

**COLUMBIA RIVER WATER MANAGEMENT GROUP  
MEETING NO. 496**

**1. ATTENDANCE**

The following met at 9:30 a.m., on Thursday, October 8, 1998, in the Custom House, Portland, OR.

**Members or Alternates Present**

Peter Brooks, Corps of Engineers, Chair  
Ted Day, US Bureau of Reclamation  
David Westnedge, National Weather Service-RFC  
Ed Hubbard, U.S. Geological Survey  
Roger Ross, Corps of Engineers

**Others Present**

Tom Le, Puget Sound Energy  
Cathy Hlebechuk, Corps of Engineers  
George Fong, Corps of Engineers, Portland Dist

**Members Not Present or Represented**

Nancy Stephan, Bonneville Power Admin  
National Marine Fisheries Svc  
Doug McChesney, Washington Dept of Ecology  
Dan Moore, Natural Resources Conservation Svc  
Jack Gakstatter, U.S. Environ'l Protection Agy  
Bruce McCammon, U.S. Forest Service  
Walter Boyle, Federal Energy Regulatory Comm  
Marvin Yoshinaka, U.S. Fish and Wildlife Service  
Bill Brooks, Bureau of Land Management  
B Ondrechen, Idaho Dpt Water Resources & Cons  
Barry Norris, Oregon Dept of Water Resources  
Mike Turnipseed, Nevada State Engineer  
Gordon Fassett, Wyoming State Engineer  
Jack Stults, Montana Dept of Natural Res & Cons

**2. WEATHER SUMMARY**

September weather was a matter of extremes: very wet in the Snake and very dry elsewhere and with temperatures above normal and well above normal east of line through Seattle, Portland, and Medford, as reported by Dave Westnedge (Enc 1). Rainfall ranged from a low of 18% of normal in the Washington Cascades to 222% in the Owyhee/Malheur sub-basin of southeastern Oregon. Only four of the 30 sub-basins had rainfall in the normal range (80-120%), 10 were above normal and 16 were below normal. For the water year, most sub-basins averages normal precipitation or above with the lowest was the Northwest Slopes of the Washington Cascades had the least at 85% and the Owyhee had the most at 136%.

**Monthly** precipitation for September was 55% of normal for the Columbia River above Grand Coulee, 144% of normal for the Snake Basin above Ice Harbor, and 82% for the basin above The Dalles.

**Seasonal** precipitation Oct-Sep (the water year) was 95% of normal for the Columbia River above Grand Coulee, 115% for the Snake Basin above Ice Harbor, and 101% for the basin above The Dalles.

**3. STREAMFLOW**

Ed Hubbard stated that streamflows throughout the Columbia Basin decreased seasonally during September (Enc 2). Flows generally remained in the normal range for the month and also for the water year-to-date. Streamflows generally displayed a typical seasonal reduction in flows, except for the John Day, Umpqua, and the Snake River at Weiser. The Weiser flows were the result of the well above normal rainfall in the Owyhee Basin during the month. All mean annual flows were within or near their 80-120% of normal range.

Adjusted mean monthly streamflow for September for the Columbia River at The Dalles was 77,692 cfs and for the Willamette River at Salem the adjusted flows was 3,924 cfs. The runoff for the water year for these two rivers was 103% and 97%, respectively.

**4. SURFACE WATER SUPPLY INDEX**

Oregon SWSI on 1 October indicated normal or better supply of water available in 13 of the 14 water supply areas (Enc 3).

**5. RUNOFF VOLUME FORECASTS**

Dave Westnedge reported that runoff forecasts were fairly good for the observed runoff for the Columbia River at The Dalles and at Grand Coulee (Enc 4). The Snake basin was more of a problem because of the heavy summer rainfall which always compounds the errors by having more rainfall than the assumed normal which in turn reduced the irrigation below that assumed in the forecasts. Sample errors in percent are:

	Forecast Date			Forecast Date	
	1 Jan	1 Apr		1 Jan	1 Apr
Libby inf	-6	-10	Hungry Horse Inf	-3	-3
Albeni Falls inf	-9	-15	Grand Coulee inf	-7	-5
Snake Weiser	-89	-63	Dworshak inf	+1	-5
Lwr Granite Inf	-28	-21	The Dalles inf	-17	-13

**6. RESERVOIR OPERATION**

Irrigation project supply met this years demands and the carryover to next year appears to be excellent according to Ted Day (Enc 5). **Jackson Lake** has been drafted an additional 70 kaf below its normal winter level for gate maintenance. **Cascade** reservoir has completed its release of 50 kaf to repay Idaho Power for its fish releases for fish flows from **Brownlee**. **Prineville** has been drafted an additional 12 kaf for boat ramp work.

Active content available on September 30 at **Franklin D. Roosevelt Lake** (behind **Grand Coulee Dam**) was 4,524,300 af--87% of capacity, 253,900 af less than last year, and 503,100 af less than normal. Active content of **Hungry Horse** was 2,439,300 af--82% of capacity, 33,300 af less than last year, and 181,900 af less than normal.

Cathy Hlebechuk summarized the operation of the Corps' projects (Enc 6). With **Libby** summer flow augmentation over, the project is targeting 2411ft (the Upper Rule Curve) by the end of December.

**Albeni Falls** has been drafting for winter flood control since 8 September. Outflows averaged 11 kcfs in September and the end of September elevation was 2060 ft. **Dworshak** outflows are currently 1.3 kcfs (minimum flow) and are expected to remain at this level through December. **Lower Granite** inflow was 22.8 kcfs, 100% of average. **Lower Monumental** and **Little Goose** are now operating in their normal operating pool levels to submerge fish ladder entrances at **Little Goose** and **Lower Granite** in order to facilitate adult passage. Flip lip construction work started again at Ice Harbor in September and is expected to be completed in last November. All **Willamette projects** were operated in accordance with the summer flow augmentation plan in September. Salem dropped 200 cfs below its minimum flow of 7,000 cfs on September 1 but has remained at or above it's minimum flow since then. All projects are currently drafting for flood control and are expected to reach minimum pool by the end of December.

