BASE VRC DETERMINED PRIOR TO YEAR (INTIAL),BUT NOT LESS THAN LOWER LIMIT
8/ MEASURED AT THE DALLES USED TO CALCULATE THE POWER DISCHARGE REQUIREMENTS FOR 3/.
9/ HIGHER OF A

Table 5 - 2007 Variable Refill Curve

Libby Reservoir

		INITIAL	JAN 1	FEB 1	MAR 1	APR 1	MAY 1	JUN 1
PROBABLE DATE-31JULY INFLOW, KAF			6934	6428	6523	7115	7245	7204
PROBABLE DATE-31JULY INFLOW, KSFD			3495.9	3240.8	3288.7	3587.1	3652.7	3632
95% FORECAST ERROR FOR DATE, KSFD			651.4	488.5	457.3	443.2	400.8	384.7
OBSERVED JAN1-DATE INFLOW, IN KSFD			0	107.9	188.1	443.7	787	1812
95% CONF.DATE-31JULY INFLOW, KSFD	1/		2844.5	2644.4	2643.3	2700.3	2464.9	1435.4
ASSUMED FEB1-JUL31 INFLOW, % OF VOL.			96.9					
ASSUMED FEB1-JUL31 INFLOW, KSFD	2/		2756.3					
FEB MINIMUM FLOW REQUIREMENT, CFS	3/		4000					
MIN FEB1-JUL31 OUTFLOW, KSFD	4/		1090					
VRC JAN31 RESERVOIR CONTENT, KSFD	5/		844.2					
VRC JAN31 RESERVOIR CONTENT, FEET	6/		2368.2					
JAN31 ORC, FT	7/		2368.2					
BASE ECC, FT	9/	2408.5						
LOWER LIMIT, FT		2362.6						
ASSUMED MAR1-JUL31 INFLOW, % OF VOL.			94.1	97.1				
ASSUMED MAR1-JUL31 INFLOW, KSFD	2/		2676.7	2567.7				
MAR MINIMUM FLOW REQUIREMENT, CFS	3/		4000	4000				
MIN MAR1-JUL31 OUTFLOW, KSFD	4/		978	978				
VRC FEB28 RESERVOIR CONTENT, KSFD	5/		811.8	920.8				
VRC FEB28 RESERVOIR CONTENT, FEET	6/		2365.7	2373.8				
FEB28 ORC, FT	7/		2365.7	2373.8				
BASE ECC, FT	9/	2405.5						
LOWER LIMIT, FT		2334.3						
ASSUMED APR1-JUL31 INFLOW, % OF VOL.			90.6	93.5	96.3			
ASSUMED APR1-JUL31 INFLOW, KSFD	2/		2577.1	2472.5	2545.5			
APR MINIMUM FLOW REQUIREMENT, CFS	3/		4000	4000	4000			
MIN APR1-JUL31 OUTFLOW, KSFD	4/		854	854	854			
VRC MAR31 RESERVOIR CONTENT, KSFD	5/		787.4	892	819			
VRC MAR31 RESERVOIR CONTENT, FEET	6/		2363.8	2371.7	2366.2			
MAR31 ORC, FT	7/		2363.8	2371.7	2366.2			
BASE ECC, FT	9/	2402.5						
LOWER LIMIT, FT		2296.3						
ASSUMED MAY1-JUL31 INFLOW, % OF VOL.			87.9	90.6	93.4	96.9		
ASSUMED MAY1-JUL31 INFLOW, KSFD	2/		2500.32	2395.78	2468.89	2616.61		
MAY MINIMUM FLOW REQUIREMENT, CFS	3/		4000	4000	4000	4000		
MIN MAY1-JUL31 OUTFLOW, KSFD	4/		794	794	794	794		
VRC APR30 RESERVOIR CONTENT, KSFD	5/		804.2	908.7	835.6	687.9		
VRC APR30 RESERVOIR CONTENT, FEET	6/		2365.1	2372.9	2367.5	2355.9		
APR30 ORC, FT	7/		2365.1	2372.9	2367.5	2355.9		
BASE ECC, FT	9/	2401.2						
ASSUMED JUN1-JUL31 INFLOW, % OF VOL.			55.2	57	58.7	62.9	67	
ASSUMED JUN1-JUL31 INFLOW, KSFD	2/		1570.2	1507.3	1551.6	1698.5	1651.5	
JUN MINIMUM FLOW REQUIREMENT, CFS	3/		10000	10000	10000	10000	10000	
MIN JUN1-JUL31 OUTFLOW, KSFD	4/		610	610	610	610	610	
VRC MAY31 RESERVOIR CONTENT, KSFD	5/		1550.3	1613.2	1568.9	1422	1469	
VRC MAY31 RESERVOIR CONTENT, FEET	6/		2413.5	2416.9	2414.5	2406.4	2409.2	
MAY31 ORC, FT	7/		2413.5	2416.9	2414.5	2406.4	2409.2	
BASE ECC, FT	9/	2425.6						
ASSUMED JUL1-JUL31 INFLOW, % OF VOL.			19.7	20.4	21	22.5	24	35.8
ASSUMED JUL1-JUL31 INFLOW, KSFD	2/		560.4	539.4	555.1	607.6	591.6	513.9
JUL MINIMUM FLOW REQUIREMENT, CFS	3/		10000	10000	10000	10000	10000	10000
MIN JUL1-JUL31 OUTFLOW, KSFD	4/		310	310	310	310	310	310
VRC JUN30 RESERVOIR CONTENT, KSFD	5/		2260.1	2281	2265.4	2212.9	2228.9	2306.6
VRC JUN30 RESERVOIR CONTENT, FEET	6/		2448	2449	2448.3	2445.9	2446.6	2450.1
JUN30 ORC, FT	7/		2448	2449	2448.3	2445.9	2446.6	2450.1
BASE ECC, FT	9/	2459.0						
JUL 31 ORC, FT			2459	2459	2459	2459	2459	2459
JAN1-JUL31 FORECAST,-EARLYBIRD,MAF	8/		105	101	100	100	99.1	96.4

1/ PROBABLE INFLOW MINUS (95% ERROR & JAN1-DATE INFLOW) MINUS OBSERVED INFLOW. 2/PRECEEDING LINE TIMES 1/.
3/ POWER DISCHARGE REQUIREMENTS. 4/ CUMULATIVE MINIMUM OUTFLOW FROM 3/,DATE TO JULY.
5/ FULL CONTENT (2510.5 KSFD) PLUS 4/ MINUS /2. 6/ ELEV FROM 5/, INTERP FROM STORAGE CONTENT TABLE.A143
7/ LOWER OF ELEV. FROM 6/ OR BASE VRC DETERMINED PRIOR TO YEAR (INTIAL),BUT NOT LESS THAN LOWER LIMIT
8/ MEASURED AT THE DALLES USED TO CALCULATE THE POWER DISCHARGE REQUIREMENTS FOR 3/.
9/ HIGHER OF ARC OR CRC1 IN DOP

