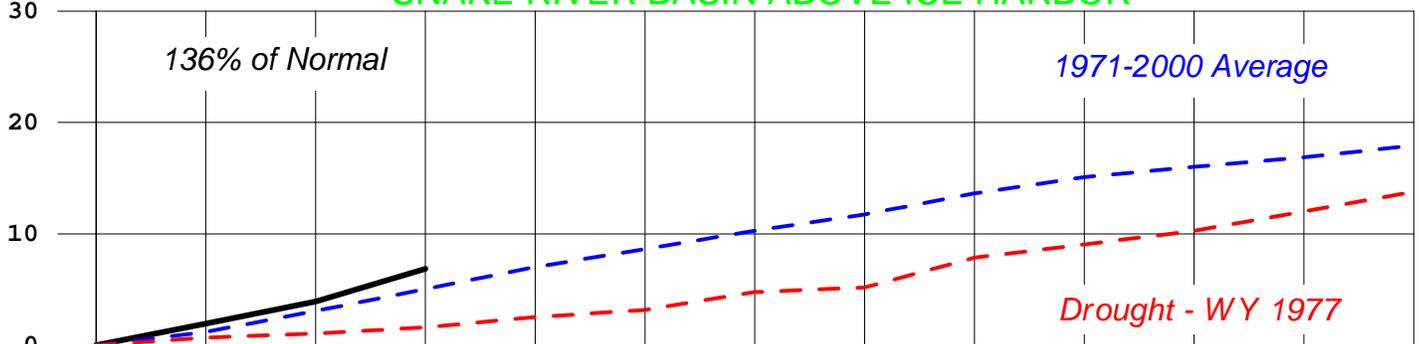


CUMULATIVE PRECIPITATION WATER YEAR 2011

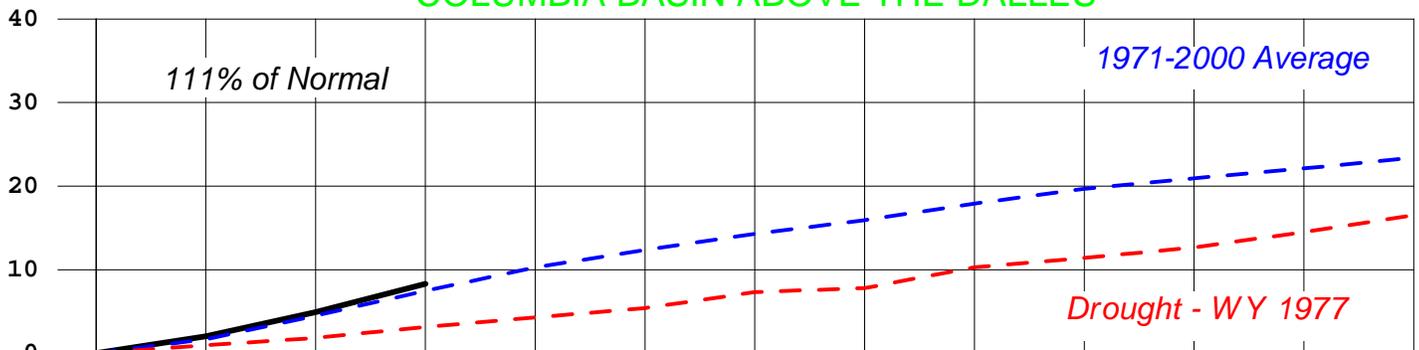
COLUMBIA BASIN ABOVE GRAND COULEE



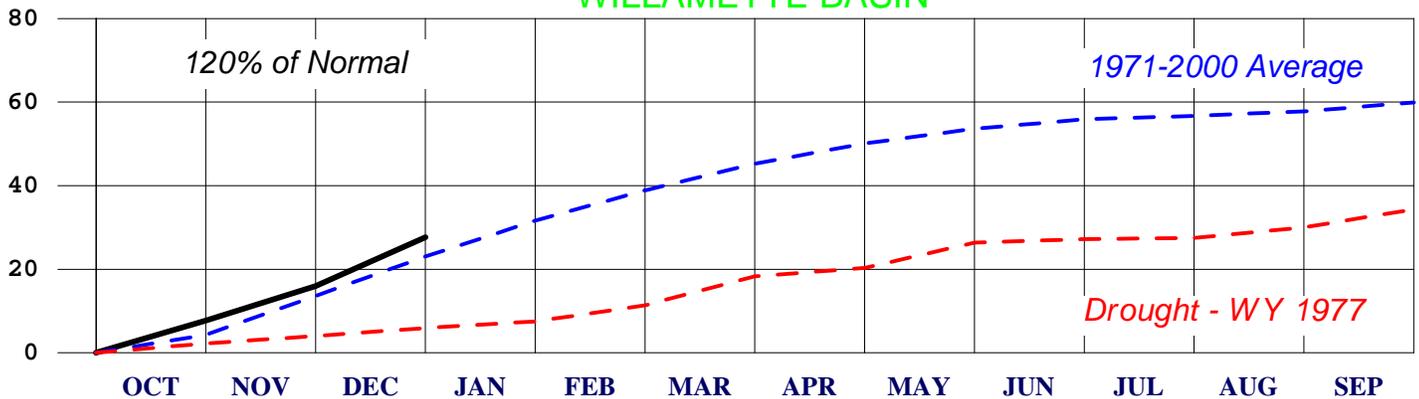
SNAKE RIVER BASIN ABOVE ICE HARBOR



COLUMBIA BASIN ABOVE THE DALLES



WILLAMETTE BASIN



ACCUMULATED PRECIPITATION IN INCHES



Northwest River Forecast Center

Seasonal Divisional Precipitation Summary

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Monthly Divisional Precipitation Summary