**7. POWER OPERATIONS**

No report

**8. OTHER**

It is time to begin thinking about the new WY 98 Blue Book. The announcements for agency's input

were sent out last month with a due date of November 20, 1998.

Virtually all CAFÉ users have been transferred to the UNIX/Sun system, according to Peter Brooks. This will bring the project communications up to current standards.

A discussion of the need for scheduling monthly CRWMG meetings was asked to be added to the November meeting agenda.

**10. NEXT MEETINGS**

The next meetings are tentatively scheduled for 9:30 a.m., in the Customs House, Room 118, on November 10, December 10, January 12, February 11, and March 11.

Roger L. Ross  
Secretary

Enclosures

1. Weather Summary
2. Streamflow Summary
3. SWSI
4. USBR Project Summary
5. Corps Project Summary

ABRIDGED  
**WATER SUPPLY OUTLOOK**  
**COLUMBIA RIVER AND  
PACIFIC COAST BASINS**

October 1, 1998

**COLLABORATIVE AND SUPPORTIVE AGENCIES:**

Northwest River Forecast Center, NWS  
USDA/National Resource Conservation Service  
US Army Corps of Engineers, North Pacific Division  
US Bureau of Reclamation  
British Columbia Hydro and Power Authority  
Weather Services Directorate/Environment Canada  
Local water district managers and utility companies

For more information, or to be included on the mailing list, please contact:

Northwest River Forecast Center  
NOAA/National Weather Service  
Attn: Tom Fero, Water Supply Coordinator or  
Kyle Martin, **Water Supply Outlook** Technical Editor  
Judith L. Garbutt, **Water Supply Outlook** Production Editor  
5241 NE 122<sup>nd</sup> Avenue  
Portland, Oregon 97230-1089

Internet Homepage: <http://www.nwrfc.noaa.gov>

(503) 326-7291  
(503) 326-2598 (FAX)

tfero@nwrfc.noaa.gov  
kmartin@nwrfc.noaa.gov

Enc 1

**COLUMBIA BASIN PRECIPITATION (MONTHLY SUMMARY)**

NWS PORTLAND RIVER FORECAST CENTER - PORTLAND, OREGON  
 COLUMBIA BASIN DIVISION AVERAGES OF SEASONAL PRECIPITATION

DIVISION	..SEP TO DAY 30..			....OCT - SEP....		
	OBSD	DEP	PCT AV	OBSD	DEP	PCT AV
COLUMBIA ABOVE COULEE	0.94	-.78	55.	24.36	-1.24	95.
SNAKE RV AB ICE HARBOR	1.68	.52	144.	20.73	2.65	115.
COLUMBIA AB THE DALLES	1.14	-.26	82.	23.49	.20	101.
COLUMBIA AB CASTLEGAR	1.00	-1.39	42.	29.60	-4.66	86.
KOOTENAI	.78	-.97	45.	24.58	-1.20	95.
CLARK FORK	.85	-.45	65.	18.75	.74	104.
FLATHEAD	1.21	-.58	67.	22.90	-.95	96.
PEND OREILLE/ SPOKANE	1.24	-.32	79.	28.97	-1.08	96.
NORTHEAST WASHINGTON	.46	-.46	50.	22.48	3.58	119.
OKANOGAN	.42	-.58	42.	17.05	1.61	110.
EAST SLOPES WASH CASCADES	.26	-1.19	18.	37.25	-1.39	96.
CENTRAL WASHINGTON	.13	-.31	30.	9.10	.32	104.
UPPER SNAKE	1.85	.22	114.	23.76	2.43	111.
SNAKE RIVER PLAIN	1.38	.53	162.	13.29	1.64	114.
OWYHEE/ MALHEUR	1.41	.77	221.	15.82	4.21	136.
SALMON/ BOISE/ PAYETTE	1.79	.64	156.	23.19	2.79	114.
BURNT/ GRANDE RONDE	1.86	.94	202.	20.07	3.71	123.
CLEARWATER	2.36	.48	125.	30.94	-.07	100.
SOUTHEAST WASHINGTON	1.19	.23	124.	18.58	-.11	99.
UPPER JOHN DAY	.94	.14	117.	17.58	2.36	116.
UMATILLA/ LWR JOHN DAY	1.03	.22	128.	17.49	1.32	108.
UPR DESCHUTES/ CROOKED	.33	-0.31	51.	19.71	4.82	132.
HOOD/ LOWER DESCHUTES	1.08	-.15	88.	28.87	.17	101.
NW SLOPE WASH CASCADES	.95	-3.41	22.	74.04	-13.33	85.
SW WA CASCADES/COWLITZ	1.25	-1.98	39.	64.86	-5.76	92.
WILLAMETTE VALLEY	1.21	-1.07	53.	57.50	-1.41	98.
ROGUE/ UMPQUA	.27	-.96	22.	42.50	6.75	119.
KLAMATH BASIN	.45	-.25	64.	23.11	4.92	127.
LAKE COUNTY-GOOSE LAKE	.83	.21	134.	16.36	3.51	127.
HARNEY/ MALHEUR BASIN	1.43	.76	213.	17.52	5.39	144.