Table 6 : Computation of Initial Controlled Flow

Columbia River at The Dalles, OR

Metric and English Units, 1 May 2007

Upstream Storage Corrections in km^3 and Maf	Metric (km^3)		English (Maf)	
Mica	9.282		7.525	
Arrow	4.441		3.600	
Duncan	1.567		1.270	
Libby	3.464		2.808	
Hungry Horse	0.617		0.500	
Flathead Lake	0.617		0.500	
Noxon Rapids	0.000		0.000	
Pend Oreille Lake	0.617		0.500	
Grand Coulee	3.601		2.919	
Brownlee	0.097		0.079	
Dworshak	0.571		0.463	
John Day	0.195		0.158	
Total Upstream Storage Corrections	25.067		20.322	
1-May Forecast of May – August Unregulated Runoff Volume		88.317		71.600
Less Estimated Depletions		- 2.061		- 1.671
Less Total Upstream Storage Corrections		- 25.067		- 20.322
Forecast of Adjusted Residual Runoff Volume		61.189		49.607
Computed Initial Controlled Flow from Chart 1 of the Flood Control Operating Plan, km^3/s and kcfs		94.352		310

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VII - CHARTS

Chart 1: Pacific Northwest Monthly Temperature Departures

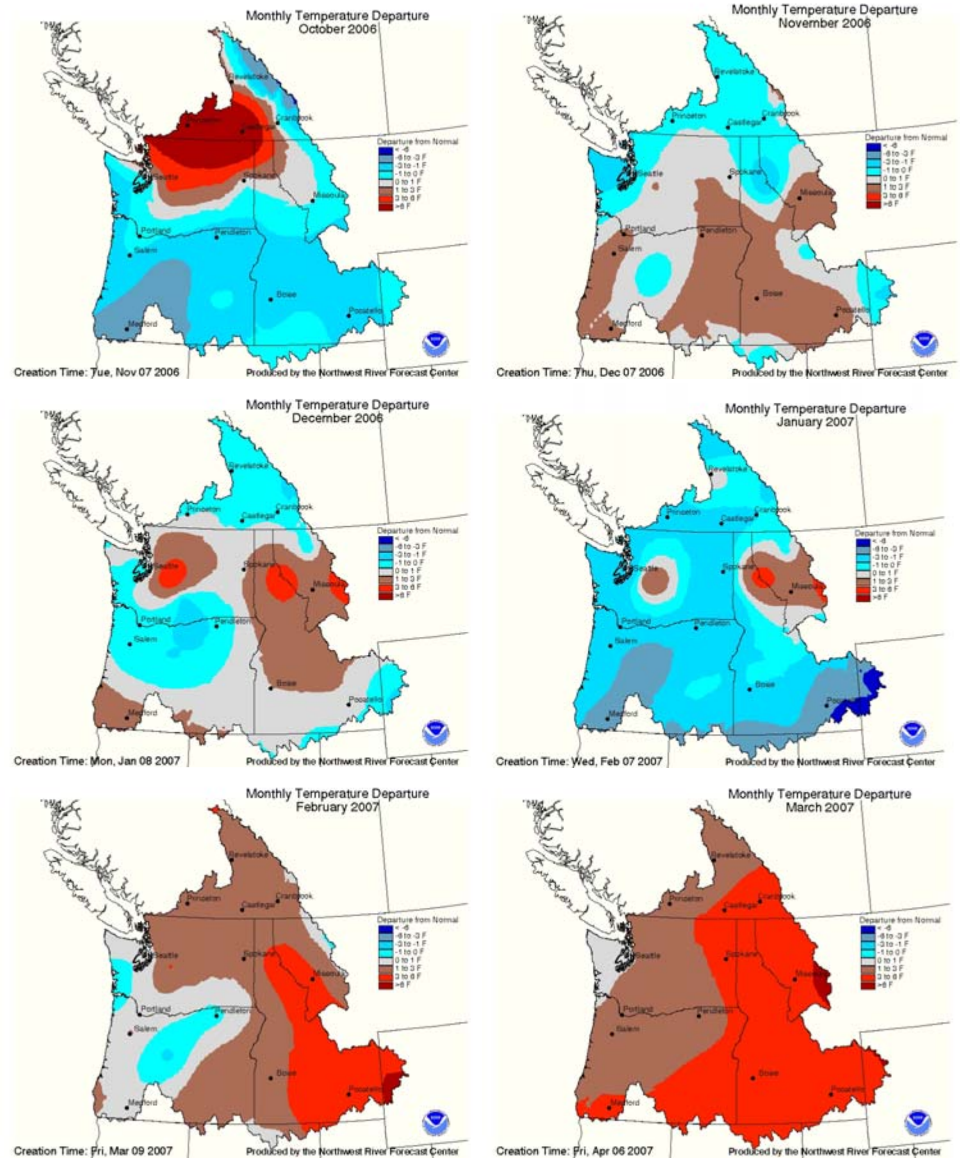

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Table 6: Computation of Initial Controlled Flow¶
Columbia River at The Dalles, OR¶
English Units, 1 May 2007¶
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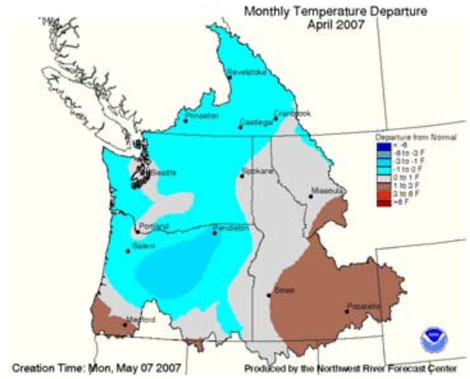
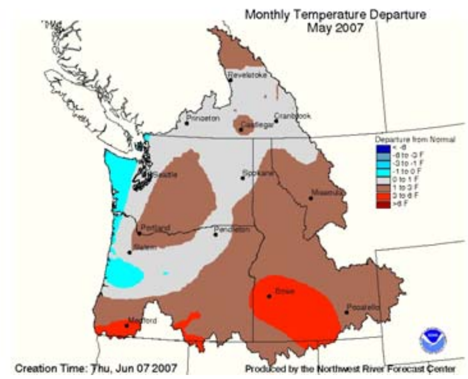
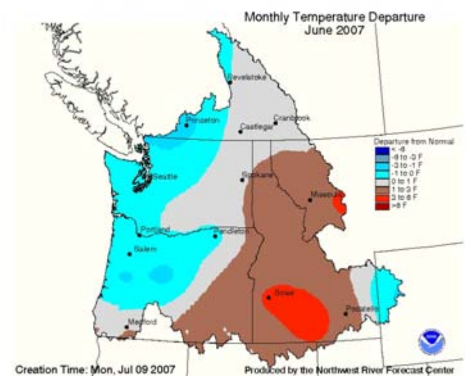
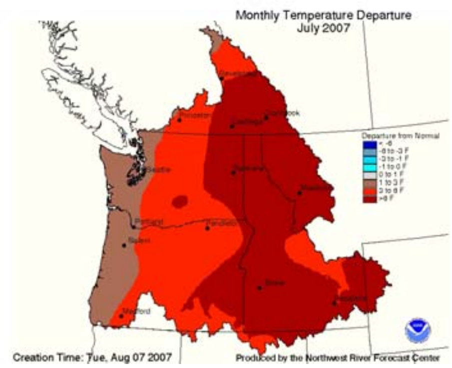
Upstream Storage Corrections, Ma ... [1]

