

aTD224
-W2W37

United States
Department of
Culture

National
Conservation
Service



Washington

Basin Outlook Report

February 1, 1994



In addition to basin outlook reports, a Water Supply Forecast for the Western United States is published by the Soil Conservation Service and National Weather Service monthly, January through May. Reports may be obtained from the Soil Conservation Service, West National Technical Center, 511 Northwest Broadway, Room 248, Portland, OR 97209-3489.

Issued by

Paul W. Johnson
Chief
Soil Conservation Service
U.S. Department of Agriculture

Released by

Lynn A. Brown
State Conservationist
Soil Conservation Service
Spokane, Washington

The Following Organizations Cooperate With the Soil Conservation Service in Snow Survey Work*:

Canada	Ministry of the Environment Investigations Branch, Victoria, British Columbia
Federal	Washington State Department of Ecology Washington State Department of Natural Resources
State	Department of the Army Corps of Engineers U.S. Department of Agriculture Forest Service U.S. Department of Commerce NOAA, National Weather Service U.S. Department of Interior Bonneville Power Administration Bureau of Reclamation Geological Survey National Park Service Bureau of Indian Affairs
Local	City of Tacoma City of Seattle Chelan County P.U.D. Pacific Power and Light Company Puget Sound Power and Light Company Washington Water Power Company Snohomish County P.U.D. Colville Confederated Tribes Spokane County Yakima Indian Nation
Private	Okanogan Irrigation District Wenatchee Heights Irrigation District Newman Lake Homeowners Association

*Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

Washington Water Supply Outlook

February 1994

General Outlook

The snowpack varies from a high of 75% of average in the Colville - Pend Oreille Basin to 34% in the Olympic Basin. Washington SNOTEL sites averaged 65% of the normal snowpack for February 1, down from 78% on January 1 (By February 9, the statewide average was 61%). Forecasts for 1994 runoff vary from 86% of average for the Thunder Creek in the Skagit Basin to 62% for the Yakima River near Parker. January precipitation was 58% of normal statewide. It varied from 111% of average in the Walla Walla Basin to 35% in the Okanogan - Methow Basin. Year-to-date precipitation varies from 52% in the Okanogan - Methow Basin to 73% in the Colville - Pend Oreille Basin. January temperatures were above normal and varied from five degree above in the Olympic Peninsula Basin to nine degrees above in the Okanogan Basin. January streamflows varied from 123% of normal on the Kettle River to 43% on the Naches River. February 1 reservoir storage is generally poor throughout the state, with reservoirs in the Yakima Basin at 25% of average and 15% of capacity.

Snowpack

The February 1 SNOTEL reading showed the snowpack to be 65% of average. Snowpack varied over the state, with the Olympic Peninsula Basin the lowest with 34% of average, and the Colville - Pend Oreille Basins the highest at 75% of normal. The North Puget River Basins had 59% of average. Snowpack along the east slopes of the Cascade Mountains included the Yakima with 65%, down from 81% last month, and the Wenatchee with 67% down from 76% last month. Snowpack in the Okanogan was at 74%, and the Spokane Basin had 67%. Maximum snow cover was at Paradise SNOTEL near Mount Rainier, with a water content of 27.9 inches. This site would normally have 38.5 inches of water content on February 1.

Precipitation

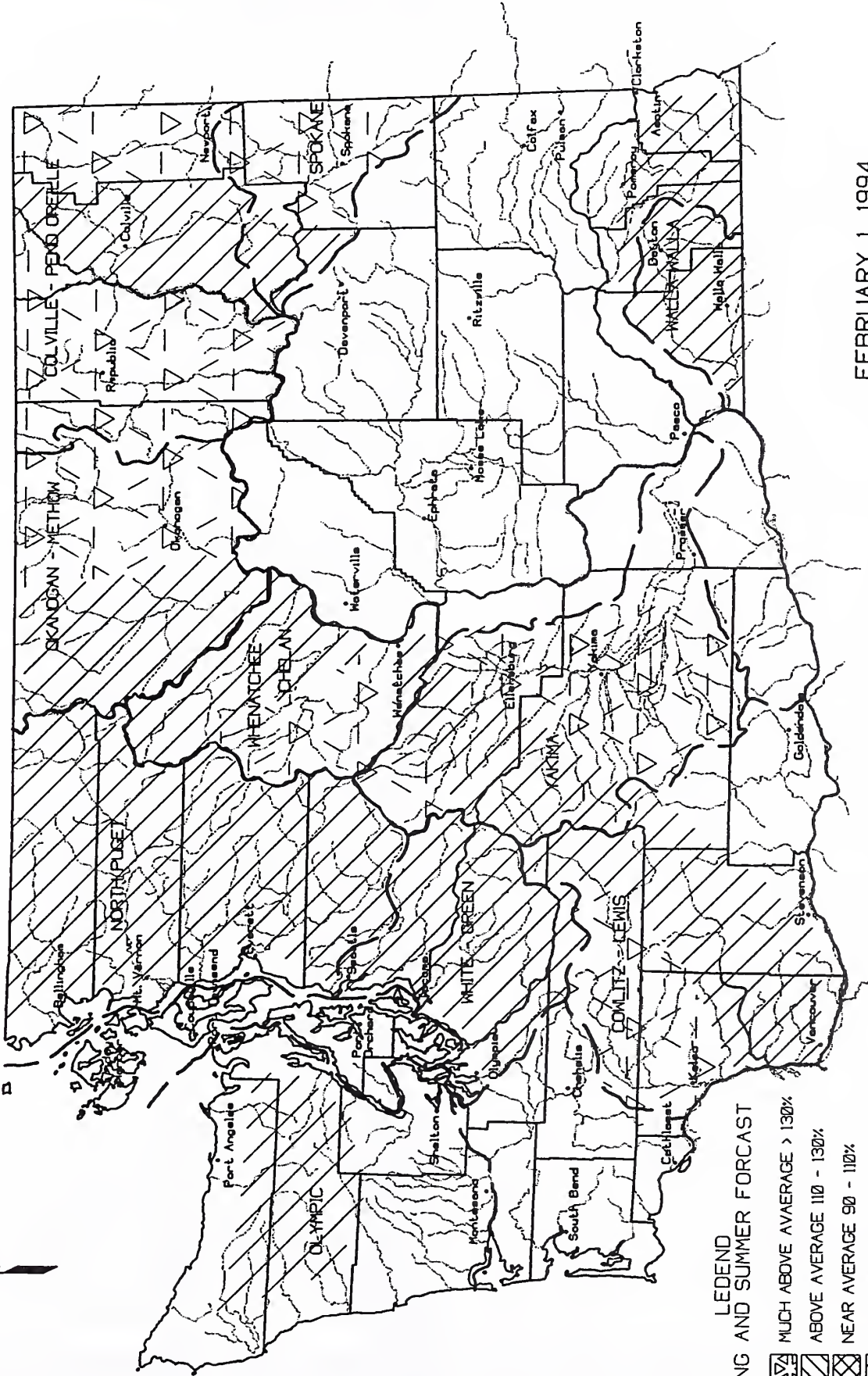
January precipitation reported from National Weather Service stations was 58% of average statewide. The year-to-date precipitation statewide is 58% and it varies from 52% of normal in the Okanogan - Methow Basin, to 73% in the Colville - Pend Oreille Basin. January precipitation varied from 111% of average in the Walla Walla Basin, to 35% in the Okanogan - Methow Basin. SNOTEL sites in Washington showed high elevation year-to-date precipitation values to be 66% of average. Maximum year-to-date precipitation was at the June Lake SNOTEL site near Mt. St. Helens, with 59.4 inches since October 1, 1993; normal for this site is 81.6 inches.








Reservoir

Warm dry weather continued through January, keeping streamflow below normal and reservoir storage low. Reservoir storage in Washington was generally below average for February 1. Reservoir storage in the Yakima Basin was 157,500 acre feet, 25% of normal. Storage at other reservoirs included Roosevelt at 89% of average, and the Okanogan reservoirs, continue good, at 129% of normal for February 1. The power generation reservoirs include the following: Coeur d'Alene Lake, 53,500 acre feet, or 42% of normal; Chelan Lake, 258,900 acre feet, 57% of average and 38% of capacity, and Ross Lake at 89% of average and 65% of capacity.

Streamflow

Forecasts for summer streamflow are for below to much below average. They vary from 86% of average for the Thunder Creek in the Skagit Basin to 62% of normal for the Yakima River near Parker. February forecasts for some west side streams include: Cedar River, 77%; Green River, 76%; and the Dungeness River, 75%. Some east side streams include the Grande Ronde River, 78%; the Wenatchee River, 65%; and the Colville River, 80%. January streamflows varied greatly but most streams were below average in Washington. The Kettle River at 123% was the highest and the Naches River with 43%, was the lowest in the state. Other streamflows were the following percentage of normal: the Cowlitz River, 76%; the Okanogan River, 89%; the Spokane River, 57%; the Columbia at the Canadian border, 99%,. and the Yakima River at Kiona, 53%.



- LEND**
SPRING AND SUMMER FORECAST
-  MUCH ABOVE AVERAGE > 130%
 -  ABOVE AVERAGE 110 - 130%
 -  NEAR AVERAGE 90 - 110%
 -  BELOW AVERAGE 70 - 90%
 -  MUCH BELOW AVERAGE < 70%
 -  NOT FORECAST
 -  WATERSHED BOUNDARY