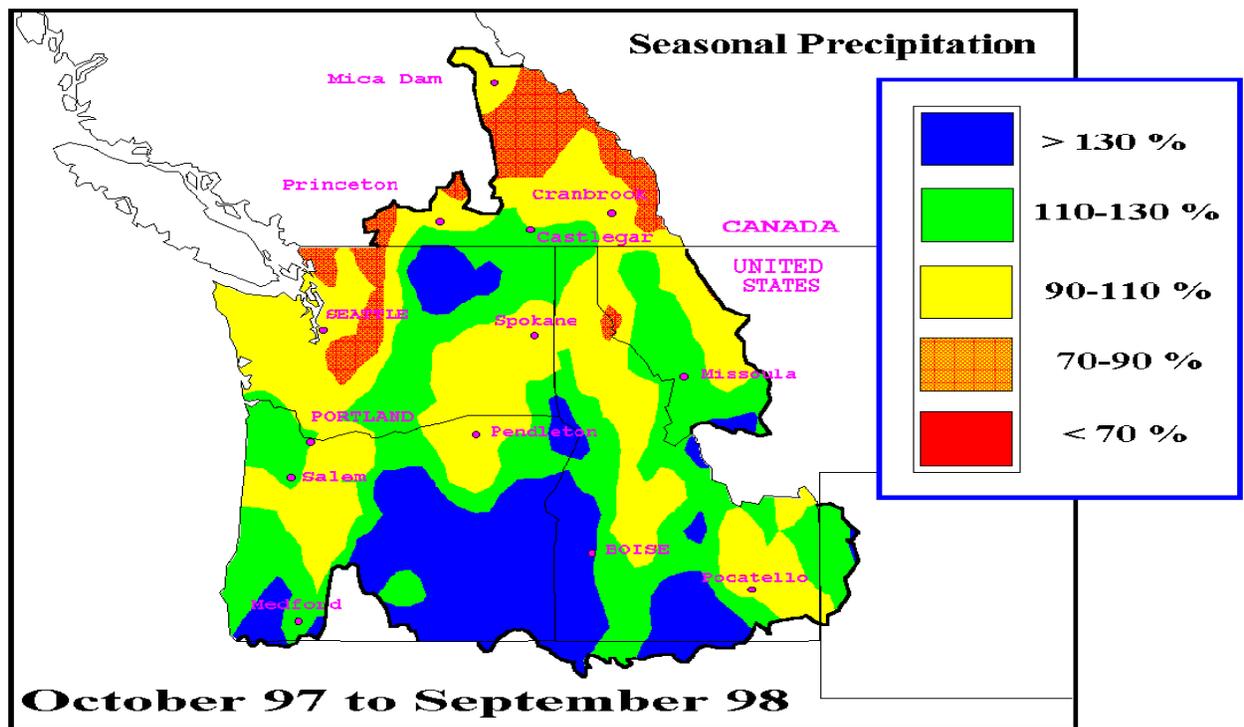
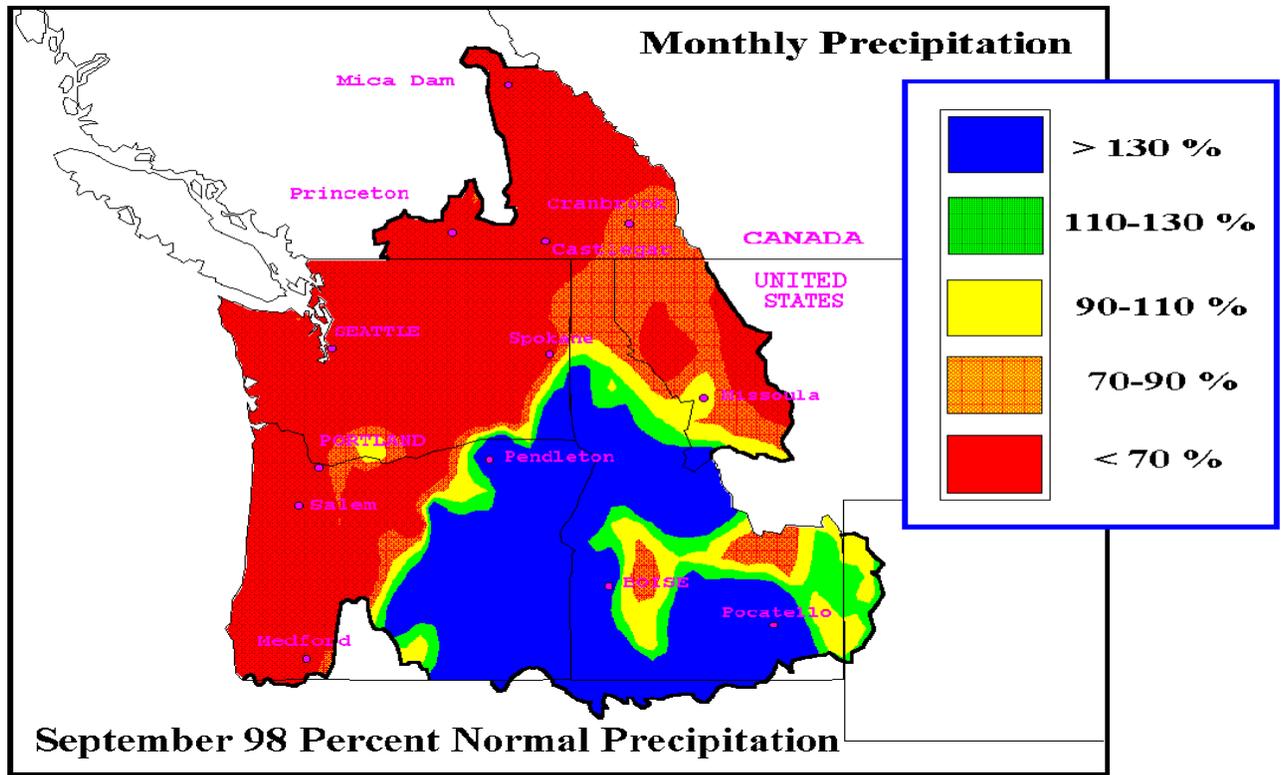
DIVISION VALUES ARE COMPUTED BY USING UN-WEIGHTED PRECIPITATION AMOUNTS FROM KEY STATIONS IN EACH AREA. NORMALS BASED ON 1961-1990. FOR FURTHER INFORMATION CONTACT: NWRFC (503) 326-7291.