Columbia Basin Seasonal Precipitation Division Averages
Northwest River Forecast Center

(Monthly Summary - dec 2011)

DIVISION	..DEC TO DAY 31..		OCT - DEC....		
	OBSD	DEP	PCT AV	OBSD	DEP	PCT AV
COLUMBIA ABOVE COULEE	3.02	0.00	100.	7.67	-0.08	99.
SNAKE RV AB ICE HARBOR	2.97	1.00	151.	6.88	1.83	136.
COLUMBIA AB THE DALLES	3.38	0.40	113.	8.29	0.82	111.
COLUMBIA AB CASTLEGAR	3.57	-0.72	83.	9.21	-1.91	83.
KOOTENAI	2.62	-0.54	83.	7.11	-0.99	88.
CLARK FORK	2.40	0.59	133.	5.74	1.04	122.
FLATHEAD	3.11	0.66	127.	7.69	1.15	118.
PEND OREILLE/ SPOKANE	4.24	0.03	101.	11.32	0.82	108.
NORTHEAST WASHINGTON	2.34	-0.04	98.	6.46	0.71	112.
OKANOGAN	2.34	0.36	118.	4.96	0.20	104.
EAST SLOPES WASH CASC.	6.02	-1.15	84.	13.60	-2.94	82.
CENTRAL WASHINGTON	1.64	0.30	122.	3.55	0.39	112.
UPPER SNAKE	3.17	1.03	148.	8.17	2.57	146.
SNAKE RIVER PLAIN	1.86	0.84	183.	4.82	1.86	163.
OWYHEE/ MALHEUR	2.52	1.29	205.	5.64	2.47	178.
SALMON/ BOISE/ PAYETTE	3.78	1.15	144.	8.05	1.77	128.
BURNT/ GRANDE RONDE	2.37	0.43	122.	5.71	0.74	115.
CLEARWATER	4.55	1.01	128.	10.28	0.95	110.
SOUTHEAST WASHINGTON	2.98	0.59	125.	7.94	1.56	124.
UPPER JOHN DAY	2.45	0.71	141.	6.53	2.06	146.
UMATILLA/ LWR JOHN DAY	2.93	1.02	153.	7.41	2.17	141.
UPR DESCHUTES/ CROOKED	3.42	1.38	168.	7.76	2.80	157.
HOOD/ LOWER DESCHUTES	6.33	1.70	137.	14.07	2.99	127.
NW SLOPE WASH CASCADES	13.25	0.02	100.	32.27	-2.09	94.
SW WA CASCADES/COWLITZ	11.33	0.25	102.	28.86	1.20	104.
WILLAMETTE VALLEY	11.73	2.29	124.	27.68	4.63	120.
ROGUE/ UMPQUA	8.42	2.70	147.	16.98	2.92	121.
KLAMATH BASIN	4.33	1.47	151.	9.45	2.80	142.
LAKE COUNTY-GOOSE LAKE	2.68	1.26	189.	6.04	2.32	162.
HARNEY/ MALHEUR BASIN	2.46	1.19	194.	5.73	2.45	175.

Columbia River Basin division values are computed by utilizing un-weighted precipitation amounts from key stations in each area.

Precipitation normals are based on 1971-2000 historical data.

Please contact NWRFC for further information: (503) 326-7291.

NORTHWEST RIVER FORECAST CENTER PORTLAND OR

PRECIPITATION, TEMPERATURE, SNOW, AND STREAMFLOW SUMMARIES

dec 11

WEATHER SUMMARY

unsettled upper level flow kept weather showery and temperatures near normal for the first week of December. by the second week...southwesterly upper level flow set up over the northwest...bringing above normal temperatures and precipitation. with moist warm conditions in place...a cold front that came through during the middle of the second week helped produce heavy rain and snow through much of the region west of the cascade mountains. runoff associated with this brought high water to much of this area...and broke many daily precipitation records.

after the front passed through the region...a low pressure system set up offshore which provided impulses of cool air and moisture into the columbia basin. this helped keep weather unsettled and temperatures below normal. by the end of the month...the system moved onshore bringing another dose of heavy rain west of the cascades...and snow and low level rain to the rest of the region.

PRECIPITATION SUMMARY

December precipitation was: 100 percent of normal (1971-2000) at Columbia above Coulee, 151 percent of normal at the Snake River above Ice Harbor, and 113 percent of normal at Columbia above the Dalles.

Seasonal (October through December) precipitation was: 99 percent of normal (1971-2000) at Columbia above Coulee, 136 percent of normal at the Snake River above Ice Harbor, and 111 percent of normal at Columbia above the Dalles.