FEBRUARY 1, 1994

STREAMFLOW PROSPECTS WASHINGTON

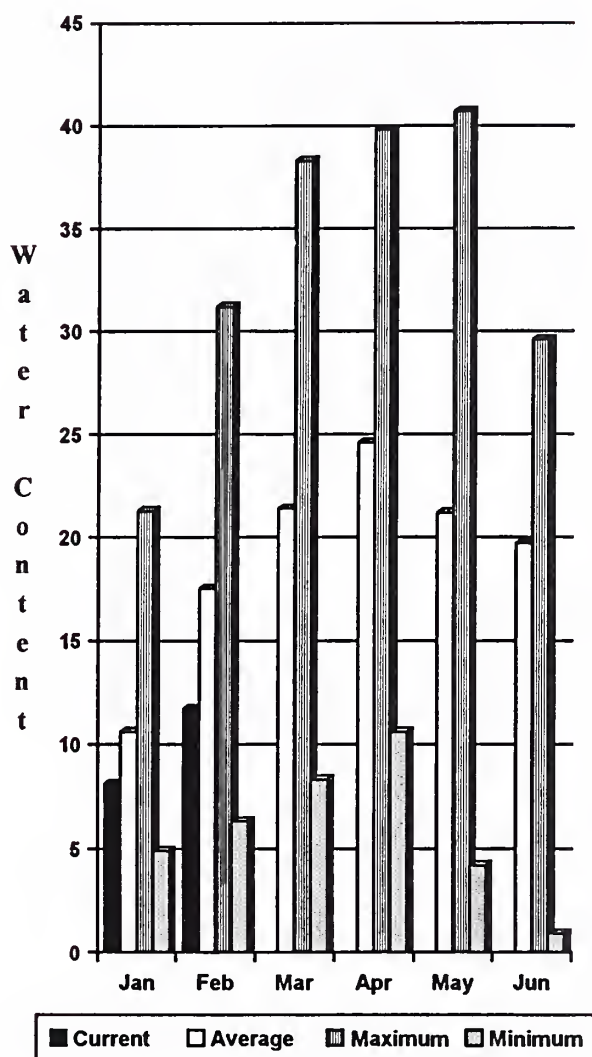
NTS

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

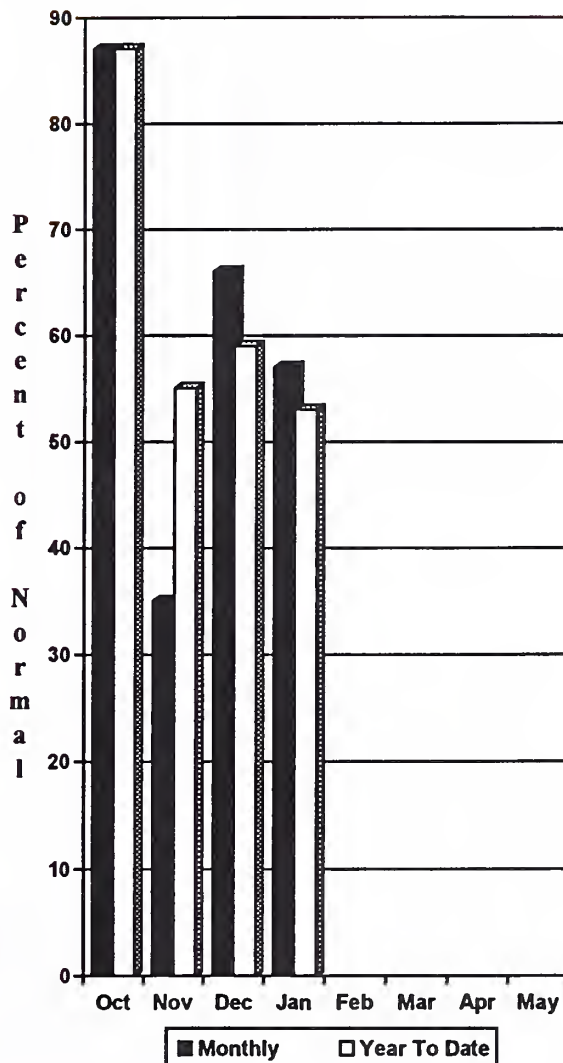


Spokane River Basin

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

The February 1 forecasts for summer runoff within the Spokane River Basin are 63% of normal, down from 77% last month. The forecast is based on a snowpack that is 67% of average and precipitation that is 53% of normal for the water year. Precipitation for January was 57% of average. Streamflow on the Spokane River was 57% of average for January. February 1 storage in Coeur d'Alene Lake was 53,500 acre feet, 42% of normal, and 22% of capacity. Temperatures in the basin were nine degrees above normal during January.

For more information contact your local Soil Conservation Service office.

SPOKANE RIVER BASIN

Streamflow Forecasts - February 1, 1994

Forecast Point	Forecast Period	Future Conditions <<----- Drier ----->> ----- Wetter ----->>>						30-Yr Avg. (1000AF)		
		90% (1000AF)		70% (1000AF)		Chance Of Exceeding * 50% (Most Probable) (1000AF) (% AVG.)			30% (1000AF) 10% (1000AF)	
SPOKANE near Post Falls (2)	APR-SEP	1060	1450	1720	63	1990	3220	2730		
	APR-JUL	930	1320	1580	60	1840	2230	2633		
SPOKANE at Long Lake (2)	APR-JUL	910	1410	1850	63	2290	2790	2937		

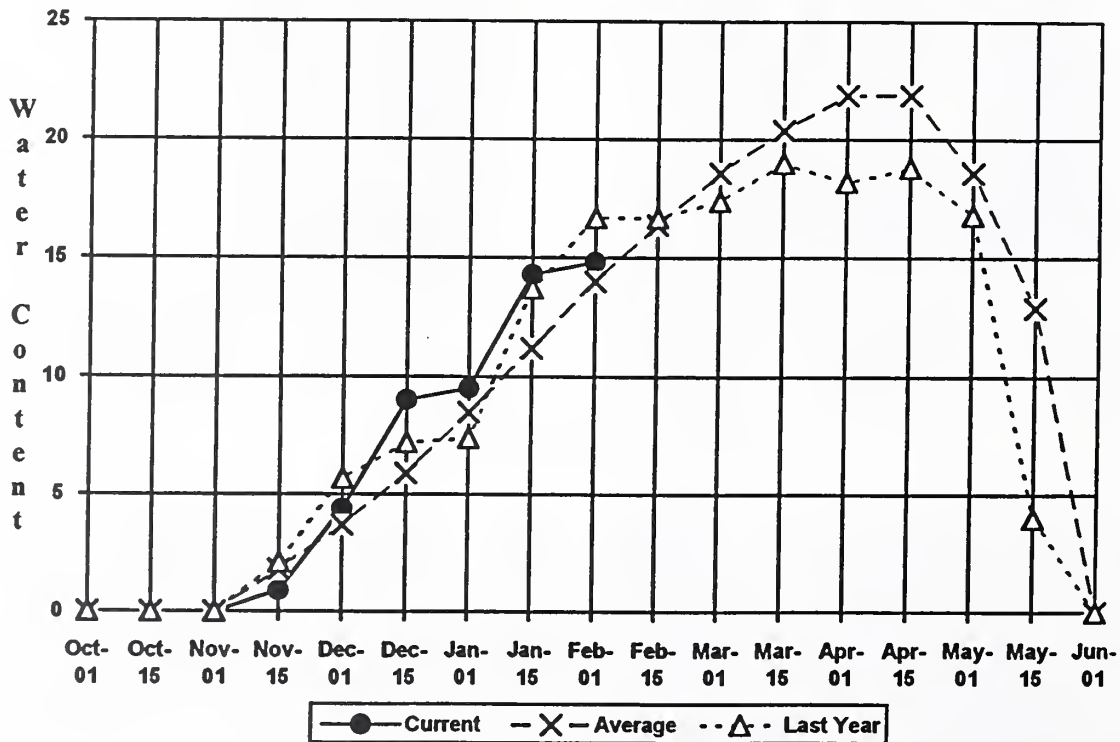
SPOKANE RIVER BASIN Reservoir Storage (1000 AF) - End of January					SPOKANE RIVER BASIN Watershed Snowpack Analysis - February 1, 1994			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
COEUR D'ALENE	238.5	53.5	48.0	127.8	Spokane River	4	69	67

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

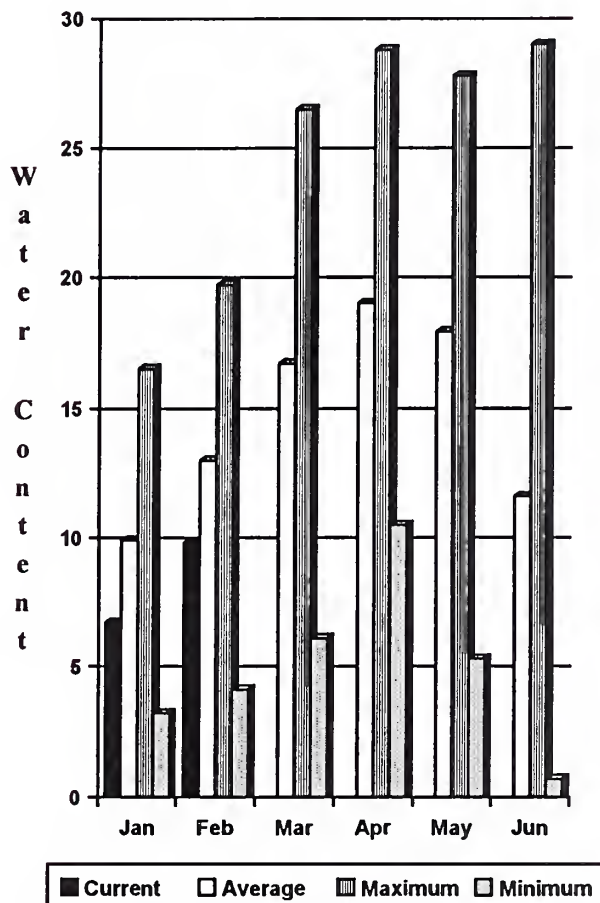
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural flow - actual flow may be affected by upstream water management.

Quartz Peak SNOTEL

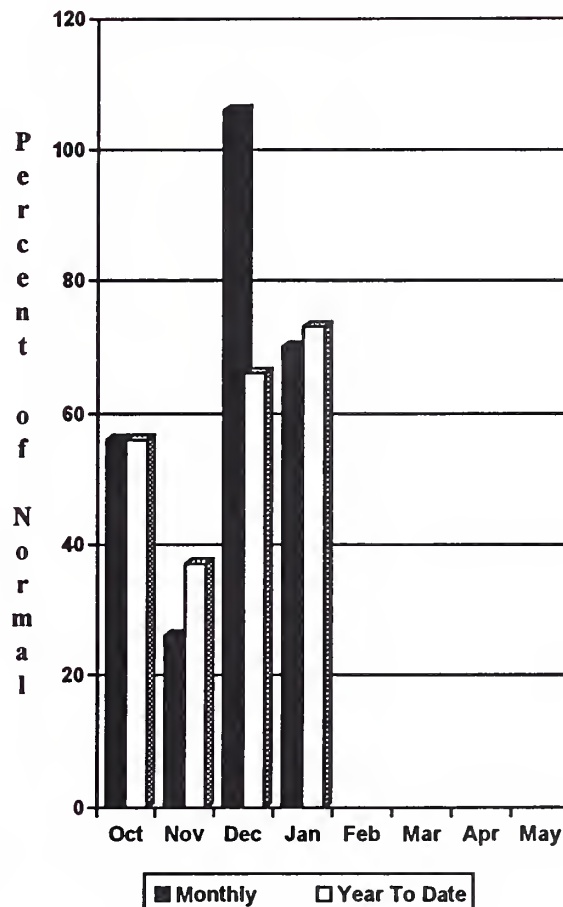


Colville - Pend Oreille River Basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

The forecast for the Kettle River streamflow is for 84% of normal, the Pend Oreille, 62%, and the Colville River, 80% of normal for the summer runoff period. Forecast for the Columbia River at Birchbank is for runoff to be 91% of average. January streamflow was 62% of normal on the Pend Oreille River, 99% on the Columbia at the International Boundary, and 123% on the Kettle River. February 1 snow cover was 66% of normal on the Pend Oreille. Snowpack at Bunchgrass Meadow SNOTEL site contained 14.2 inches of water, the average February 1 reading is 18.8 inches. Precipitation during January was 70% of average, bringing the water year-to-date to 73% of normal. Temperatures were nine degrees above normal for January.

For more information contact your local Soil Conservation Service office.