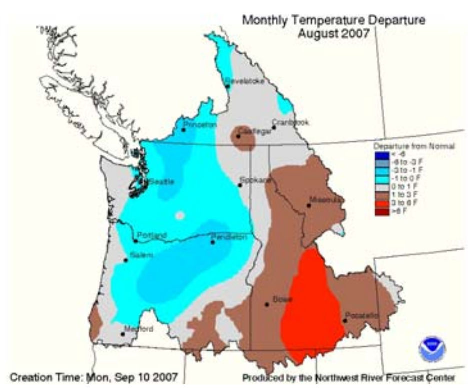
Chart 1: Pacific Northwest Monthly Temperature Departures (continued)











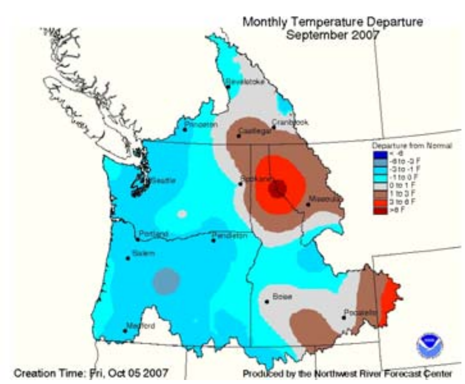


Chart 2: Seasonal Precipitation

Columbia River Basin

October 2006 – September 2007

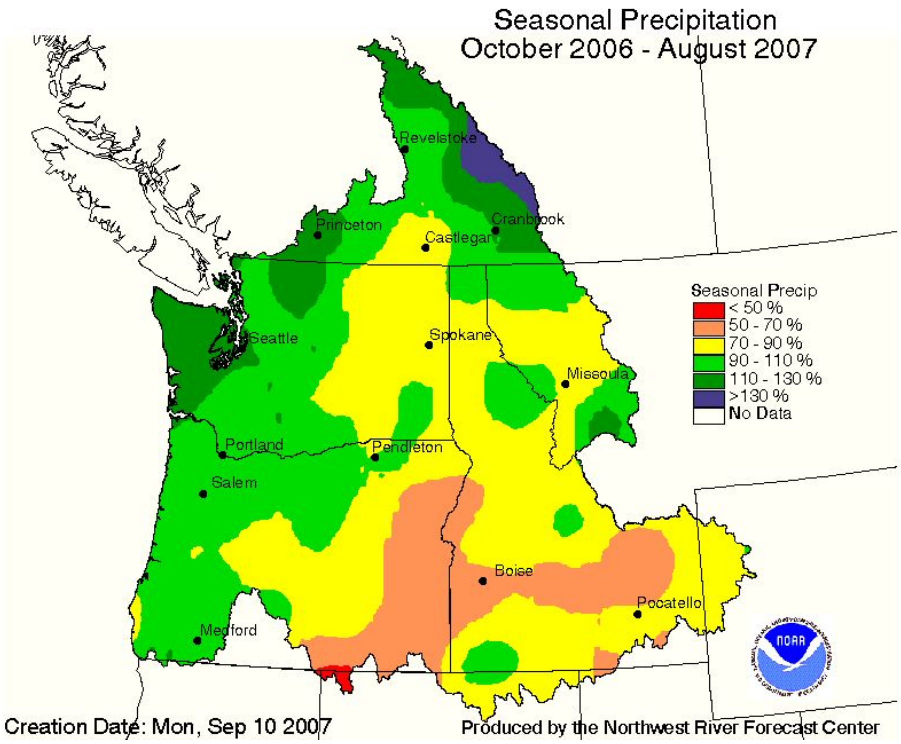
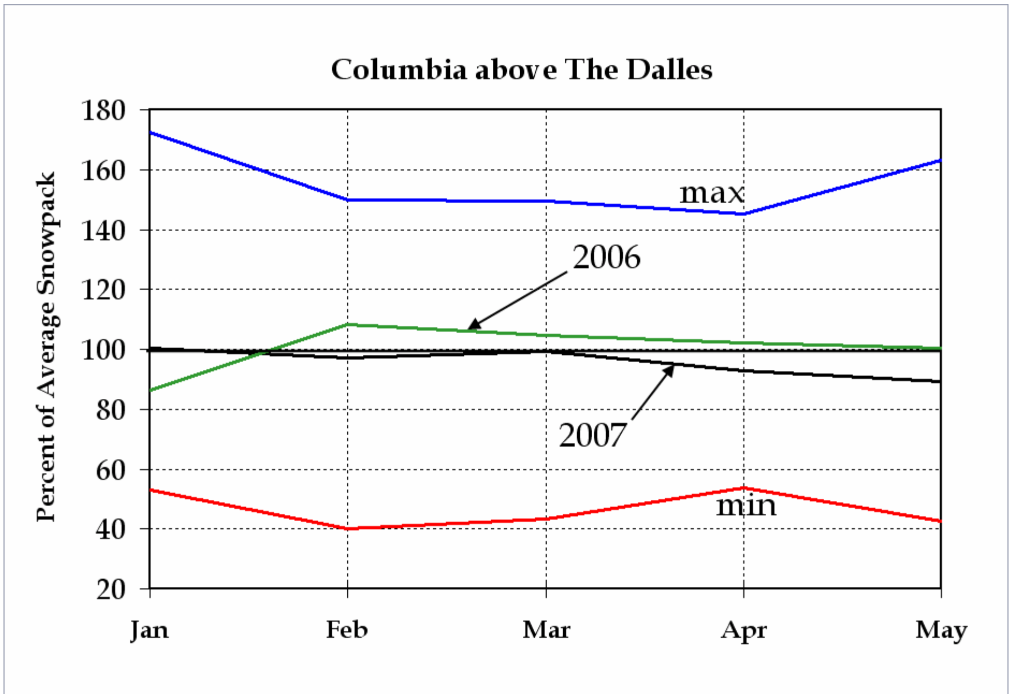


