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Washington Basin Outlook Report May 1, 1995



Basin Outlook Reports

and Federal - State - Private Cooperative Snow Surveys

For more water supply and resource management information, contact:

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or

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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 Natural Resources 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.

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Washington Water Supply Outlook

MAY 1995

General Outlook

April temperatures were near to below normal which helped preserve mountain snowpack. Snowpack averages increased while April streamflows decreased from last month. National Weather Service climatological stations indicated much above average precipitation for the Yakima, Lewis and Walla Walla river basins and near average for the rest of the state. SNOTEL showed near normal conditions for April with early normal snowpack accumulations which peaked mid-month. Normal spring meltout has begun statewide.

Snowpack

The May 1 statewide SNOTEL reading showed that the snowpack is 125% of average, an increase from the April 1 reading of 110%. Snowpack in the Spokane-Pend Oreille river basins remains below average with only 84% of normal. The east slope of the Cascade Mountains remains strong with 154% of average for the Methow, 125% of average for Chelan Lake Basin, and 136% for the Wenatchee Basin. The Yakima River Basin is above normal at 129% of average. Westside averages are also holding strong with a high of 141% of average on the White River Basin to a low of 86% of average in the Baker River Basin. Snow measurement points within the Olympic Mountain River basins stayed about the same with 56% on the Elwha River, 97% for Morse Creek, 71% for the Dungeness and 167% of average for the Quilcene.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane.....	188.....	80
Colville.....	N/A.....	N/A
Pend Oreille.....	163.....	87
Okanogan.....	123.....	105
Methow.....	248.....	154
Wenatchee.....	194.....	136
Chelan.....	194.....	125
Yakima.....	184.....	129
Walla Walla.....	236.....	112
Cowlitz.....	145.....	117
Lewis.....	126.....	123
White.....	183.....	141
Green.....	174.....	98
North Puget Sound.....	145.....	100
Olympic Peninsula.....	172.....	106

Precipitation

Reports from National Weather Service stations showed April precipitation in excess of 150% for the Lewis, Yakima and Walla Walla river basins as well as for the dryland crop ground of southeastern Washington. The rest of the state received near normal amounts of precipitation. Accumulated precipitation from October 1, 1994 remains above average for Eastern Washington with some central locations much above average. Most of the Westside is closer to normal. Year-to-date precipitation ranges from 186% of normal in the Wenatchee-Chelan River basins, to 121% in the Olympic Peninsula River basins. April basin reports range from 142% of normal in the Walla Walla River Basin to only 61% of average in the Okanogan - Methow River basins. SNOTEL sites in Washington showed high elevation water-year-precipitation values to be 120% of average on May 1. Maximum reportable precipitation was again at the June Lake SNOTEL site near Mount St. Helens, with 173.2 inches since October 1. This puts June Lake at 97% of the normal April accumulation and 134% of average for the year.

BASIN	APRIL PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane.....	86.....	110
Colville-Pend Oreille.....	81.....	113
Okanogan-Methow.....	61.....	119
Wenatchee-Chelan.....	103.....	140
Yakima.....	84.....	120
Walla Walla.....	142.....	128
Cowlitz-Lewis.....	111.....	121
White-Green-Cedar.....	73.....	104
North Puget Sound.....	67.....	107
Olympic Peninsula.....	84.....	101

Reservoir

Flood management has been the name of the game for most reservoir operators across the state. Overall forecasts are looking good for the end of season storage. Reservoir storage in the Yakima Basin was 756,200 acre feet, 97% of normal and 147% of last year. Storage at other reservoirs included Roosevelt and Banks Lake at 199% of average, and the Okanogan reservoirs at 122% of normal for May 1. The power generation reservoirs include the following: Coeur d'Alene Lake, 140,500 acre feet, or 57% of normal; Chelan Lake, 296,700 acre feet, 66% of average and 44% of capacity, and Ross Lake at 87% of average and 40% of capacity.

BASIN	PERCENT OF CAPACITY	PERCENT OF AVERAGE
Spokane.....	59.....	57
Colville-Pend Oreille.....	58.....	199
Okanogan-Methow.....	83.....	122
Wenatchee-Chelan.....	44.....	66
Yakima.....	71.....	97
North Puget Sound.....	40.....	87