HOT & DUSTY TRENDED TO COOLER AUTUMN CONDITIONS DURING SEPTEMBER. MISSOULA REPORTED THE 7<sup>TH</sup> WARMEST SEPTEMBER EVER.

THE AVERAGE MONTHLY BASIN TEMPERATURES DEPARTED +5.2°F (31 STATIONS) FROM NORMAL FOR THE PACIFIC NORTHWEST RELATIVE TO 1961-90 NORMALS WHILE AVERAGE MONTHLY STATION TEMPERATURE DEPARTURES RANGED BETWEEN 8.6°F AND -0.8°F. RECORD DAILY HIGHS TOASTED POCATELLO ON THE 4<sup>TH</sup> (96°) AND 17<sup>TH</sup> (91°, TIE), PORTLAND ON THE 31<sup>ST</sup> (98°, TIE), KALISPELL ON THE 2<sup>ND</sup> (96°), 4<sup>TH</sup> (93°), 6<sup>TH</sup> (93°), AND 15<sup>TH</sup> (89°), MISSOULA ON THE 2<sup>ND</sup> (96°) AND 6<sup>TH</sup> (93°, TIE), HELENA ON THE 2<sup>ND</sup> (96°), 4<sup>TH</sup> (96°), 7<sup>TH</sup> (96°), 17<sup>TH</sup> (90°), AND 15<sup>TH</sup> (89°, TIE); AND GREAT FALLS ON THE 7<sup>TH</sup> (95°). PORTLAND SAW RECORD DAILY RAINFALL ON THE 18<sup>TH</sup> (0.82").

STRONG RIDGING DOMINATED THE PACIFIC NORTHWEST UNTIL THE 18<sup>TH</sup> - 20<sup>TH</sup> WHEN AN ALEUTIAN TROUGH SWEEPED OVER THE BASIN AND BROUGHT THE *FIRST RAINS IN TEN WEEKS*. WARMTH REASSERTED ITSELF UNTIL THE 25<sup>TH</sup> - 27<sup>TH</sup> WHEN A FRONT BROUGHT MORE TAIN. WARM RIDGING RETURNED BY MONTH'S END.

FOR **SEPTEMBER**, PRECIPITATION WAS 48 PERCENT OF NORMAL (1961-1990) AT COLUMBIA ABOVE COULEE, 42 PERCENT OF NORMAL AT THE SNAKE RIVER ABOVE ICE HARBOR, AND 38 PERCENT AT COLUMBIA ABOVE THE DALLES. FOR THE **WATER YEAR** (OCT-SEP), PRECIPITATION WAS 95 PERCENT OF NORMAL (1961-1990) AT COLUMBIA ABOVE COULEE, 115 PERCENT OF NORMAL AT THE SNAKE RIVER ABOVE ICE HARBOR, AND 101 PERCENT AT COLUMBIA ABOVE THE DALLES.



**US GEOLOGICAL SURVEY, WATER RESOURCES DIVISION**  
Oregon District  
**COMPARATIVE FLOW TABLE FOR SEPTEMBER, 1998**

Station	Monthly mean discharge		Change in discharge from previous month (percent)	Discharge near end of month	Date	Accumulated Runoff
	Cubic feet per second	Percent of average	from previous month (percent)	Cubic feet per second		Oct-May Percent of Average
<b>John Day River</b> at Service Creek, OR	296	134	+3	414	30	109
<b>Wilson River</b> nr Tillamook, OR	69	46	-10	61	30	109
<b>Umpqua River</b> nr Elkton, OR	1,589	130	+6	1,695	30	102
<b>Columbia River</b> at The Dalles, OR	77,692(a)	80	-39	125,000	30	103
<b>Willamette River</b> at Salem, OR	3,924(a)	94	-18	10,500	30	97
<b>Chehalis River</b> nr Grand Mound, WA	300	77	-31	304	30	113
<b>Skykomish River</b> nr Gold Bar, WA	464	32	-40	444	30	95
<b>Spokane River</b> at Spokane, WA	976(a)	87	-18	2,450	30	85
<b>Snake River</b> at Heise, ID	4,859(a)	111	-19	4,870	29	113
<b>Snake River</b> at Weiser, ID	13,948	105	+17	14,980	30	124
<b>Salmon River</b> at White Bird, ID	5,399	111	-16	4,970	30	102
<b>Clearwater River</b> at Spalding, ID	3,045	95	-20	2,790	30	88
<b>Clark Fork</b> at St. Regis, MT	2,994	89	-22	3,040	30	90
<b>MF Flathead River</b> nr West Glacier, MT	630	60	-46	530	30	80