Chart 3: Columbia Basin Snowpack



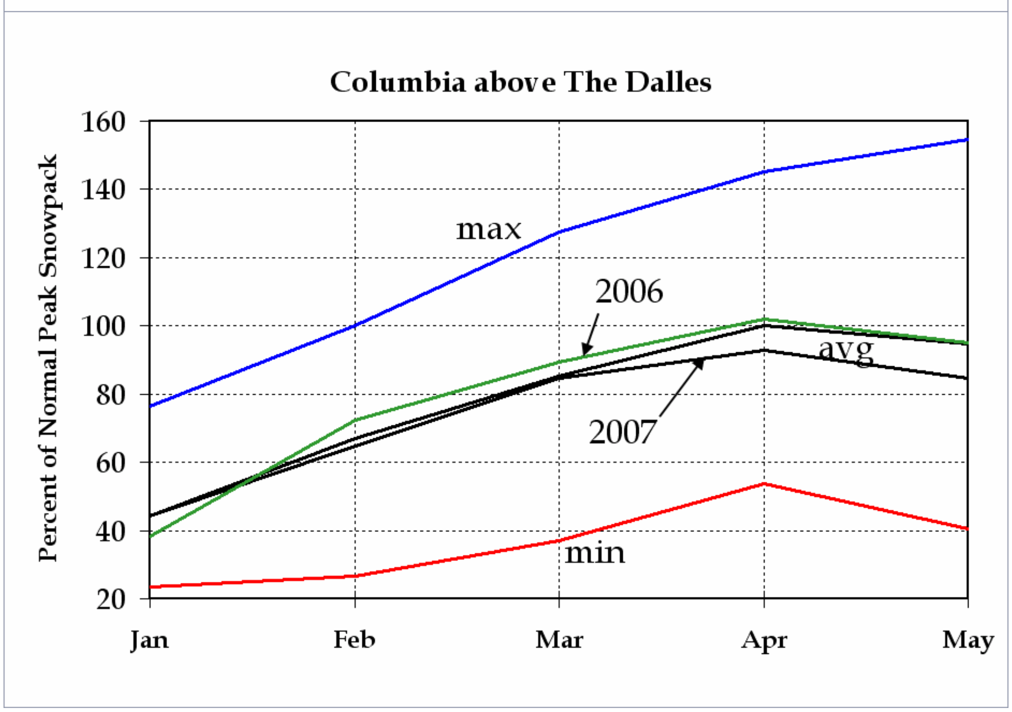


Chart 4: Accumulated Precipitation for WY 2007

At Primary Columbia River Basins

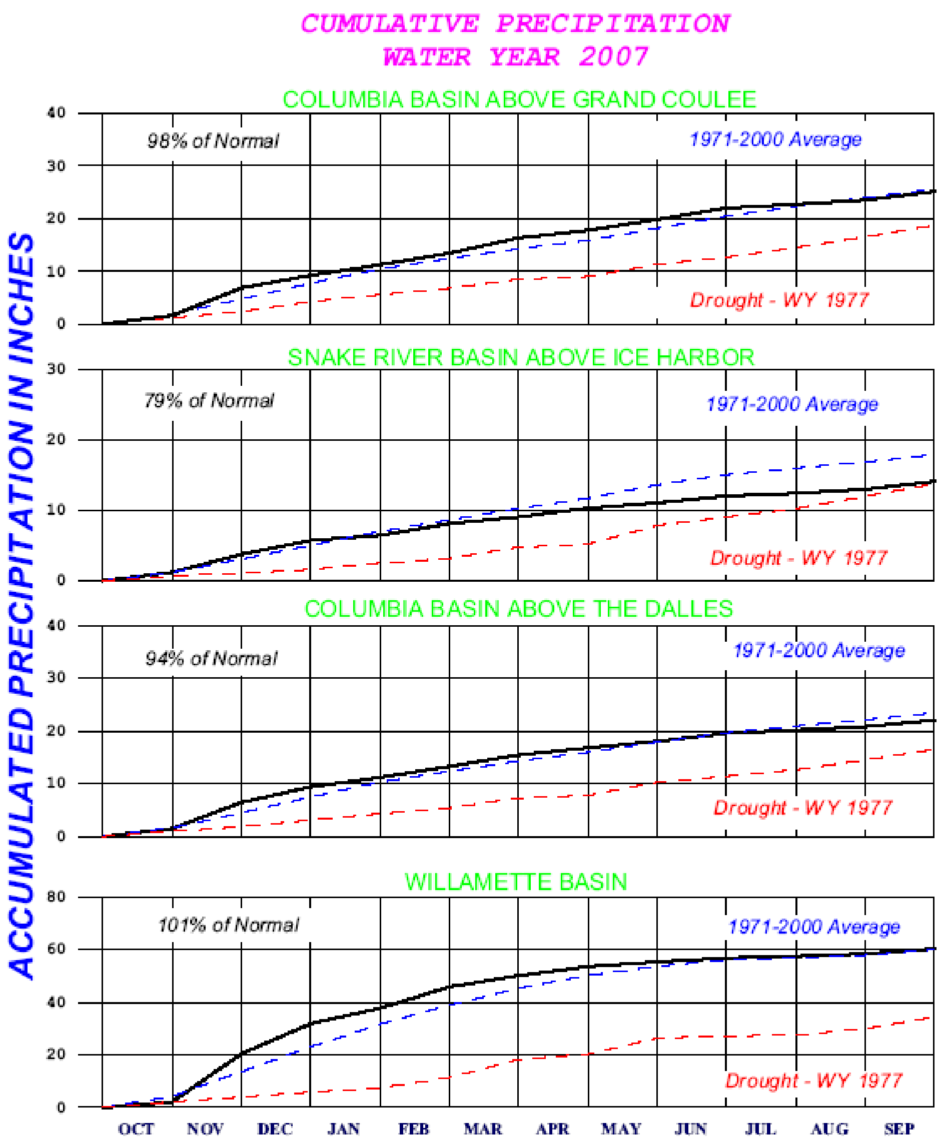
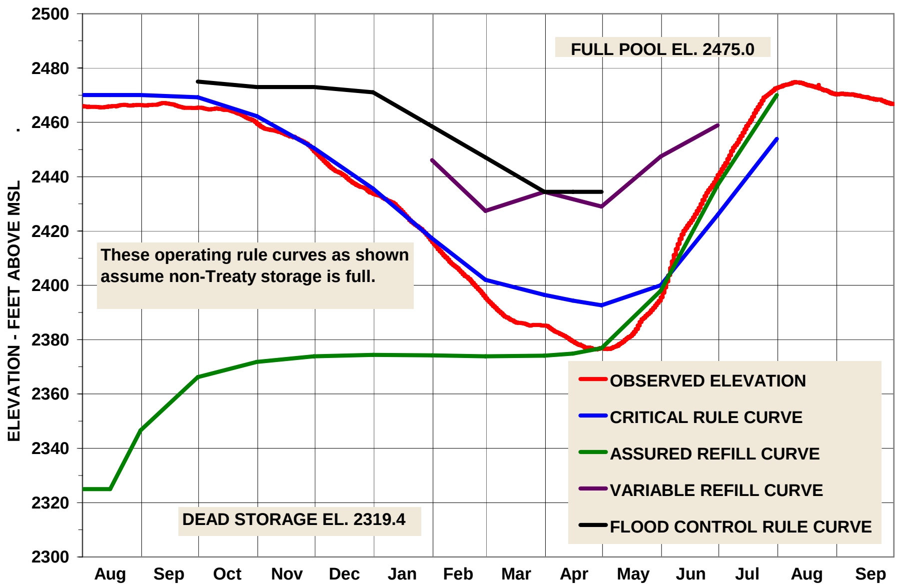