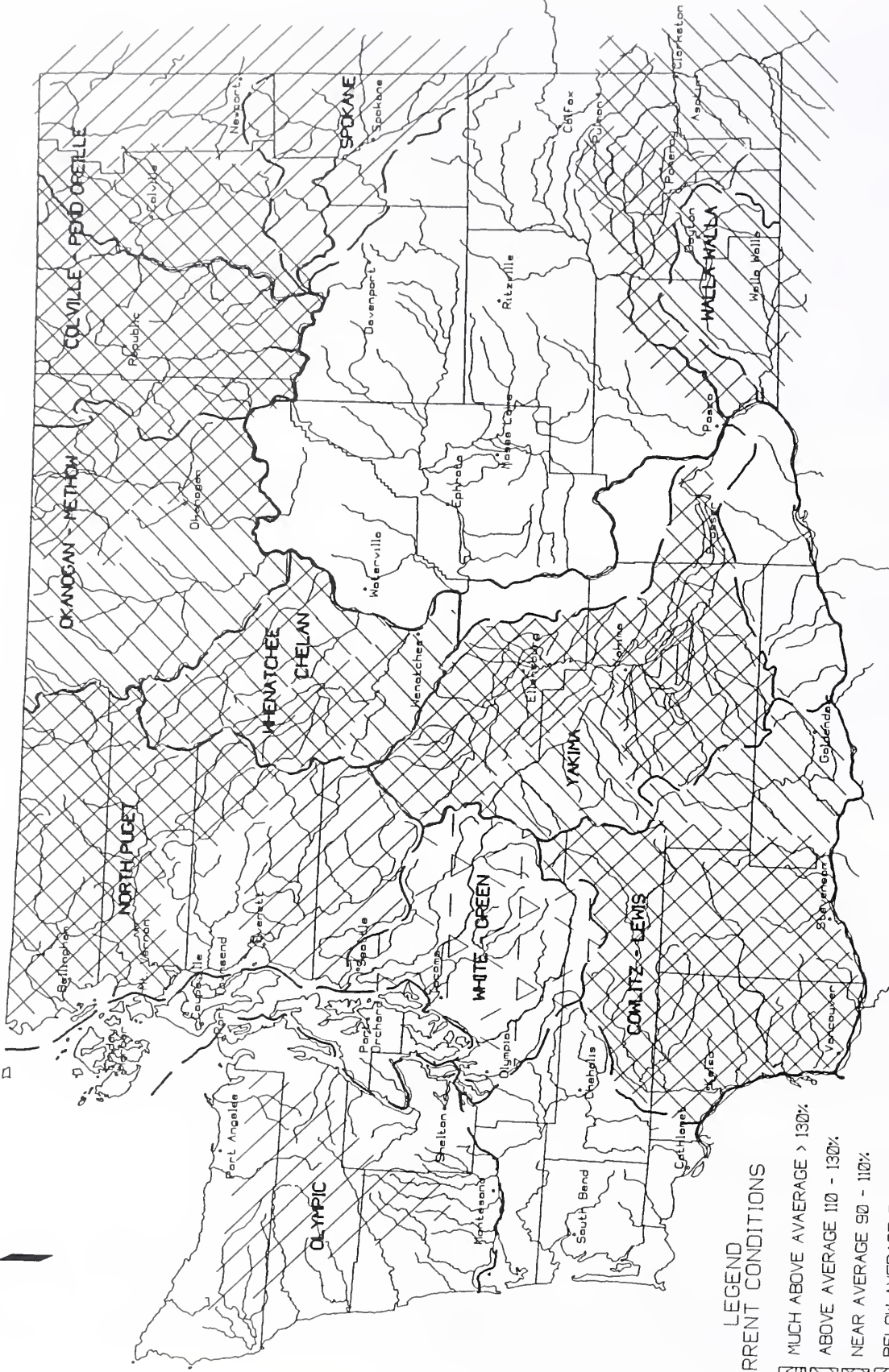
For more information contact your local Natural Resources Conservation Service office.

Streamflow








Forecasted flows for May - September vary greatly across the state. A high of 139% of average for Salmon Creek near Conconully to a low of 65% of normal for the Cedar and Green rivers can be expected. May forecasts for some Western Washington streams include: Rex River near Cedar Falls, 75%; South Fork Tolt, 89%; and the Dungeness River, 88%, all holding close to the same as last month. Some Eastern Washington streams include Mill Creek at Walla Walla, 127%; the Wenatchee River at Plain, 108%; and the Colville River, 106%. April streamflows dropped from last month but stayed near normal for most of the state. The Methow River near Pateros had the highest April flows with 139% of average, and the Pend Oreille with 70% of normal was the lowest in the state. Other streamflows were the following percentage of normal: the Cowlitz River, 76%; the Okanogan River, 121%; the Spokane River, 71%; the Columbia at the Canadian border, 79%, the Skagit near Concrete, 76% and the Yakima River at Kiona, 105%.