Percent of Average computed using 30-year base period, Water Years 1961-90

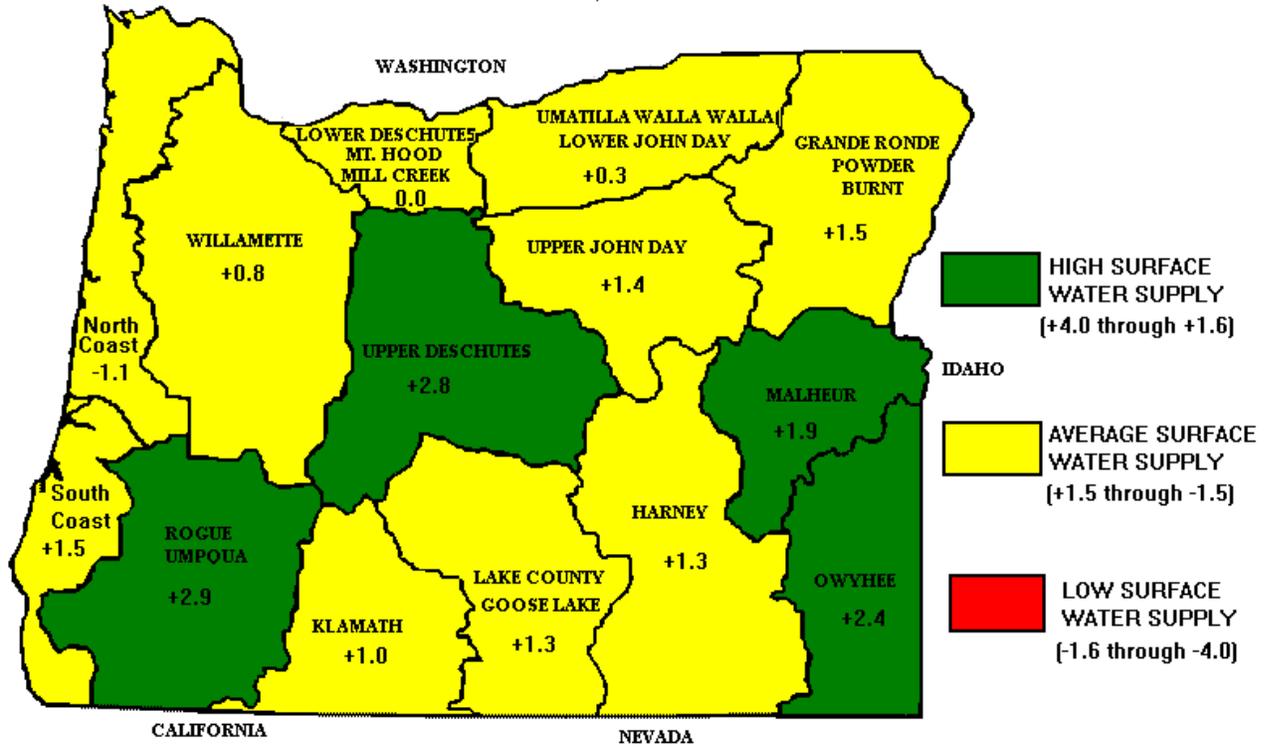
(a) adjusted for upstream storage

10/05/98

# SURFACE WATER SUPPLY INDEX

(SWSD)

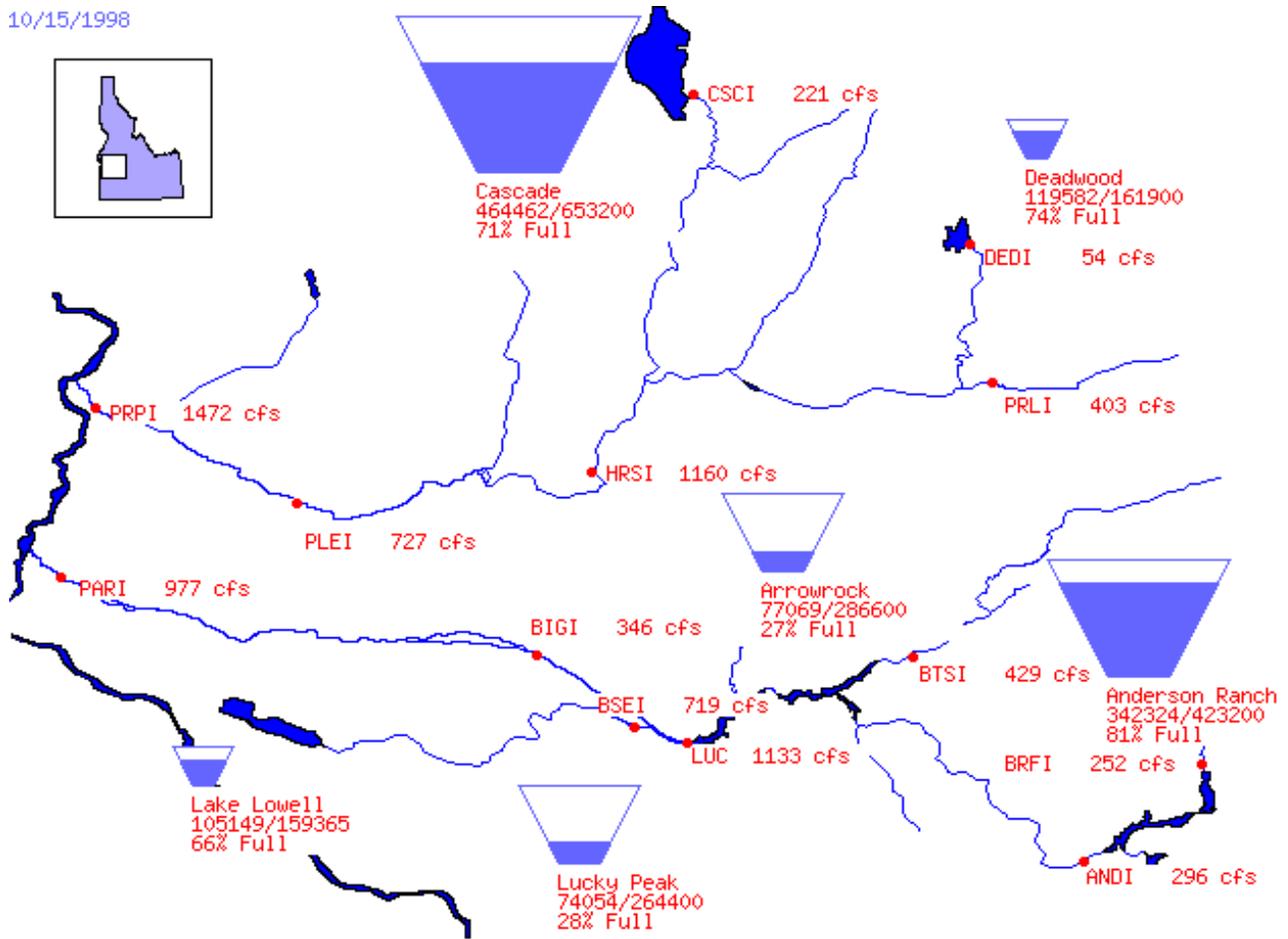
October 1, 1998



Enc 3

**US Bureau of Reclamation, Pacific Northwest Region  
Major Storage Reservoirs in the Boise & Payette River Basins**

10/15/1998



PROVISIONAL DATA - SUBJECT TO CHANGE!