COLVILLE - PEND OREILLE RIVER BASINS
Streamflow Forecasts - February 1, 1994

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		-----		Chance Of Exceeding *		-----		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
CHAMOKANE CK nr Long Lake	MAY-AUG	0.5	4.7	7.5	80	10.3	14.5	9.4
COLVILLE at Kettle Falls	APR-SEP	48	82	105	80	128	162	131
	APR-JUL	45	77	98	82	119	151	120
	APR-JUN	44	72	91	82	110	139	111
KETTLE nr Laurier	APR-SEP	850	1250	1550	84	1850	2260	1853
	APR-JUL	800	1220	1500	85	1780	2200	1760
	APR-JUN	725	1100	1350	85	1600	1980	1585
COLUMBIA at Grand Coulee Dm (1,2)	APR-SEP	40200	48800	52700	81	56600	65200	64850
	APR-JUL	33900	41100	44400	81	47700	54900	54543
	APR-JUN	26500	32100	34600	81	37100	42700	42756

COLVILLE - PEND OREILLE RIVER BASINS
Reservoir Storage (1000 AF) - End of January

COLVILLE - PEND OREILLE RIVER BASINS
Watershed Snowpack Analysis - February 1, 1994

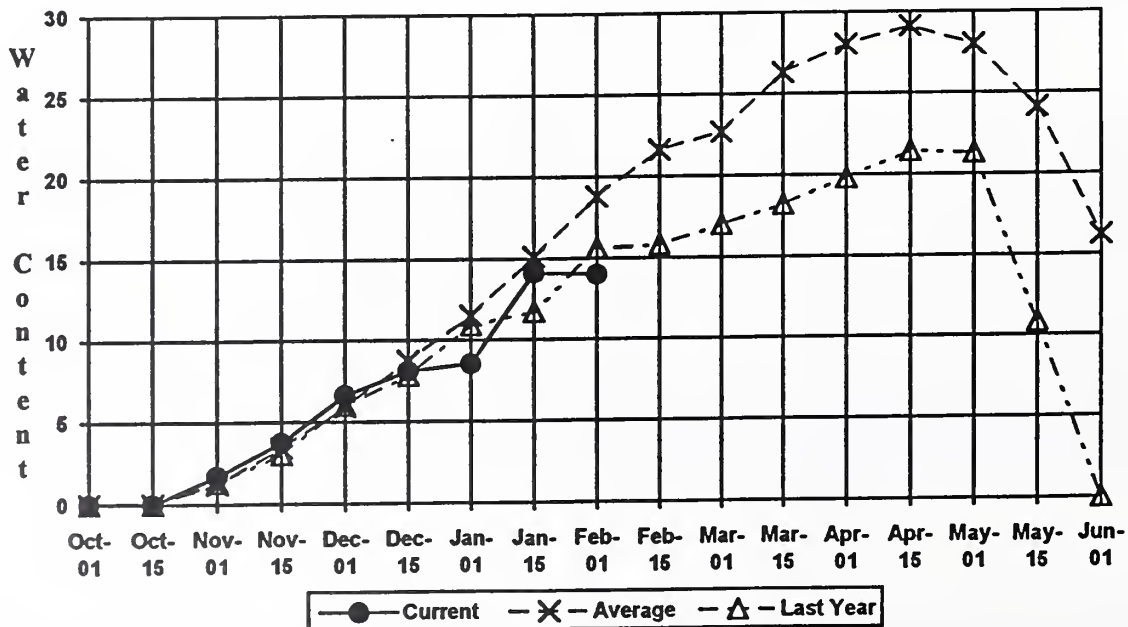
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ROOSEVELT	5232.0	4679.8	3511.7	3749.0	Colville River	1	74	95
BANKS	715.0	674.8	688.2	599.0	Pend Oreille River	6	77	66
					Kettle River	6	79	91

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

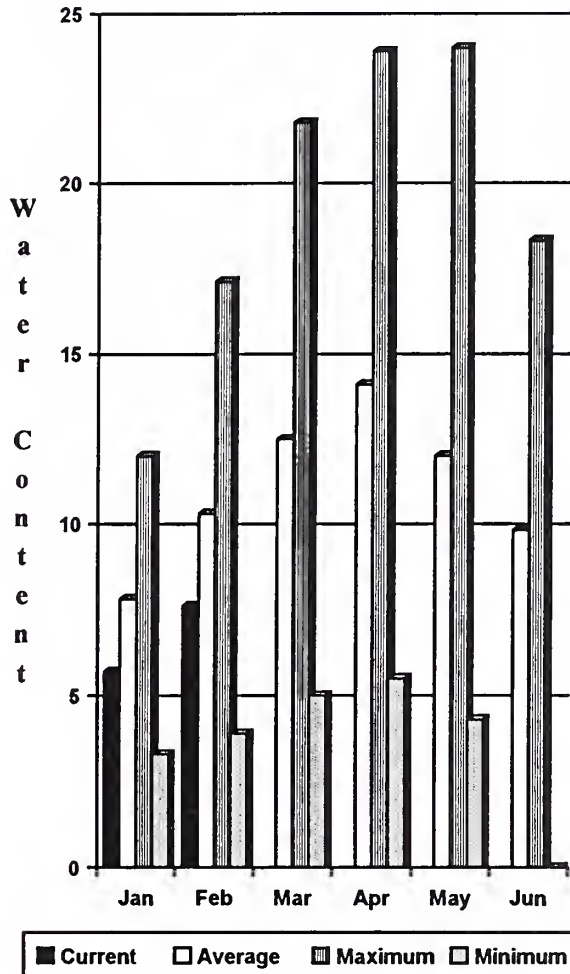
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural flow - actual flow may be affected by upstream water management.

Bunchgrass Meadow SNOTEL

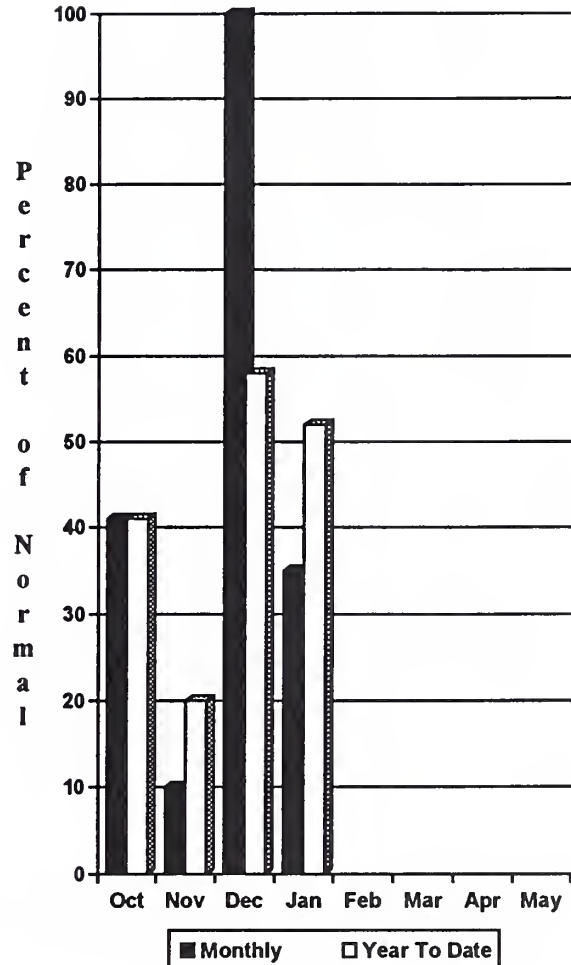


Okanogon - Methow River Basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

Summer runoff forecast for the Okanogon River is 65% of normal; the Similkameen River, 60%, and the Methow River, 70% of normal. February 1 snow cover on the Okanogon was 74% of normal, the Smilkameen 57%, and the Methow 69%. January precipitation in the Okanogon - Methow was 35% of normal, with water year-to-date at 52% of average. January streamflow on the Methow River was 65% of normal, 89% on the Okanogon River, and 81% on the Similkameen. Snow water content at the Harts Pass SNOTEL, elevation 6500 feet, was 16.8 inches; normal for this site is 27.7 inches. Temperatures were eleven degrees above normal for January. Storage in the Conconully Reservoir was 17,800 acre feet, which is 76% of capacity and 129% of the February 1 average.

For more information contact your local Soil Conservation Service office.

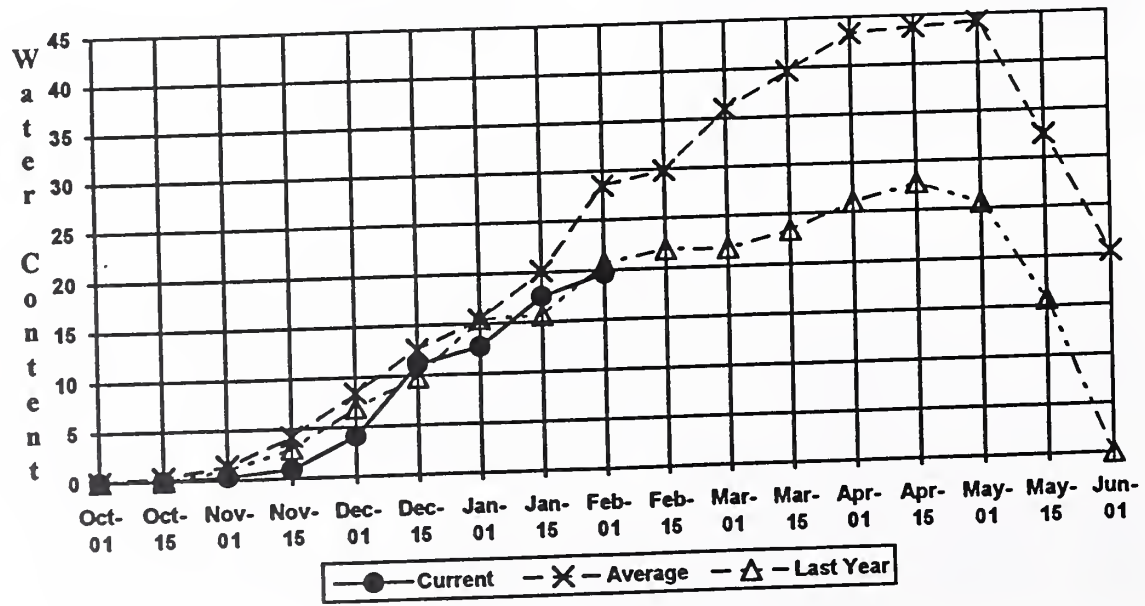
OKANOGAN - METHOW RIVER BASINS
Streamflow Forecasts - February 1, 1994

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		90% (1000AF)		70% (1000AF)		Chance Of Exceeding * 50% (Most Probable) (1000AF) (% AVG.)		
		30% (1000AF)	10% (1000AF)	30% (1000AF)	10% (1000AF)			
SIMILKAMEEN nr Nighthawk (1)	APR-SEP	250	745	840	60	935	1430	1399
	APR-JUL	495	695	782	60	870	1070	1304
	APR-JUN	430	595	670	60	745	910	1113
OKANOGAN RIVER nr Tonasket (1)	APR-SEP	260	850	1060	65	1270	1870	1624
	APR-JUL	360	765	950	65	1130	1540	1467
	APR-JUN	355	660	800	65	940	1250	1234
METHOW RIVER nr Pateros (1)	APR-SEP	310	550	660	70	770	1010	942
	APR-JUL	300	525	630	72	735	960	873
	APR-JUN	245	450	545	73	640	845	746