Chart 5: Regulation of Mica

1 August 2006 – September 2007



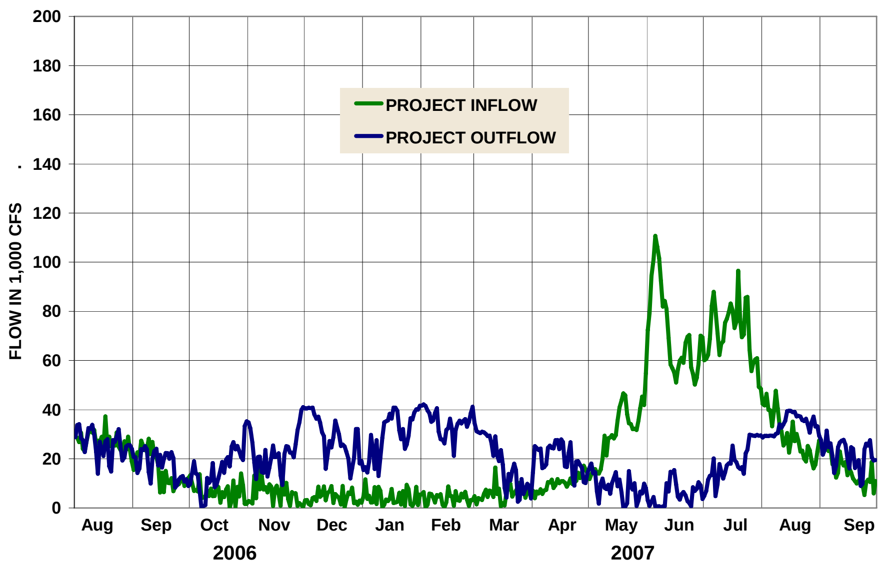
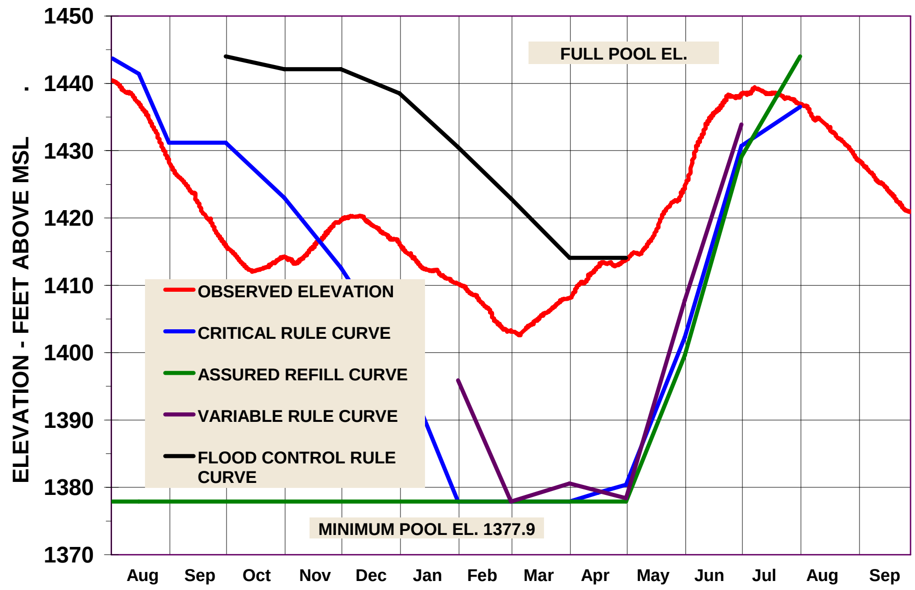


Chart 6: Regulation of Arrow

1 August 2006 – September 2007



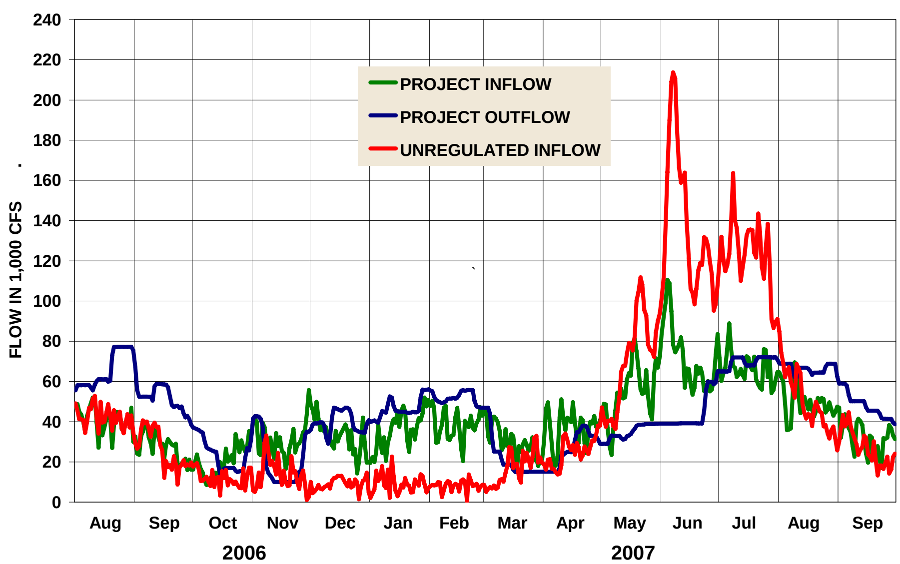


Chart 7: Regulation of Duncan

1 August 2006 – September 2007

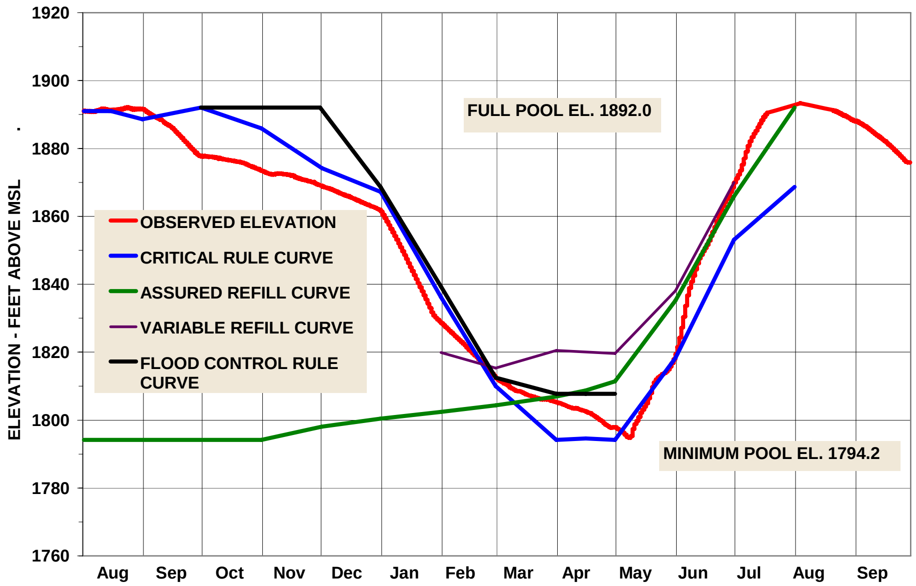
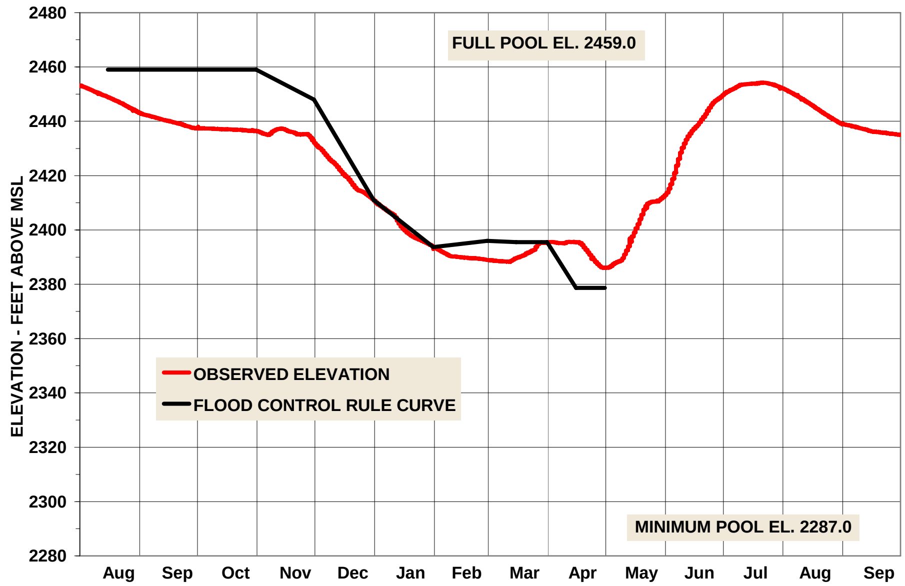