**Key to Station Codes**

Boise River system (Anderson Ranch, Arrowrock, Lucky Peak) is at 51 % of capacity.

Total space available: 479450 AF

Total storage capacity: 974200 AF

Natural Flow: 953 CFS

Payette River system (Cascade, Deadwood) is at 72 % of capacity.

Total space available: 231620 AF

Total storage capacity: 815100 AF

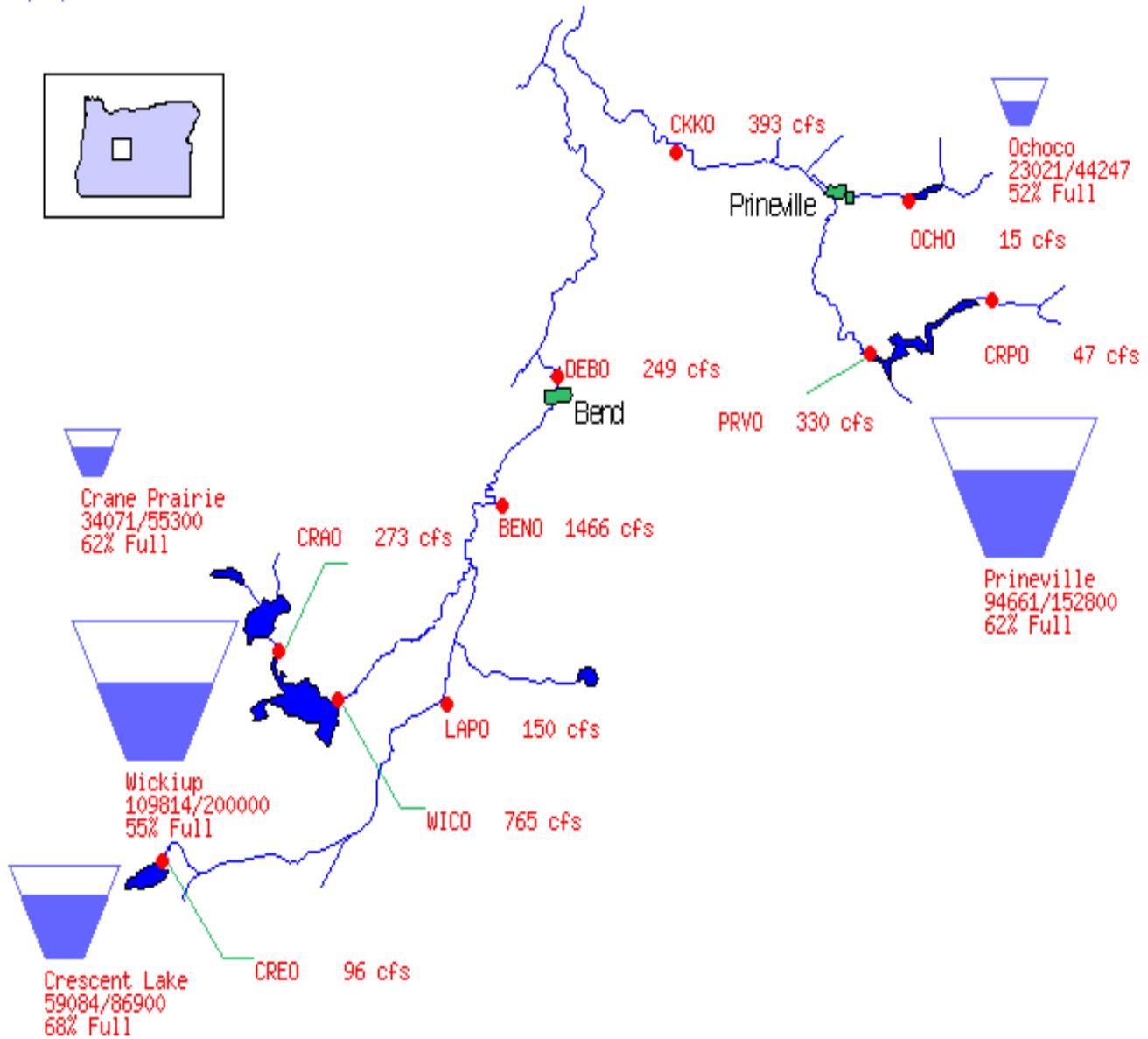
Natural Flow: 1412 CFS



# US Bureau of Reclamation, Pacific Northwest Region Major Storage Reservoirs in the Deschutes River Basin

PROVISIONAL DATA - SUBJECT TO CHANGE!