OKANOGAN - METHOW RIVER BASINS Reservoir Storage (1000 AF) - End of January					OKANOGAN - METHOW RIVER BASINS Watershed Snowpack Analysis - February 1, 1994			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CONCONULLY LAKE (SALMON)	10.5	8.9	7.3	7.5	Okanogan River	23	76	74
CONCONULLY RESERVOIR	13.0	8.9	5.4	6.3	Methow River	4	76	69

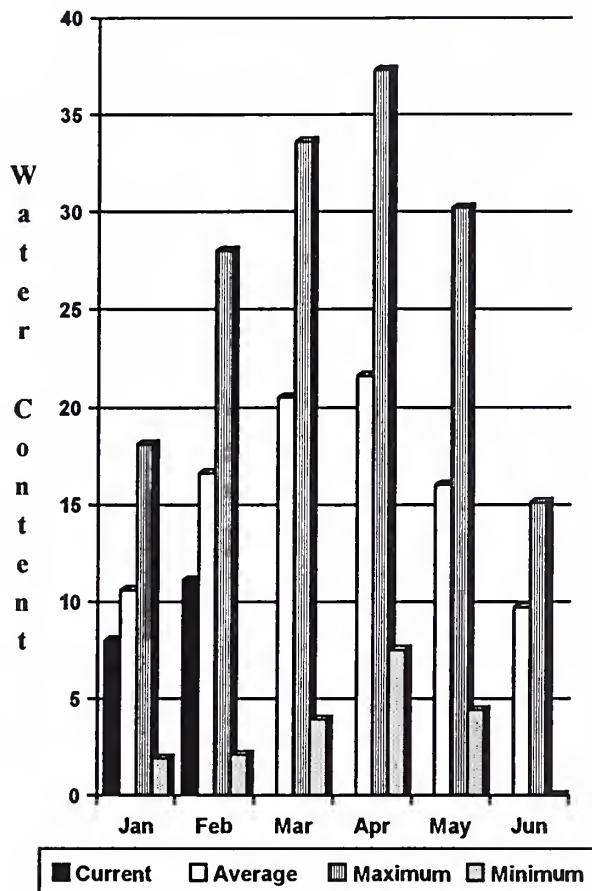
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.
 The average is computed for the 1961-1990 base period.
 (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

Rainy Pass SNOTEL

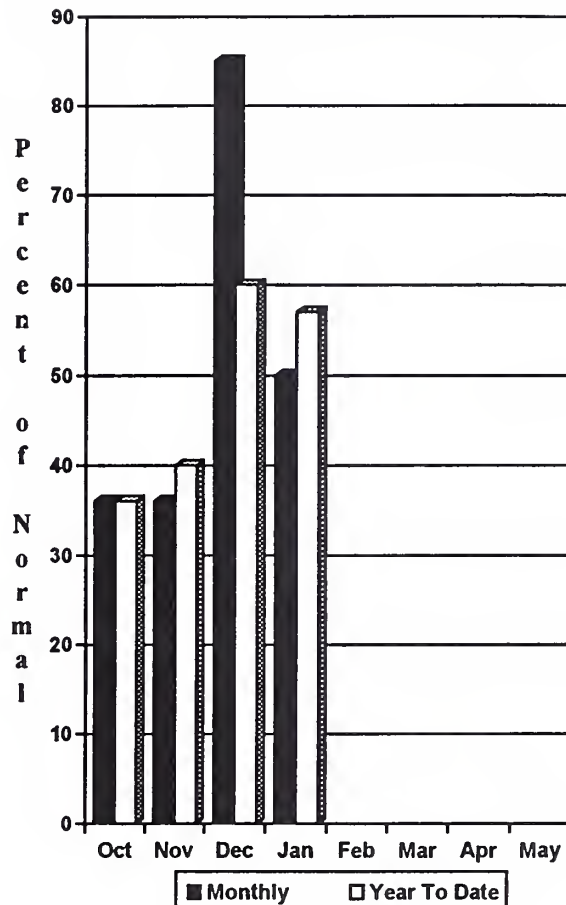


Wenatchee - Chelan River Basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

Precipitation during January was 50% of normal in the basin and 57% for the year to date. Runoff for the Entiat River is forecast to be 74% of normal for the summer. The summer forecast for the Chelan River is for 70%, for the Wenatchee River it is 65%, and 80% on the Squilchuck-Stemilt. Icicle Creek can expect below normal runoff this summer. Streamflow for January on the Chelan River was 79% of average and on the Wenatchee River it was 53% of normal. February 1 snowpack in the Wenatchee Basin was 67% of average, down from 77% last month. The Chelan Basin was 65% of the February 1 average. Snowpack along Colockum Ridge and Stemilt Creek was at 71% of normal. Snowpack on the Entiat River was at 77% of average. Reservoir storage in Lake Chelan was 258,900 acre feet or 57% of February 1 average and 38% of capacity. Lyman Lake SNOTEL had the most snow water with 27.1 inches of water. This site would normally have 39.0 inches.

For more information contact your local Soil Conservation Service office.

WENATCHEE - CHELAN RIVER BASINS

Streamflow Forecasts - February 1, 1994

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		Drier		50% (Most Probable)		Wetter		
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
CHELAN RIVER at Chelan (1)	APR-SEP	430	690	810	70	930	1190	1160
	APR-JUL	405	635	740	72	845	1070	1024
	APR-JUN	330	510	590	73	670	850	812
STEHEKIN R. at Stehekin	APR-SEP	420	515	585	71	655	755	827
	APR-JUL	370	455	510	73	565	650	701
	APR-JUN	285	345	390	72	435	495	538
ENTIAT RIVER nr Ardenvoir	APR-SEP	110	145	168	74	191	225	227
	APR-JUL	100	133	155	75	177	210	206
	APR-JUN	85	110	127	75	144	169	169
WENATCHEE R. at Peshastin	APR-SEP	495	830	1060	65	1290	1630	1636
	APR-JUL	470	775	980	66	1190	1490	1485
	APR-JUN	390	635	800	66	965	1210	1204
STEMILT nr Wenatchee (miners in)	MAY-SEP	64	91	110	80	129	157	138
ICICLE CREEK nr Leavenworth	APR-SEP	170	245	295	80	345	420	370
	APR-JUL	160	230	275	81	320	390	340
	APR-JUN	129	183	220	81	255	310	270
COLUMBIA R. bl Rock Island Dam (2)	APR-SEP	43200	51300	56800	81	62300	70400	70485
	APR-JUL	36700	43500	48200	81	52900	59700	59736
	APR-JUN	29100	34500	38100	81	41700	47100	47007

WENATCHEE - CHELAN RIVER BASINS
Reservoir Storage (1000 AF) - End of January

WENATCHEE - CHELAN RIVER BASINS
Watershed Snowpack Analysis - February 1, 1994

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CHELAN LAKE	676.1	258.9	234.6	450.6	Chelan Lake Basin	4	78	65
					Entiat River	2	91	77
					Wenatchee River	11	76	67
					Squilchuck Creek	0	0	0
					Stemilt Creek	2	66	71
					Colockum Creek	1	93	116

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

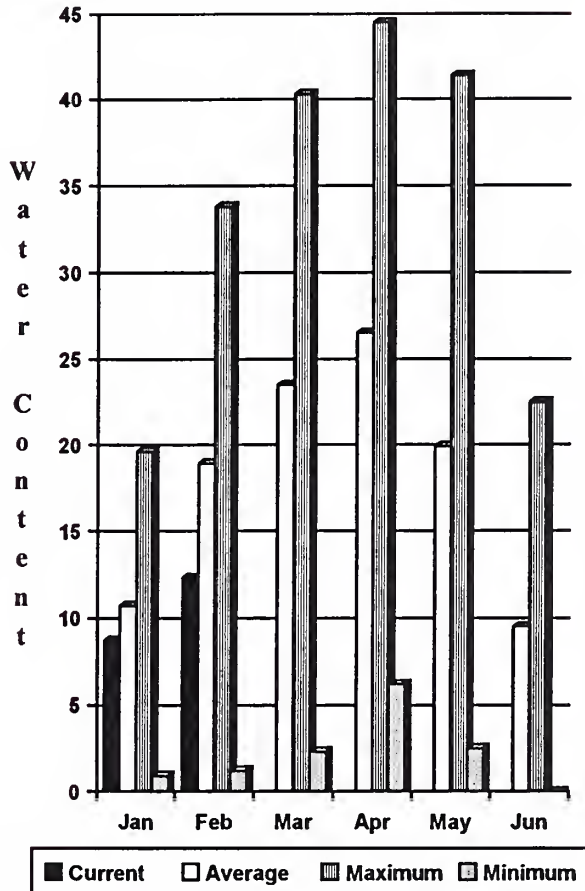
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

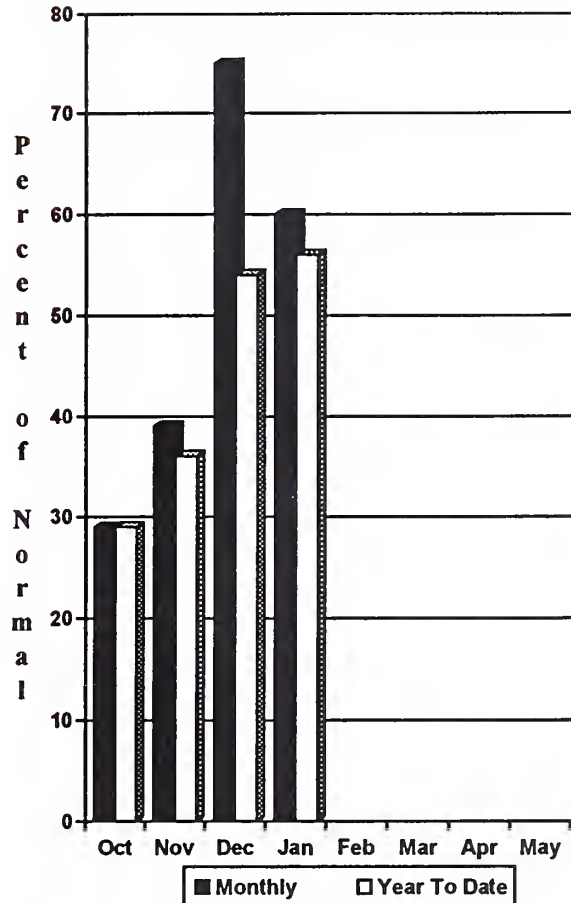
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Yakima River Basin

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

January weather did not improve the prospects for next summer's irrigation season. February 1 reservoir storage for the five major reservoirs was 157,500 acre feet, 25% of average. February 1 summer streamflow forecasts are for below to much below normal in the Yakima Basin. Forecasts for the Yakima River at Cle Elum are for 73% of normal. Naches River, 64%; the Yakima River at Parker, 62%, Ahtanum Creek, 63%, and the Tieton River, 71%. January streamflows were very low, with the Yakima River at Parker 53% of normal, 71% for the Yakima near Cle Elum, and 43% for the Naches River. February 1 snowpack was 65% based upon 18 snow courses and SNOTEL readings. January precipitation was 60% of normal and 56% for the water year-to-date. Temperatures were seven degrees above average for January. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U. S. Bureau of Reclamation's forecast for the total water supply available which includes irrigation return flow.