TEMPERATURE SUMMARY

The 37 station temperature index for the Pacific Northwest departed +1.8 degrees from normal relative to the 1971-2000 normals. Mean

temperature departures ranged from -3.3 to 6.6 degrees.

General Summary !

Water year 2011 is being portrayed as a La Nina year. On the average the Columbia-Snake basin can expect cool temperatures and above average precipitation in this type of climate pattern. The month of September was very wet in the Northern portion of the basin. The month of October was very wet in the Snake River area. Temperatures were above average in October and below average in both November and December. The wet conditions during September and October helped to replenish low soil moisture levels from 2010. Snow water equivalents (SWE) on January 1st are below average in the Upper Columbia-Kootenai, Flathead, Spokane Rivers and on the North Cascade tributaries in Washington. Southern portions of the Columbia-Snake area have above average January 1st SWE. January 1st streamflow forecasts call for near to slightly below average streamflow in basins above Grand Coulee Dam and slightly above average streamflow for Snake River drainages. The forecast for the Columbia River at The Dalles slightly below average.

Snow Summary !

Snow accumulations started slowly in the early season due to above average temperatures. However, snow water equivalents (SWE) occurred at average to above average rates during November and December. January 1st SWE ranges from 60 to 90 percent of the 30-year average on the Upper Columbia-Kootenai, Spokane and on the North Cascade basins in Washington. In other areas snow accumulations are near 150 percent in Southeast Oregon, Northeast Oregon and on Southern Snake River drainages. Near average January 1st SWE is found on the Clark Fork river in Western Montana and on the Salmon and Clearwater Rivers in Idaho.

Streamflow Summary !

Streamflow in December was above average in most Columbia-Snake basins. Only the Clark Fork basin in Montana, the Okanogan river in the North Cascades of British Columbia and Washington and the Central and Lower Snake Rivers had below average streamflow at 80 to 100 percent.

Heavy rainfall in early December produced moderate to major flooding in Western Washington with the Stillaguamish River at Arlington reporting record streamflow. Late December rainfall produced minor flooding on several Western Oregon streams. Very cold conditions during mid to late December produced icing conditions on most rivers east of The Cascades.

Seasonal forecasts on January 1st indicate streamflow in the Columbia-Snake basin ranging from 120 percent of the 30-year average on the Upper Snake River to slightly below average in the Northern area basins. Lowest expected streamflow on January 1st are found in the Upper Columbia-Kootenai and on the North Cascade tributaries in Washington at 90 to 95 percent. January 1st streamflow forecasts for Western Oregon and Western Washington are expected to be slightly above average. The January 1st forecast for the Columbia River at The Dalles is near 95 percent of average.

See http://www.nwrfc.noaa.gov/water_supply/ws_fcst.cgi for detailed water supply forecasts.

MONTHLY PRECIPITATION AND TEMPERATURE RECORDS

Partial list of record high and low temperatures in degrees (F) are listed below. Precipitation is reported in inches.

Please see the complete list of records at the National Weather Service Field Offices Climatology Web pages.

12/07 A RECORD HIGH TEMPERATURE OF 63 DEGREES SET AT MEDFORD OR.

 A RECORD HIGH TEMPERATURE OF 55 DEGREES WAS TIED AT QUILLAYUTE WA.

12/08 A RECORD RAINFALL OF 1.18 INCHES WAS SET AT SALEM OR.

12/09 A RECORD RAINFALL OF 1.42 INCHES WAS SET AT PORTLAND OR.

12/11 A RECORD RAINFALL OF 1.30 INCHES WAS SET AT PORTLAND OR.

 A RECORD RAINFALL OF 1.42 INCHES WAS SET AT SEAT-TAC WA.

A RECORD RAINFALL OF 2.17 INCHES WAS SET AT QUILLAYUTE WA.

A RECORD SNOWFALL OF 5.9 INCHES WAS SET AT YAKIMA WA.

12/12 A RECORD RAINFALL OF 2.19 INCHES WAS SET AT SEA-TAC WA.

A RECORD RAINFALL OF 1.80 INCHES WAS SET AT OLYMPIA WA.

A RECORD RAINFALL OF 2.21 INCHES WAS SET AT EVERETT WA.

A RECORD RAINFALL OF 1.92 INCHES WAS SET AT RENTON WA.

A RECORD SNOWFALL OF 17.0 INCHES WAS SET AT WINTHROP WA.

A RECORD RAINFALL OF 0.65 INCHES WAS SET AT YAKIMA WA.

A RECORD RAINFALL OF 0.63 INCHES WAS SET AT KALISPELL MT.

12/13 A RECORD HIGH TEMPERATURE OF 61 DEGREES WAS SET AT PORTLAND OR.

12/19 A RECORD RAINFALL OF 0.58 INCHES WAS SET AT BOISE ID.

12/28 A RECORD PRECIPITATION OF 0.44 INCHES WAS SET AT POCATELLO ID.

12/29 A RECORD RAINFALL OF 1.02 INCHES WAS SET AT PENDLETON OR.