Chart 8: Regulation of Libby

1 August 2006 – September 2007



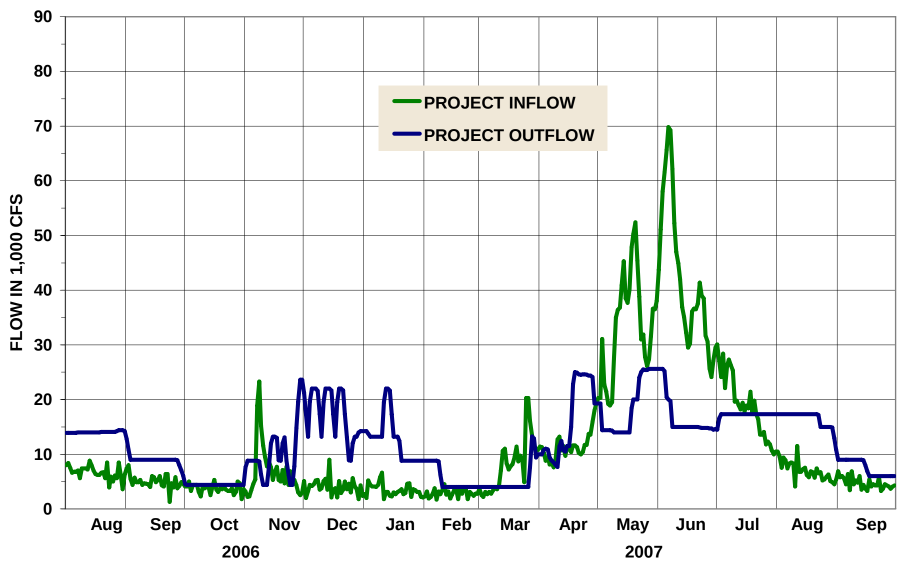


Chart 9: Regulation of Kootenay Lake

1 August 2006 – September 2007

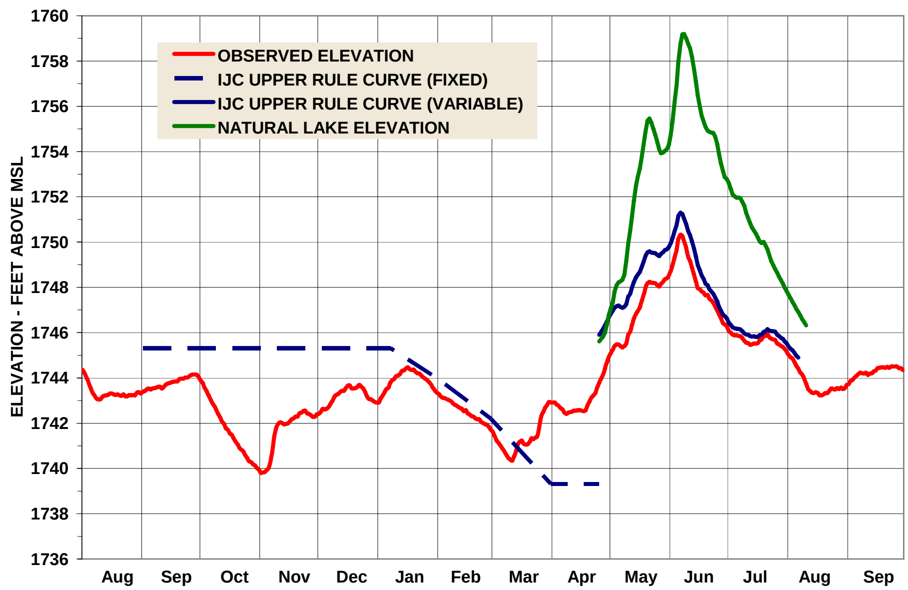


Chart 10: Columbia River at Birchbank

1 August 2006 – 31 August 2007

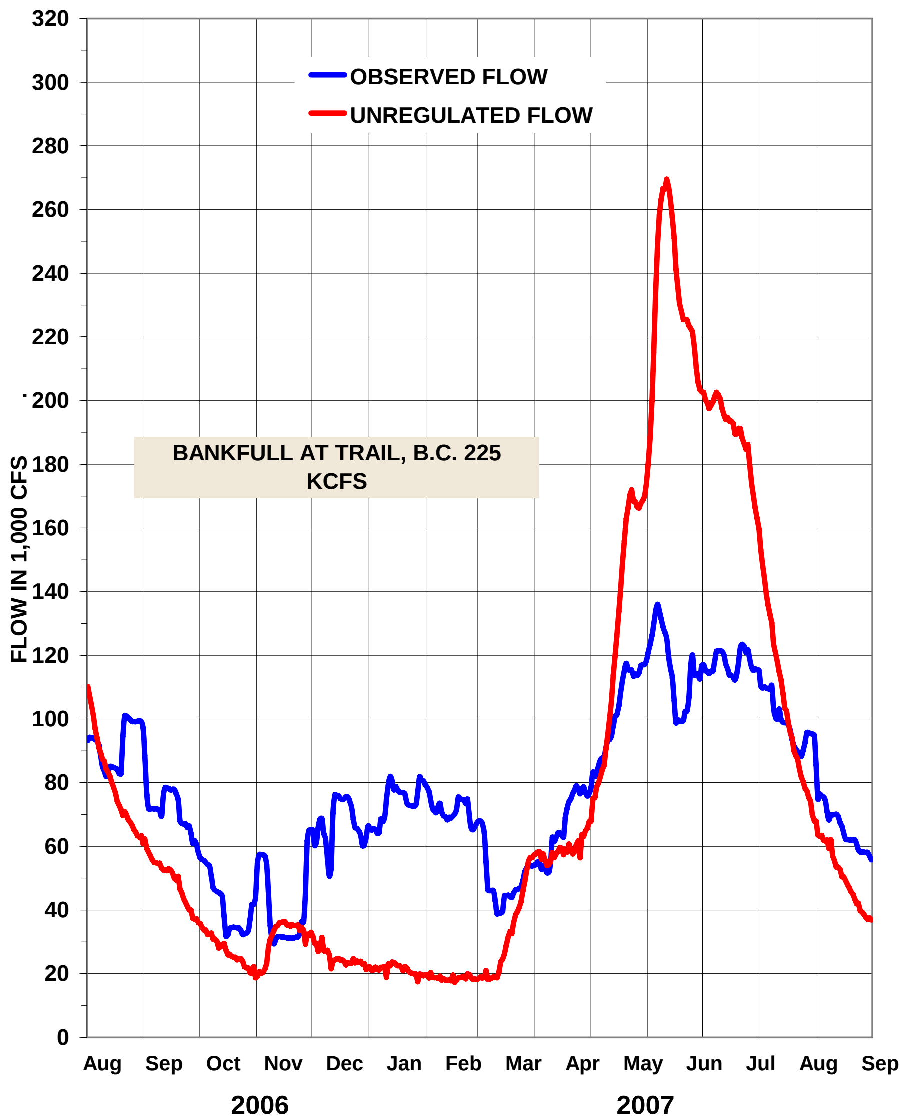


Chart 11: Regulation of Grand Coulee

1 August 2006 – 30 September 2007

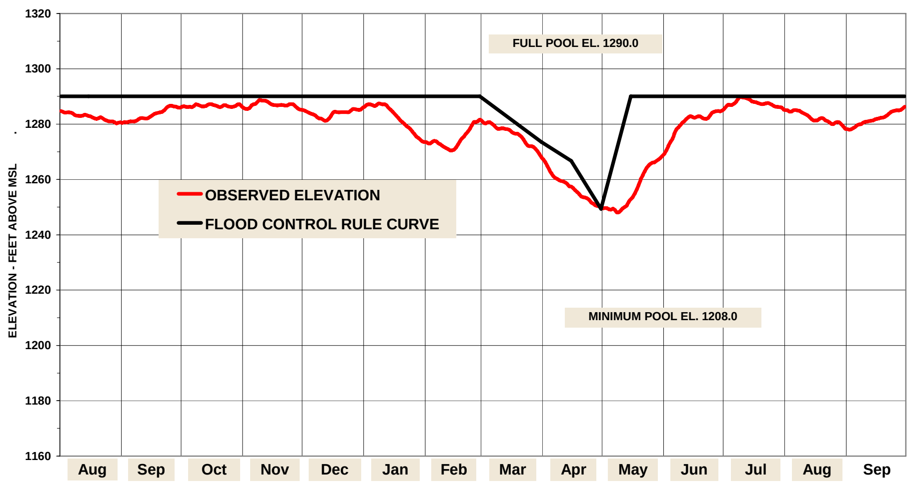


Chart 12: Columbia River at The Dalles

(Summary Hydrograph)