For more information contact your local Soil Conservation Service office.

YAKIMA RIVER BASIN

Streamflow Forecasts - February 1, 1994

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		Drier		Wetter				
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding * 50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
KEECHELUS LAKE INFLOW	APR-JUL	60	74	84	68	94	108	124
	APR-SEP	73	81	92	68	103	111	135
	APR-JUN	60	71	79	72	87	98	109
KACHESS LAKE INFLOW	APR-JUL	51	63	71	64	79	91	111
	APR-SEP	52	65	74	63	83	96	118
	APR-JUN	55	65	71	72	77	87	99
CLE ELUM LAKE INFLOW	APR-JUL	230	265	290	71	315	350	409
	APR-SEP	230	270	300	67	330	365	448
	APR-JUN	200	230	250	72	270	300	345
YAKIMA at Cle Elum	APR-JUN	420	480	525	73	570	630	721
	APR-JUL	475	550	600	72	650	725	832
	APR-SEP	505	585	640	70	695	775	915
BUMPING LAKE INFLOW	APR-SEP	63	85	95	70	106	126	136
	APR-JUL	66	80	89	72	98	112	124
	APR-JUN	55	68	77	74	86	99	104
AMERICAN RIVER near Nile	APR-SEP	66	79	87	74	95	108	118
	APR-JUL	63	74	82	75	90	101	109
	APR-JUN	52	63	70	76	77	88	92
RIMROCK LAKE INFLOW	APR-SEP	119	154	170	71	186	220	238
	APR-JUL	116	134	146	73	158	176	200
	APR-JUN	91	107	118	73	129	145	162
NACHES near Naches	APR-SEP	350	480	530	64	580	705	832
	APR-JUL	390	455	500	66	545	610	755
	APR-JUN	335	390	430	66	470	525	651
AHTANUM CREEK nr Tampico (2)	APR-SEP	10.0	22	29	63	37	48	46
	APR-JUL	10.0	20	27	64	34	44	42
	APR-JUN	8.0	17.0	23	64	29	38	36
YAKIMA near Parker	APR-SEP	800	1100	1230	62	1360	1760	1994
	APR-JUL	865	1040	1155	64	1270	1440	1805
	APR-JUN	795	940	1040	65	1140	1280	1597

YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of January

YAKIMA RIVER BASIN Watershed Snowpack Analysis - February 1, 1994

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
KEECHELUS	157.8	38.8	45.5	96.0	Yakima River	18	68	65
KACHESS		NO REPORT			Ahtanum Creek	2	57	71
CLE ELUM	436.9	35.3	72.5	251.0				
BUMPING LAKE	33.7	5.9	4.7	9.0				
RIMROCK	198.0	35.2	52.1	115.0				

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

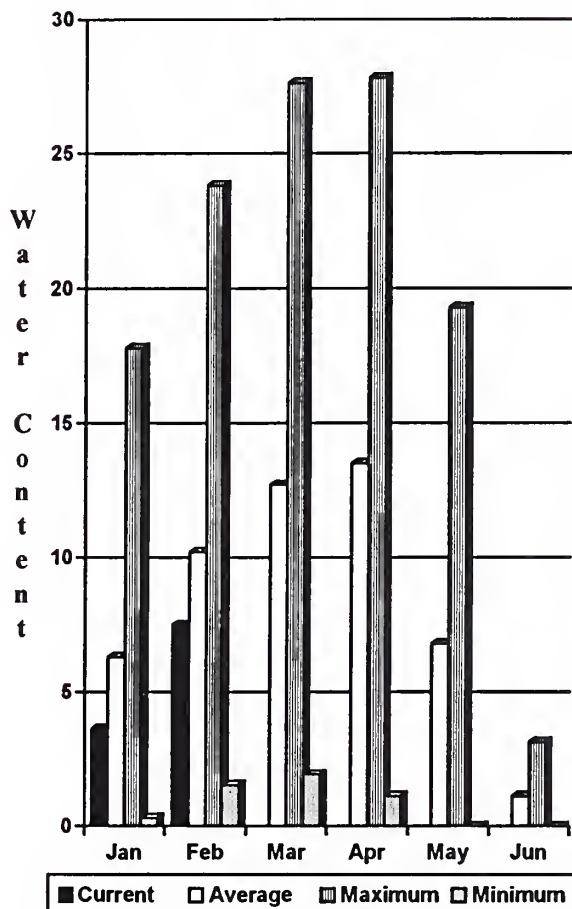
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

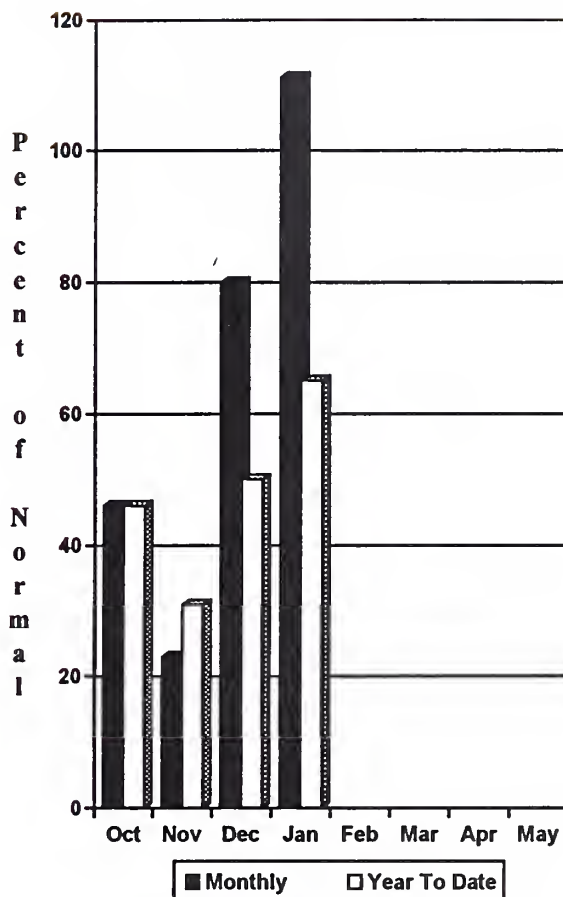
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Walla Walla River Basin

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

January precipitation was 111% of average, bringing the year-to-date precipitation to 65% of normal. February 1 snowpack was at 73% of normal. The forecast is for 75% of average streamflow in the Walla Walla River for the coming summer, for the Grande Ronde, 78%; the Snake River, 61%, and 85% for Mill Creek. January streamflow was 61% of normal on the Walla Walla River, 63% for the Snake River, and 63% on the Grande Ronde River near Troy. The Touchet SNOTEL site had 14.4 inches of water equivalent, the normal February 1 reading for this site is 20.8 inches. Temperatures were seven degree above average for January.

For more information contact your local Soil Conservation Service office.

WALLA WALLA RIVER BASIN

Streamflow Forecasts - February 1, 1994

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		Drier		50% (Most Probable)		Wetter		
		90% (1000AF)	70% (1000AF)	50% (1000AF)	Chance Of Exceeding * (% AVG.)	30% (1000AF)	10% (1000AF)	
GRANDE RONDE at Troy (1)	MAR-JUL	580	975	1150	78	1330	1710	1471
	APR-SEP	505	860	1020	78	1180	1530	1312
SNAKE bl Lower Granite Dam (1,2)	APR-JUL	3890	10300	13200	61	16100	22500	21650
	APR-SEP	4330	11500	14800	61	18100	25300	24360
MILL CREEK at Walla Walla	APR-SEP	6.4	11.2	14.5	85	17.8	23	17.1
	APR-JUL	6.4	11.2	14.5	86	17.8	23	16.9
	APR-JUN	6.7	11.5	14.7	88	17.9	23	16.7
SF WALLA WALLA nr Milton Freewater	APR-JUL	30	36	40	75	44	50	53
COLUMBIA R. at The Dalles (2)	APR-SEP	49500	62400	71500	72	80200	94000	98982
	APR-JUL	42300	53600	61300	72	69000	80300	84760
	APR-JUN	34200	43400	49630	72	55900	65000	68925

WALLA WALLA RIVER BASIN Reservoir Storage (1000 AF) - End of January				WALLA WALLA RIVER BASIN Watershed Snowpack Analysis - February 1, 1994				
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					Mill Creek	2	56	73

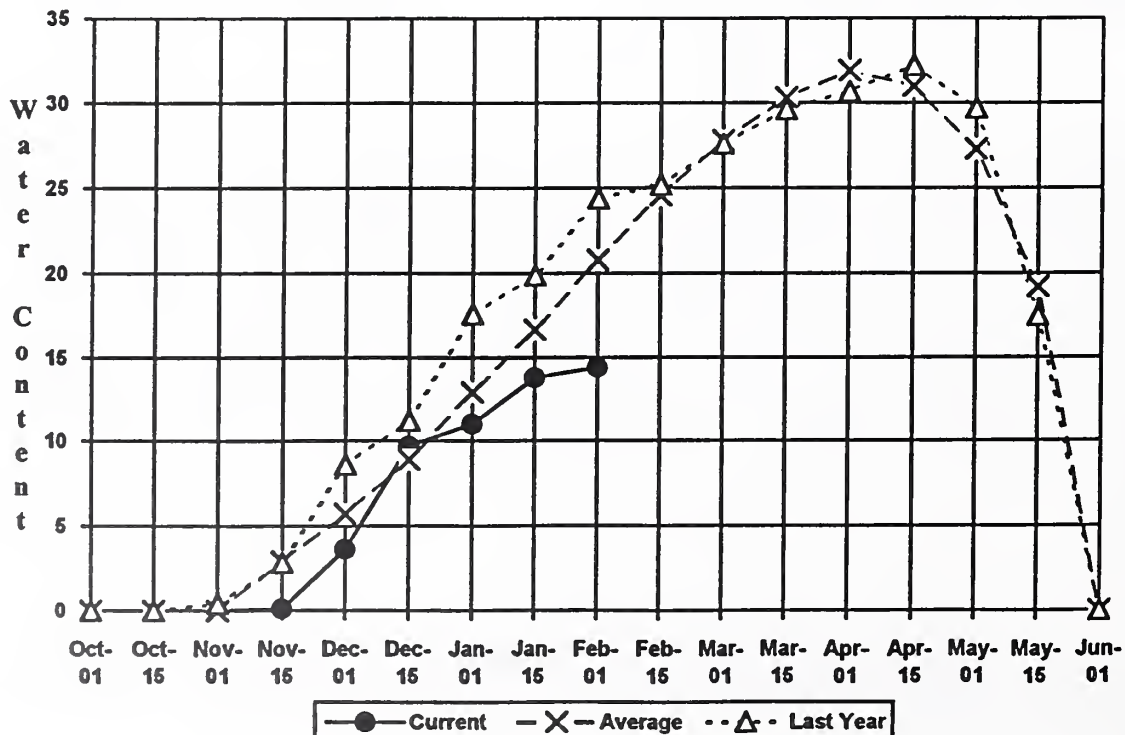
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