10/14/1998



## Key to Station Codes

[o] USBR PN Region Hydromet Home Page

[o] USBR PN Region Home Page

# US Bureau of Reclamation, Pacific Northwest Region

## Monthly Water Conditions Report

End-of-Month Reservoir Contents for September, 1998:

STATION - CODE	ACTIVE CAPACITY	1998	% OF CAPACITY	AVG	% OF AVG
HGH-AF-HUNGRY HORSE DAM & RES	2981.20	2439.27H	82	2621.13	93
CMO-AF-COMO DAM AND LAKE ON	35.10	1.90V	5	2.99	64
<b>Yakima River Basin</b>					
CLE-AF-CLE ELUM LAKE, WA	436.90	80.42V	18	152.50R	53
KAC-AF-KACHESS LAKE, WA	239.00	109.03V	46	138.90	78
KEE-AF-KEECHELUS LAKE, WA	157.80	22.23V	14	49.80	45
RIM-AF-TIETON DAM & RIMROCK	198.00	59.85V	30	65.30	92
BUM-AF-BUMPING LAKE, WA	33.70	7.61V	23	9.20R	83
<b>Columbia Basin</b>					
GCL-AF-GRAND COULEE DAM & FDR LAKE	5185.45	4524.32H	87	5027.40	90
BNK-AF-BANKS LAKE NR GRAND COULEE	715.00	629.53V	88	583.80	108
POT-AF-O'SULLIVAN DAM & POTHOLE	332.20	****	***	69.66	***
<b>Okanogan River Basin</b>					
CCR-AF-CONCONULLY DAM & RES	13.00	7.00I	54	4.76	147
CCL-AF-SALMON LK DAM & RES	10.50	9.06I	86	8.43	107
<b>Snake River Basin</b>					
JCK-AF-JACKSON LAKE NEAR MORAN	847.00	582.91V	69	457.65	127
PAL-AF-PALISADES RESERVOIR	1200.00	940.90V	78	765.20	123
ISL-AF-ISLAND PARK RESERVOIR	135.20	116.41V	86	60.40	193
GRS-AF-GRASSY LAKE NR MORAN	15.20	13.41V	88	10.22	131
RIR-AF-RIRIE RESERVOIR NEAR	80.50	62.52V	78	39.78E	157
AMF-AF-AMERICAN FALLS RES A	1672.60	848.08V	51	522.67	162
MIN-AF-MINIDOKA DAM & LAKE	95.20	94.71V	99	83.27	114
WOD-AF-LITTLE WOOD RESERVOIR	30.00	8.29V	28	7.10	117
<b>Boise River Basin</b>					
AND-AF-ANDERSON RANCH RES A	423.20	341.82O	81	288.37	119
ARK-AF-ARROWROCK RESERVOIR	286.60	76.24O	27	49.21	155
LUC-AF-LUCKY PEAK LAKE NEAR	264.40	115.21O	44	77.71	148
LOW-AF-LAKE LOWELL, ID	169.10	89.63O	53	81.47	110
<b>Payette River Basin</b>					
CSC-AF-CASCADE RESERVOIR AT	653.00	464.94O	71	393.85	118
DED-AF-DEADWOOD RESERVOIR	161.90	119.86O	74	60.26	199
<b>Weiser River Basin</b>					
MAN-AF-MANN CR DAM & RES ON	11.10	1.39O	13	2.34E	59
<b>Clearwater River Basin</b>					
RES-AF-LEWISTON ORCHARDS RES	3.00	0.79V	26	1.27E	62
SOL-AF-SOLDIERS MEADOW DAM,	2.37	0.83O	35	0.75E	111

<b>Owyhee River Basin</b>					
OWY-AF-LAKE OWYHEE NEAR NYSSA	715.00	475.84O	67	356.42	134
WLD-AF-WILDHORSE RESERVOIR	71.50	54.44O	76	30.02	181
<b>Malheur River Basin</b>					
BEU-AF-AGENCY VALLEY DAM &	59.90	25.31O	42	9.43	268
BUL-AF-BULLY CREEK RESERVOIR	30.00	16.65O	55	7.56E	220
WAR-AF-WARM SPRINGS RESERVOIR	191.00	94.17O	49	59.95	157
<b>Powder River Basin</b>					
PHL-AF-MASON DAM & PHILLIPS	73.50	39.11O	53	33.26E	118
THF-AF-THIEF VALLEY RES NR PENDLETON	17.40	4.87O	28	5.94E	82
<b>Burnt River Basin</b>					
UNY-AF-UNITY RESERVOIR NR	25.20	4.90O	19	4.34	113
<b>Umatilla River Basin</b>					
MCK-AF-MCKAY RESERVOIR NR P	66.26	20.34V	31	10.74	189
CLS-AF-COLD SPRINGS DAM & RES	38.33	2.69V	7	3.77	71
<b>Deschutes River Basin</b>					
CRA-AF-CRANE PRAIRIE DAM & RES	55.30	35.50I	64	22.64	157
CRE-AF-CRESCENT LK DAM & LK	86.90	60.68V	70	38.06	159
WIC-AF-WICKIUP DAM & RES ON	200.00	108.85I	54	57.07	191
OCH-AF-OCHOCO DAM & RES ON	45.24	24.68V	55	18.09	136
PRV-AF-ARTHUR R BOWMAN DAM	152.80	103.10V	67	96.83	106
HAY-AF-HAYSTACK DAM & RES	5.64	5.10I	91	3.99E	128
WAS-AF-WASCO DAM & CLEAR LAKE	11.90	1.75V	15	4.20	42
<b>Rogue River Basin</b>					
AGA-AF-AGATE DAM AND RES ON	4.70	1.63V	35	1.28E	127
EMI-AF-EMIGRANT DAM & LK ON	39.00	14.55V	37	8.28	176
FIS-AF-FISH LK NR LAKE CR,	7.90	3.77V	48	3.74E	101
FOR-AF-FOURMILE LAKE, OR	15.60	9.89V	63	6.15E	161
HPD-AF-HOWARD PRAIRIE DAM &	60.60	49.93V	82	42.08E	119
HYA-AF-HYATT DAM & RES NR A	16.00	10.61V	66	8.84E	120
<b>Tualatin River Basin</b>					
<u>SCO-AF-SCOGGINS DAM AND HENRY HAGG</u>	<u>53.60</u>	<u>22.19I</u>	<u>41</u>	<u>26.16E</u>	<u>85</u>
<b>TOTAL OF 52 RESERVOIRS</b>	18099.28	12958.72	72	12424.57	104

AF is acre-feet. AVG is published 30-year average, 1961-1990. Please note that all data are PROVISIONAL and subject to revision. This report is updated monthly, after the 15th of each month.