1 August 2006 – 30 September 2007

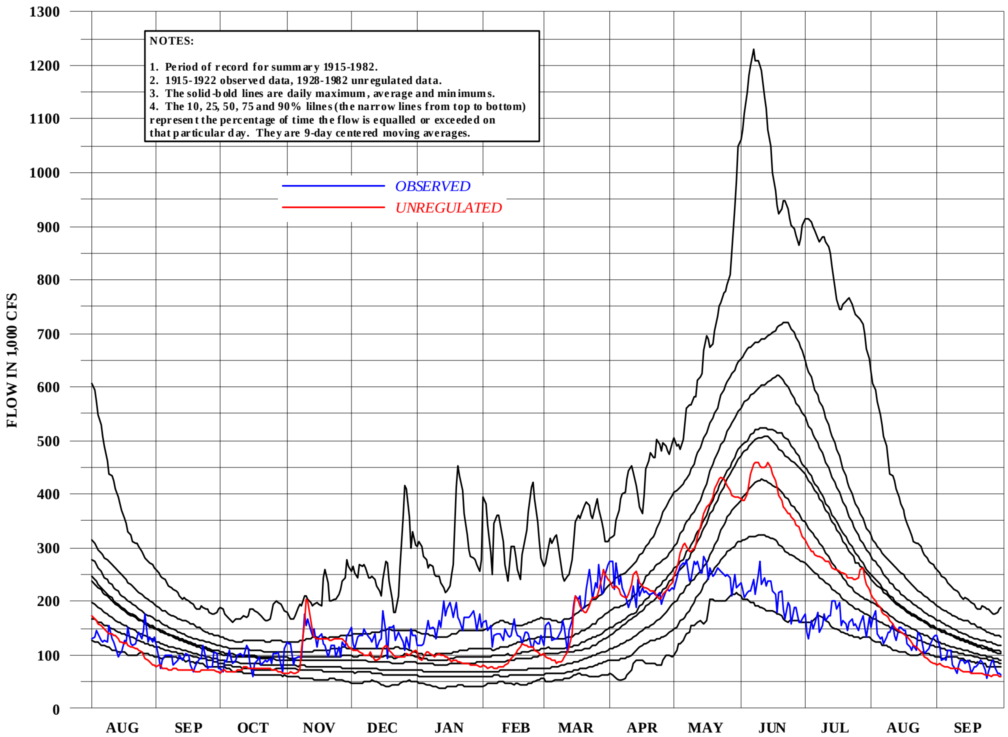


Chart 13: Columbia River at The Dalles

Re-Regulation Plot

1 April 2007 – 31 July 2007

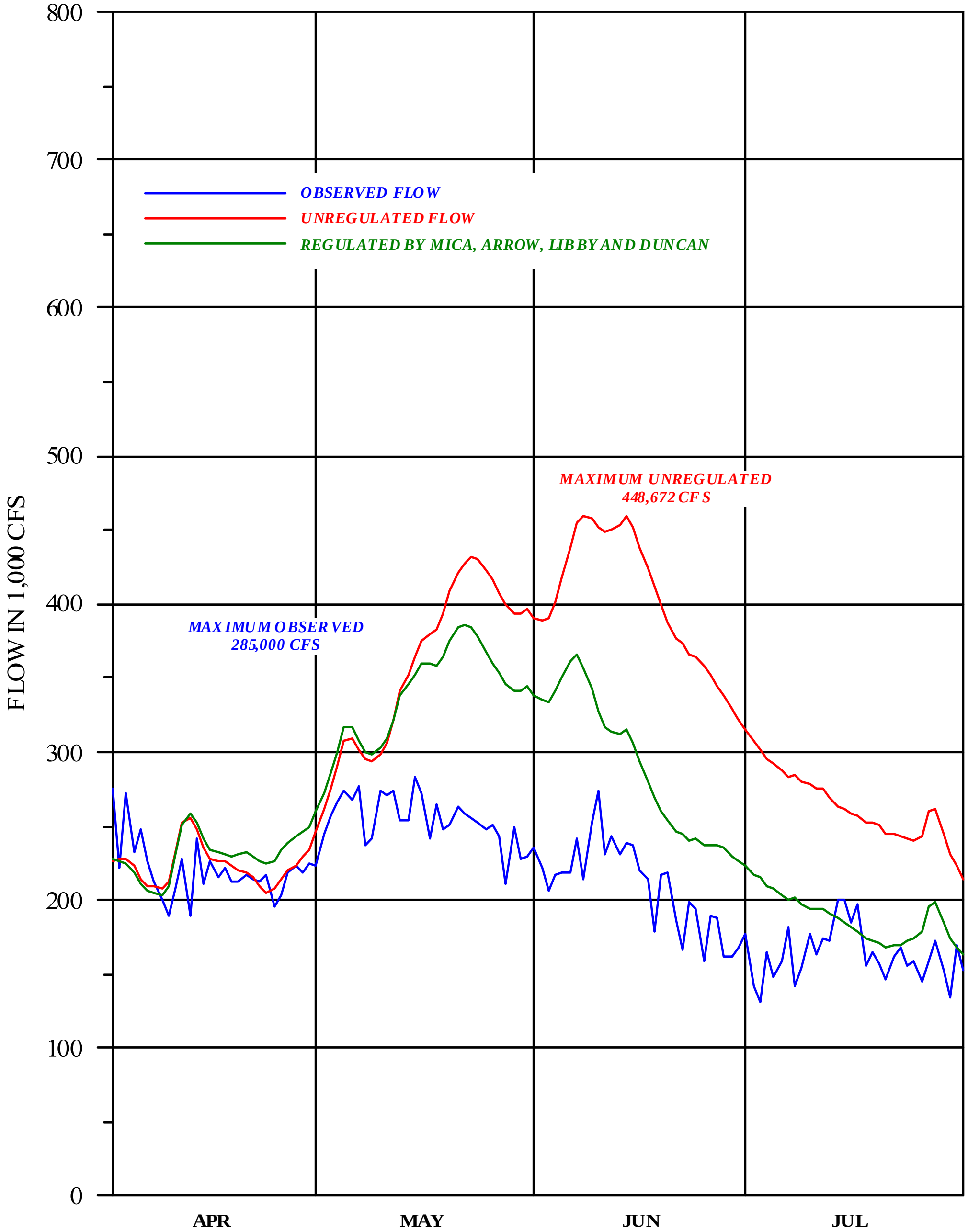


Chart 14: 2007 Relative Filling

Arrow and Grand Coulee

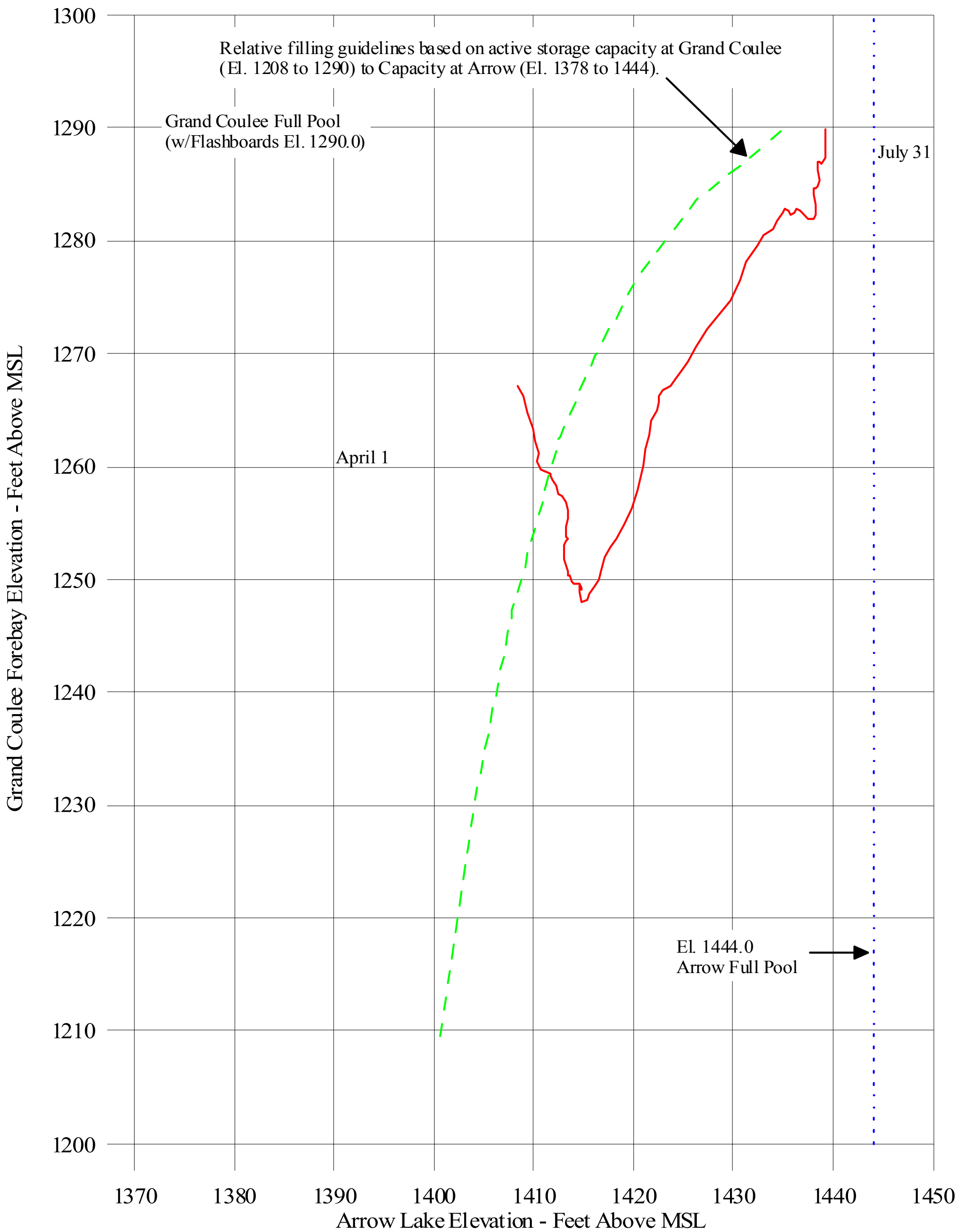


Table 6: Computation of Initial Controlled Flow
Columbia River at The Dalles, OR
English Units, 1 May 2007

Upstream Storage Corrections, Maf		
Mica	7.525	
Arrow	3.600	
Duncan	1.270	
Libby	2.808	
Hungry Horse	0.500	
Flathead Lake	0.500	
Noxon Rapids	0.000	
Pend Oreille Lake	0.500	
Grand Coulee	2.919	
Brownlee	0.079	
Dworshak	0.463	
John Day	0.158	
Total Upstream Storage Corrections, Maf	20.322	
1-May Forecast of May – August Unregulated Runoff Volume, Maf		71.600
Less Estimated Depletions, Maf		- 1.671
Less Total Upstream Storage Corrections (Maf)		- 20.322
Forecast of Adjusted Residual Runoff Volume, Maf		49.607
Computed Initial Controlled Flow from Chart 1 of the Flood Control Operating Plan, 1000-cfs		310