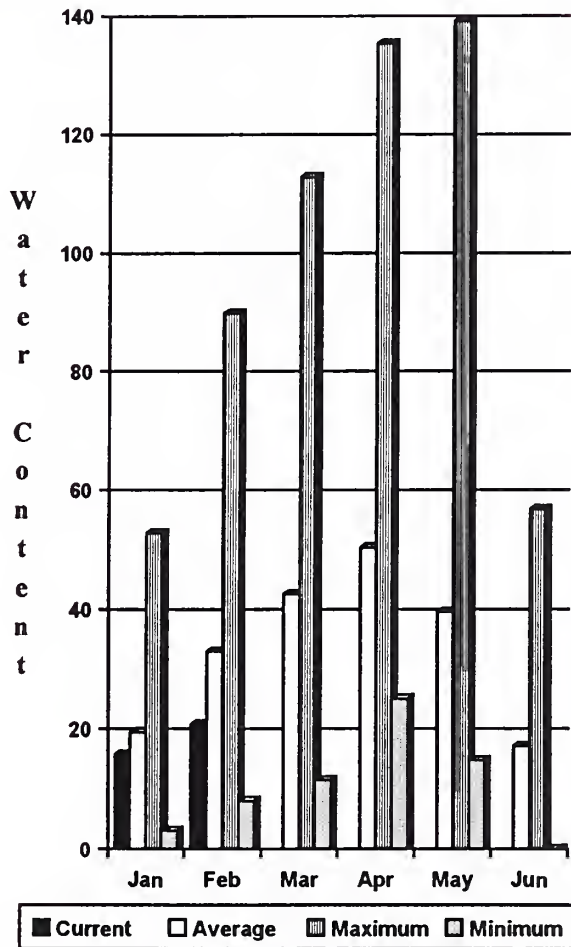
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Touchet #2 SNOTEL

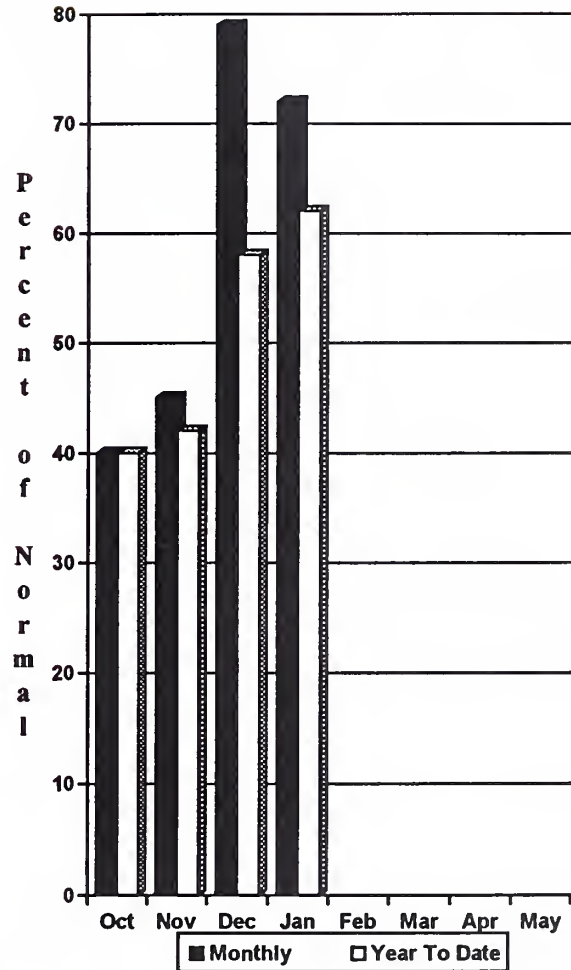


Cowlitz - Lewis River Basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

The forecast for summer runoff in the Lewis River is 70% of normal. The Cowlitz River, is forecasted for 65% of normal runoff. January streamflow on the Cowlitz River was 76% of average, and 92% on the Lewis River. January precipitation was 72% of normal, bringing the precipitation to 62% of average for the water year. February 1 snow cover for the Cowlitz River was 62%, and for the Lewis River it was 63%, down from 96% at the end of last month. The Paradise Park SNOTEL contained the most water content for the basin with 27.9 inches of water. Normal February 1 water content is 38.5 inches. Temperatures were five degree above normal for January.

For more information contact your local Soil Conservation Service office.

COWLITZ - LEWIS RIVER BASINS

Streamflow Forecasts - February 1, 1994

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)		
		90% (1000AF)		70% (1000AF)		Chance Of Exceeding * (1000AF) (% AVG.)			30% (1000AF) 10% (1000AF)	
LEWIS RIVER at Ariel (2)	APR-SEP	255	655	840	70	1030	1430	1204		
	APR-JUL	360	600	760	72	920	1160	1051		
	APR-JUN	330	535	680	73	825	1030	933		
COWLITZ R. b1 Mayfield Dam (2)	APR-SEP	450	945	1280	65	1620	2110	1970		
	APR-JUL	395	825	1120	65	1410	1850	1731		
	APR-JUN	340	710	960	65	1210	1580	1477		
COWLITZ R. at Castle Rock (2)	APR-SEP	960	1480	1840	69	2200	2720	2667		
	APR-JUL	830	1290	1600	69	1910	2370	2325		
	APR-JUN	720	1110	1380	69	1650	2040	1995		

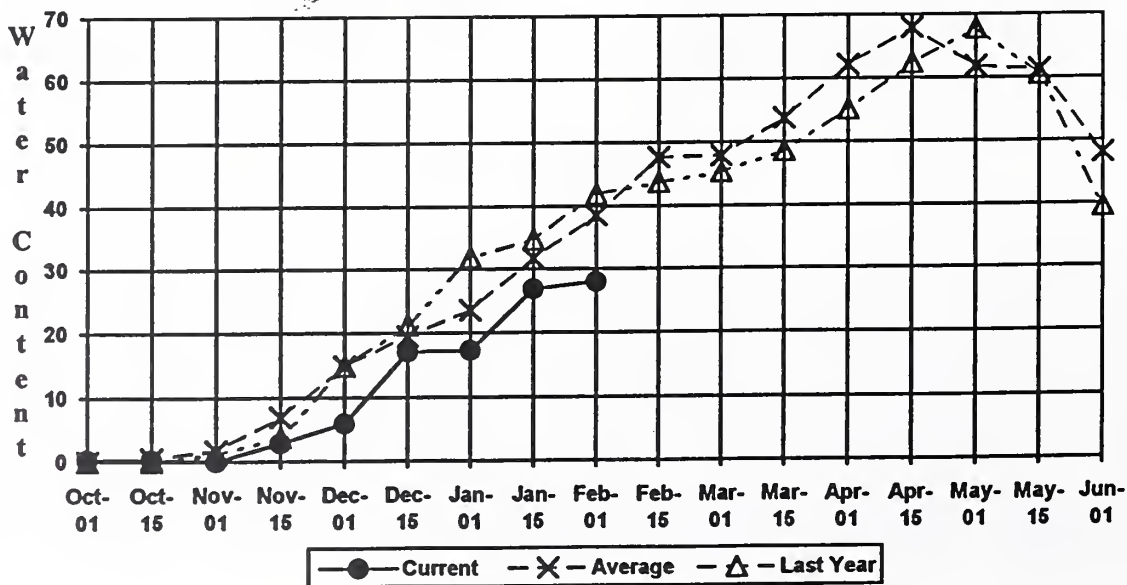
COWLITZ - LEWIS RIVER BASINS Reservoir Storage (1000 AF) - End of January					COWLITZ - LEWIS RIVER BASINS Watershed Snowpack Analysis - February 1, 1994			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					Cowlitz River	6	52	62
					Lewis River	4	49	63

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural flow - actual flow may be affected by upstream water management.

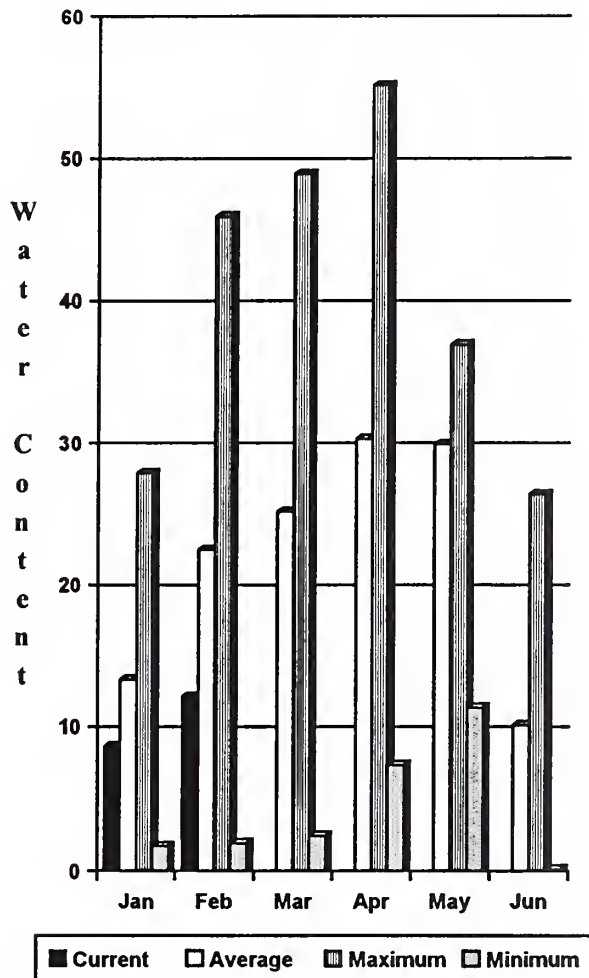
Paradise SNOTEL



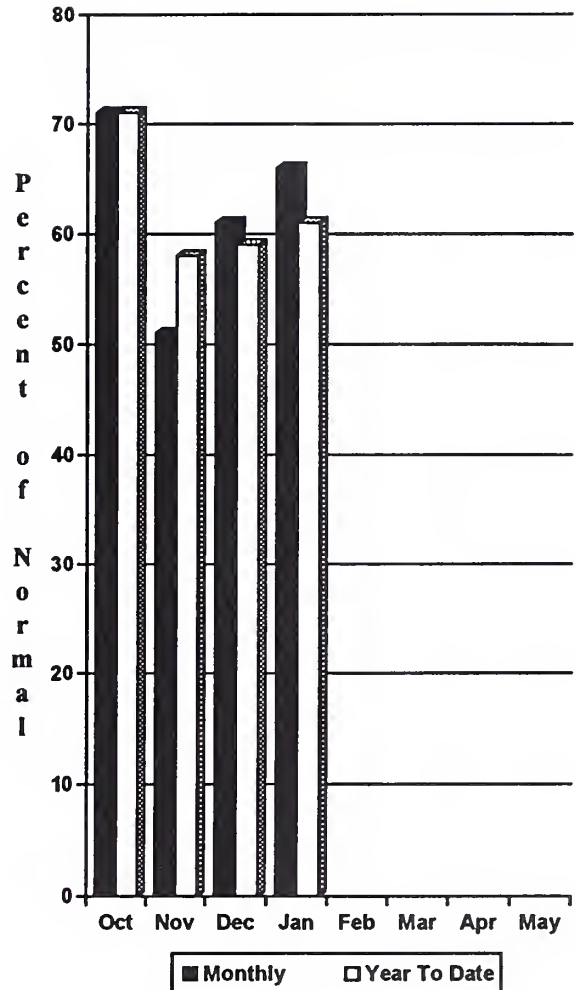
* No average snow pack is available for Mount Crag at this time.