**YAKIMA PROJECT  
SYSTEM STATUS AT 08:00**

RESERVOIR	TOTAL CONTENT		PERCENT CAPACITY	RESERVOIR CAPACITY		RESERVOIR INFLOW	RESERVOIR RELEASES
	AF	AF	%	CFS	CFS		
Keechelus	22086.	157800.	14.	63.	69.		
Kachess	82448.	239000.	34.	30.	1155.		
Cle Elum	77180.	436900.	18.	76.	199.		
Bumping	7530.	33700.	22.	63.	56.		
Rimrock	38076.	198000.	19.	192.	815.		
<b>TOTALS</b>	<b>227320.</b>	<b>1065400.</b>	<b>21.</b>	<b>424.</b>	<b>2293.</b>		

IRRIGATION DIVERSIONS

RIVER FLOWS

-----	CFS	-----	CFS
Kittitas	996 - 400 = 596.	Yakima River near Easton	198.
Roza	464.	Yakima River at Cle Elum	472.
Yakima-Tieton	0.	Teanaway River bl. Forks	19.
Wapato	735.	Yakima River at E'Burg	930.
Sunnyside	877.	Yakima River at Umtanum	1518.
		Naches River nr. Clf'Del	141.
MAJOR USERS TOTAL	2672.	Tieton R. bl. Canal. Hdwks	866.
		Naches River nr. Naches	1002.
Westside	46.	Yakima River at Parker	517.
Naches-Selah	98.	Yakima River at Prosser	628.
OTHERS ABOVE PARKER	612.	<b><u>TOTAL ABOVE PARKER</u></b>	<b>3284.</b>

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Kennewick 223.

OTHER CANAL DIVERSIONS

Wapatox	0.
Roza	913.
Chandler	1087.

UNREGULATED TRIBUTARY & RETURN FLOW ABOVE PARKER - - 1508. CFS

OPERATIONAL COMMENTS:

KRD -- CUT BACK 150 CFS.,  
 KACHESS -- CUT BACK OUTFLOW 150 CFS.,  
 RIMROCK -- CUT BACK OUTFLOW 100 CFS.,  
 ROZA POWER FLOWS -- +40 CFS. FOR POWER.

**CORPS OF ENGINEERS, NORTH PACIFIC DIVISION  
REPORT FOR SEPTEMBER 1998 CRWMG MEETING**

**LIBBY.** The reservoir began July near elevation 2454 feet. The TMT agreed to operate Libby between 12 and 18 kcfs in July. Between July 14 - 16, flow was reduced to 4 kcfs to assist authorities in recovering two drowning victims at Troy. The maximum Libby elevation for the year was 2458.33 feet on 16 July. The end of July elevation was 2457.33 feet. The Libby/Arrow swap was again implemented this year in which the Canadians agreed to release water from Arrow in lieu of the Americans releasing water the full amount of water from Libby for salmon called for in the Biological Opinion. This resulted in a swap of about 210 KAF. The Libby elevation at the end of August was 2443.87 feet instead of a non-swap elevation of 2439 feet. The observed April through August runoff volume was 5838 KAF, 92 percent of normal. The July and August inflow was 73% and 81% of average, respectively.

**ALBENI FALLS.** During July and August 1998 Lake Pend Oreille operated within the top one half foot between elevations 2062.0 and 2062.5 feet. The average outflows in July and August were 30 kcfs and 14 kcfs, respectively. The annual September draft started after Labor Day on 8 September. Target is elevation 2060 feet at the end of September and 1998-99 winter minimum elevation of 2055.0 feet by about 15 November. The unregulated inflow to Lake Pend Oreille was 85% of average in July and August.

**DWORSHAK.** Dworshak remained within one foot of full through July 10 at which time the Technical Management called for water from Dworshak to augment Lower Granite flows. By July 21 the outflow was increased to 20 kcfs. This outflow was held through the end of July and the pool drafted to 1561.9 by that date. On August 1 the outflow was decreased to minimum flow to assist the sheriff in recovering a drowning victim. Outflows were increased again on August 3 to 14 kcfs (110% tgd) and were gradually reduced to 3 kcfs by the end of August. The pool drafted to 1520.32 feet by the end of August. Outflows are currently 1.3 kcfs (minimum flow) and are expected to remain at this level through December. The December 15 flood control elevation is 1558 feet. The unregulated inflow to Dworshak was 83% of average in July and August.

**LOWER SNAKE PROJECTS.** Lower Granite July and August inflow was 136% of average. Lower Monumental and Little Goose are operating at MOP to MOP + 1 as a soft constraint but are expected returned to normal operating pool levels in mid-September to submerge fish ladder entrances at Little Goose and Lower Granite in order to facilitate adult passage. flip lip construction work started again at Ice Harbor in September. Goal is no spill and to maintain enough storage in reservoir to give the contractor at least 3 hours to vacate downstream work area before spilling.

**WILLAMETTE BASIN PROJECTS.** All Willamette projects were operated in accordance with the summer flow augmentation plan in July and August. Salem and Albany flows did not drop below the minimum water quality flow targets in July or August. Salem dropped 200 cfs below it's minimum flow of 7000 cfs on September 1 but has remained at or above it's minimum flow since then. All but two projects are currently drafting for flood control. Construction projects at Fall Creek and Fern Ridge have delayed the fall draft at these locations. Both projects were drafted below their rule curves before construction started and will re-start their draft at the end of September All projects are expected to reach minimum pool by the end of November.

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