White - Green River Basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

Summer runoff is forecasted to be 76% of normal for the Green River and 77% for the Cedar River, for the Rex River 78%, the South Fork of the Tolt River at 76% and for the Cedar River at Cedar 76%. February 1 snowpack was 72% of normal in the White River Basin and 46% in the Green River Basin. Water content on February 1 at the Stampede Pass SNOTEL, at an elevation of 3860 feet, was 18.6 inches. This site has a February 1 average of 28.8 inches. January precipitation was 66% of normal, bringing the water year-to-date to 61% of average. Temperatures were five degree above average for January.

For more information contact your local Soil Conservation Service office.

WHITE - GREEN RIVER BASINS
Streamflow Forecasts - February 1, 1994

Forecast Point	Forecast Period	Future Conditions					30-Yr Avg. (1000AF)	
		<<----- Drier ----->>		----- Wetter ----->>				
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	30% (1000AF)	10% (1000AF)		
GREEN RIVER below Howard Hanson Dam	APR-JUL	136	171	195	76	220	255	257
	APR-SEP	154	190	214	75	240	275	285
	APR-JUN	122	155	178	76	200	235	234
CEDAR RIVER near Cedar Falls	APR-JUL	40	51	59	77	67	78	77
	APR-SEP	46	58	66	78	74	87	85
	APR-JUN	38	48	55	81	62	72	68
REX RIVER near Cedar Falls	APR-JUL	13.0	18.0	21	78	24	29	27
	APR-SEP	17.0	21	24	80	27	31	30
	APR-JUN	13.0	17.0	20	79	22	26	25
CEDAR RIVER at Cedar Falls	APR-JUL	33	50	62	76	74	91	82
	APR-SEP	35	52	63	76	74	91	83
	APR-JUN	35	51	61	76	71	87	80
SOUTH FORK TOLT near Index	APR-JUL	8.2	10.2	11.5	76	12.8	14.8	15.2
	APR-SEP	10.4	12.5	13.9	78	15.3	17.4	17.8
	APR-JUN	7.4	9.3	10.5	80	11.7	13.6	13.1

WHITE - GREEN RIVER BASINS
Reservoir Storage (1000 AF) - End of January

WHITE - GREEN RIVER BASINS
Watershed Snowpack Analysis - February 1, 1994

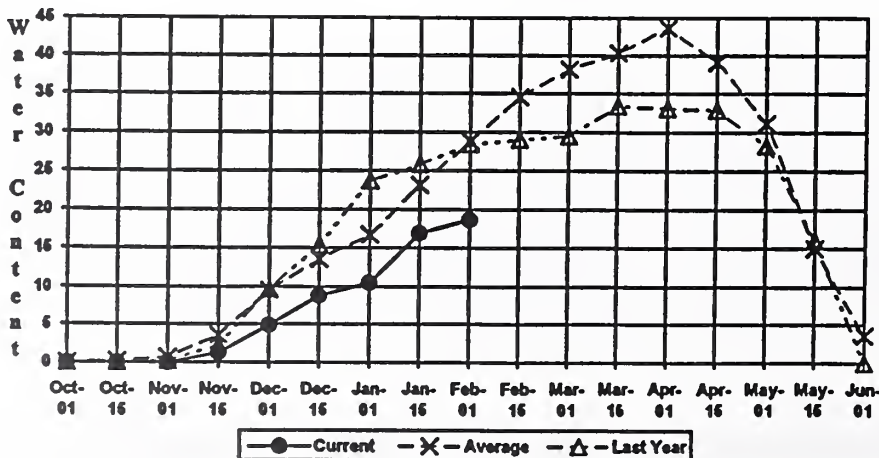
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					White River	2	71	72
					Green River	7	45	46
					Cedar River	0	0	0

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

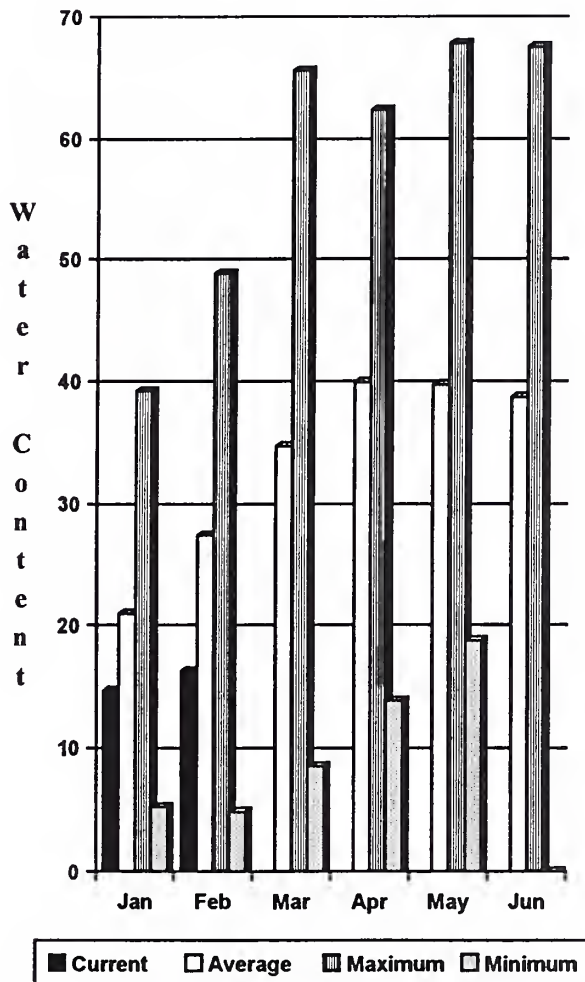
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural flow - actual flow may be affected by upstream water management.

Stampede Pass SNOTEL

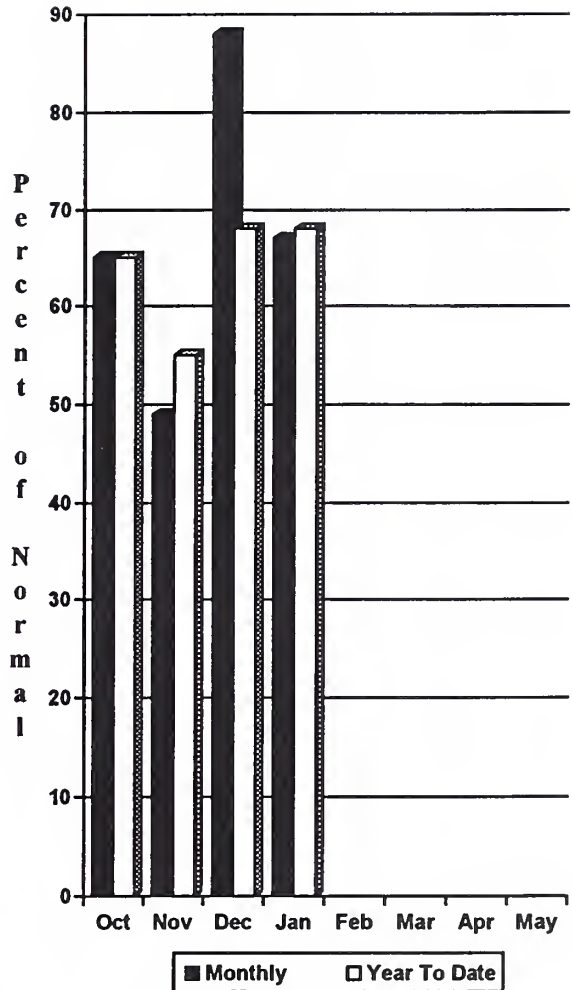


North Puget Sound River Basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

Forecast for the Skagit River streamflow is for 77% of normal for the spring and summer period. January streamflow in the Skagit River was 98% of average. Other forecast points include the Baker River at 82% and Thunder Creek at 86%. Precipitation for January was 67% of average with a water year to date at 68% of normal. February 1 snow cover in the Skagit River was 57% of normal, and in the Baker River it was 62% of average. Rainy Pass SNOTEL, at 4780 feet, had 19.8 inches of water content. Normal February 1 water content is 24.5 inches. February 1 reservoir storage was below average, with Ross Lake at 89% normal and 65% of capacity. January temperatures were five degrees above normal.

For more information contact your local Soil Conservation Service office.

NORTH PUGET SOUND RIVER BASINS

Streamflow Forecasts - February 1, 1994

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		Drier		Wetter				
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding *		30% (1000AF)	10% (1000AF)	
				50% (Most Probable) (1000AF)	(% AVG.)			
THUNDER CREEK near Newhalem	APR-JUL	170	187	198	86	210	225	230
	APR-SEP	250	270	280	85	290	310	328
	APR-JUN	102	119	130	87	141	158	149
SKAGIT RIVER at Newhalem (2)	APR-SEP	1190	1480	1680	77	1880	2170	2185
	APR-JUL	995	1240	1410	77	1580	1820	1830
	APR-JUN	770	960	1085	77	1210	1400	1410
BAKER RIVER near Concrete	APR-JUL	560	635	685	82	735	810	836
	APR-SEP	680	775	835	78	895	990	1064
	APR-JUN	425	485	530	87	575	635	611

NORTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of January

NORTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - February 1, 1994

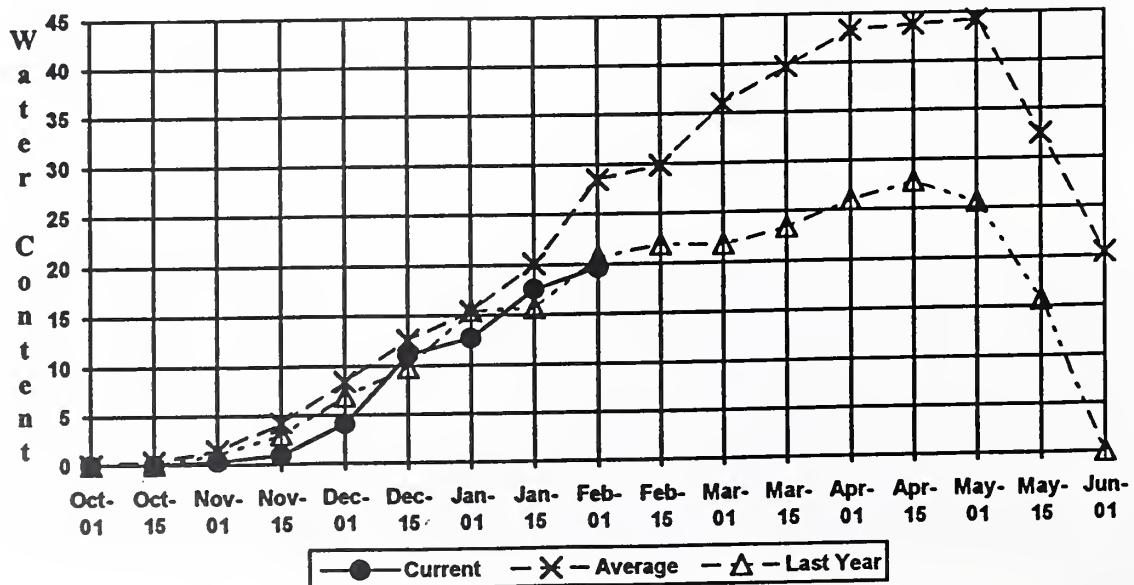
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ROSS	1404.1	917.9	744.4	1033.9	Snohomish River	5	65	56
DIAELO RESERVOIR	90.6	87.2	86.8	84.2	Skagit River	12	69	57
GORGE RESERVOIR	9.8	8.1	8.0	7.9	Baker River	9	72	62

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

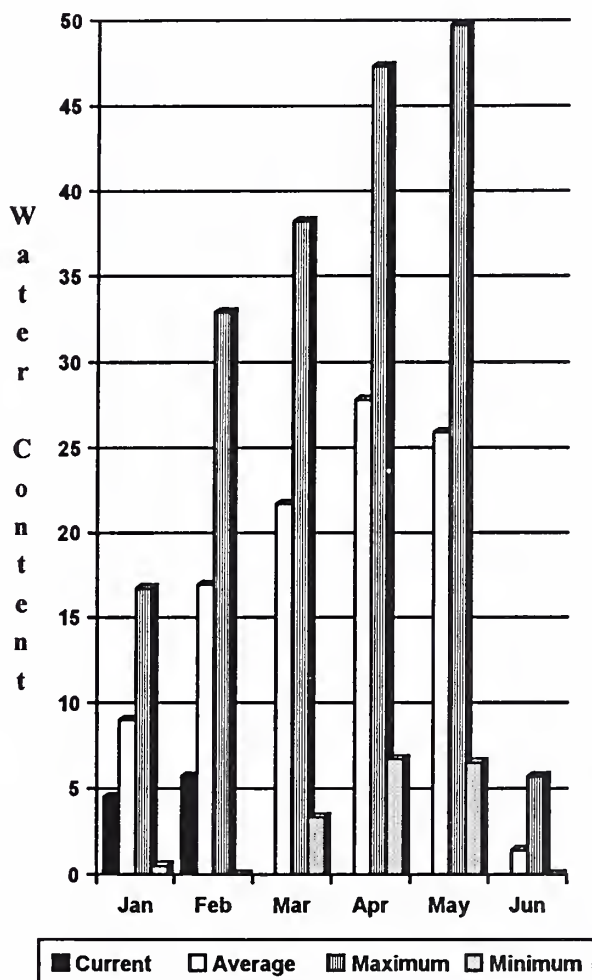
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural flow - actual flow may be affected by upstream water management.

Rainy Pass SNOTEL

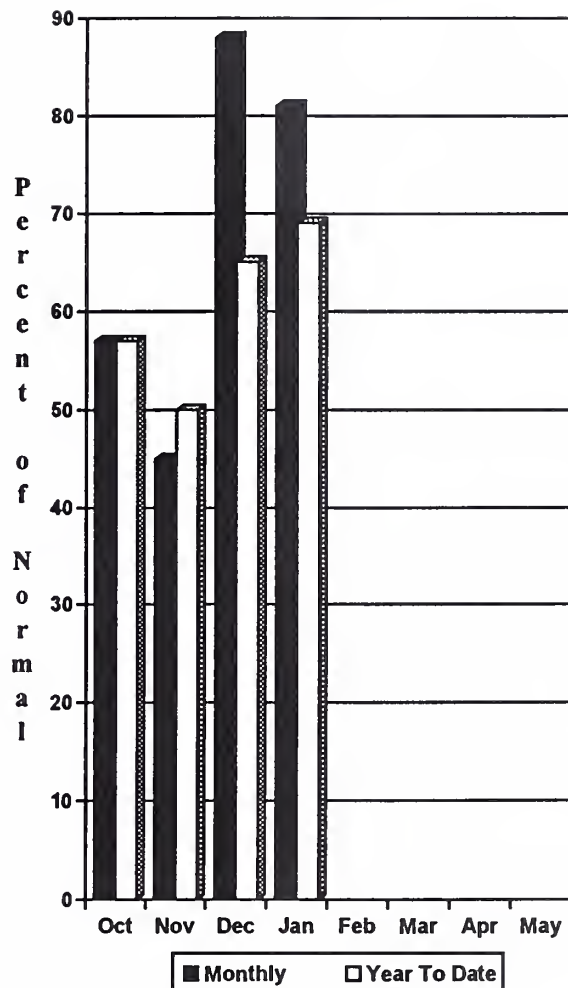


Olympic Peninsula River Basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

February forecasts of runoff for streamflow in the basin are for 75% of average for the Dungeness River and the Elwha River, 71%. The Big Quilcene can expect below normal runoff this summer. January precipitation was 81% of average. Precipitation has accumulated at 69% of normal for the water year. January precipitation at Quillayute was 12.85 inches. February 1 snow cover in the Olympic Basin was below normal at 34%. The Mount Crag SNOTEL near Quilcene had 11.8 inches on February 1, last year it had 18.4 inches. Temperatures were five degrees above normal for January.

For more information contact your local Soil Conservation Service office.

OLYMPIC PENINSULA RIVER BASINS

Streamflow Forecasts - February 1, 1994

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)				
		90% (1000AF)		70% (1000AF)		Chance Of Exceeding * 50% (Most Probable) (1000AF) (% AVG.)			30% (1000AF)		10% (1000AF)	
DUNGENESS RIVER nr Sequim	APR-SEP	88	107	120	75	133	152	160				
	APR-JUL	74	90	100	76	110	126	131				
	APR-JUN	56	67	75	77	83	94	98				
ELWHA RIVER nr Port Angeles	APR-SEP	245	310	355	71	400	465	502				
	APR-JUL	200	255	290	70	325	380	417				

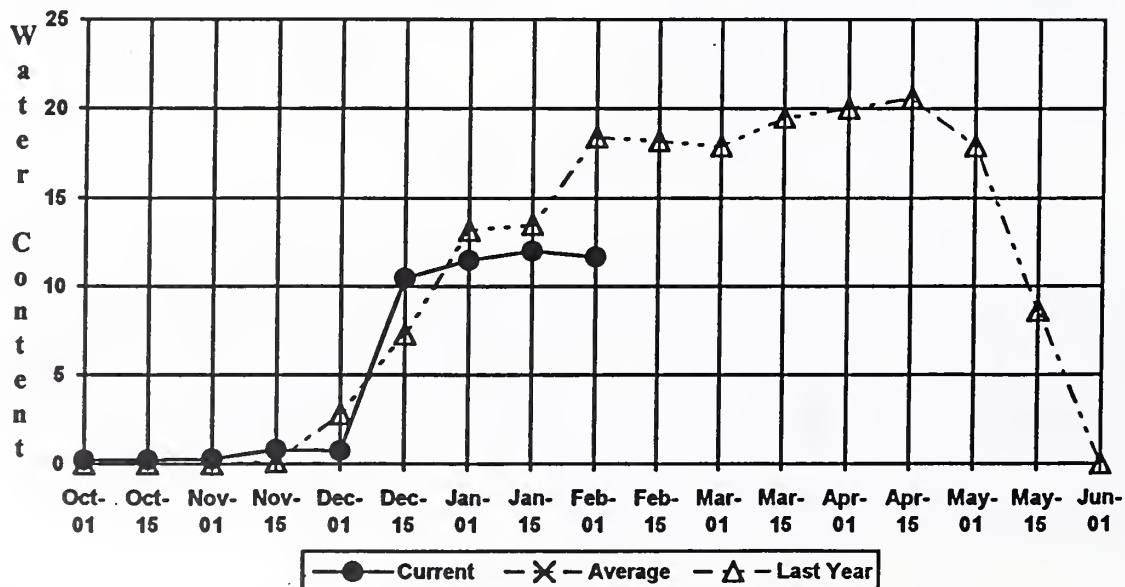
OLYMPIC PENINSULA RIVER BASINS Reservoir Storage (1000 AF) - End of January				OLYMPIC PENINSULA RIVER BASINS Watershed Snowpack Analysis - February 1, 1994				
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					Elwha River	1	21	14
					Morse Creek	1	61	46
					Dungeness River	1	46	31
					Quilcene River	0	0	0
					Wynoochee River	0	0	0

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural flow - actual flow may be affected by upstream water management.

Mount Crag SNOTEL



* No average snow pack is available for Mount Crag at this time.

Basin Outlook Reports

and Federal - State - Private Cooperative Snow Surveys

For more water supply and resource management information, contact:

Local Soil Conservation Service Field Office

or

William Weller

Water Supply Specialist

Soil Conservation Service

W. 316 Boone Ave., Suite 450

Spokane, WA 99201-2348

(509) 353-2341

How forecasts are made

Most of the annual streamflow in the Western United States originates as snowfall that has accumulated high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points.

Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Soil Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

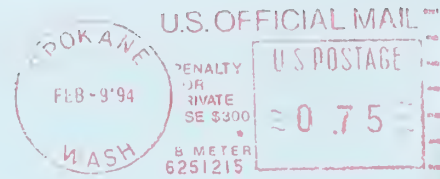
Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

The United States Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs and marital or familial status. (Not all prohibited bases apply to all programs). Persons with disabilities who require alternative means for communication of program information (braille, large print, audiotape, etc.) should contact the USDA Office of Communications at (202) 720-5881 (voice) or (202) 720-7808 (TDD).

To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, D.C., 20250, or call (202) 720-7327 (voice) or (202) 720-1127 (TDD). USDA is an equal employment opportunity employer.



Rock Pointe Tower II, Suite 450
W. 316 Boone Avenue
Spokane, WA 99201-2349



A
U. S. DEPT. OF AGRICULTURE
NATIONAL AGRICUL. LIBRARY
CURRENT SERIAL RECORDS
BELTSVILLE MD 20705



SOIL CONSERVATION SERVICE

Washington Basin Outlook Report

Soil Conservation Service
Spokane, WA