BASIN	PERCENT OF AVERAGE MOST PROBABLE FORECAST (50 PERCENT CHANCE OF EXCEEDANCE)
Spokane.....	73-75
Colville-Pend Oreille.....	67-109
Okanogan-Methow.....	100-139
Wenatchee-Chelan.....	108-121
Yakima.....	100-121
Walla Walla.....	94-127
Cowlitz-Lewis.....	95-121
White-Green-Cedar.....	65-89
North Puget Sound.....	99-108
Olympic Peninsula.....	83-88

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LEGEND
CURRENT CONDITIONS

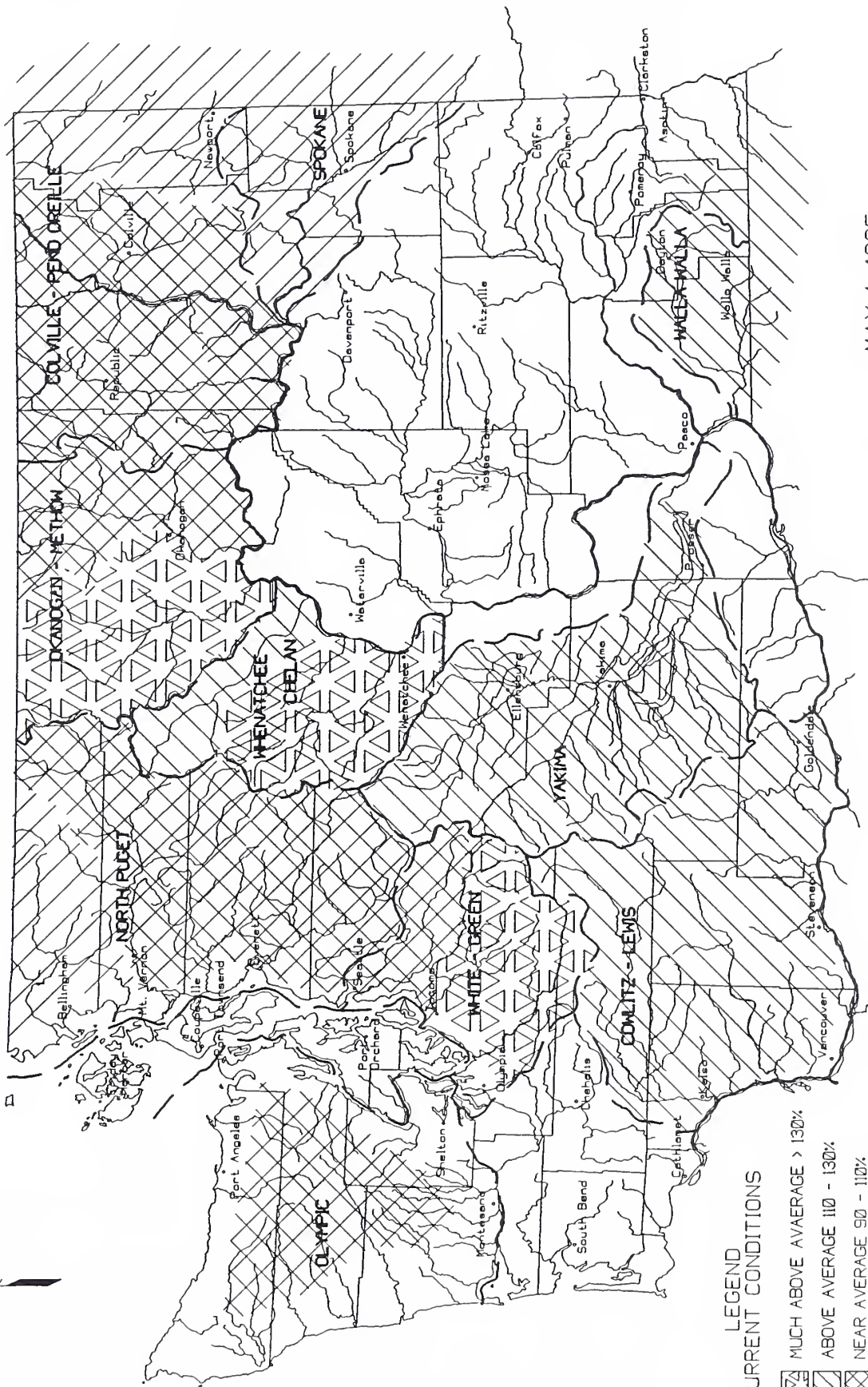
-  MUCH ABOVE AVERAGE > 130%
-  ABOVE AVERAGE 110 - 130%
-  NEAR AVERAGE 90 - 110%
-  BELOW AVERAGE 70 - 90%
-  MUCH BELOW AVERAGE < 70%
-  NOT FORCASTED
-  WATERSHED BOUNDARY

MAY 1, 1995







STREAMFLOW PROSPECTS
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NATURAL RESOURCES CONSERVATION SERVICE



LEGEND
CURRENT CONDITIONS

-  MUCH ABOVE AVERAGE > 130%
-  ABOVE AVERAGE 110 - 130%
-  NEAR AVERAGE 90 - 110%
-  BELOW AVERAGE < 70%
-  NOT FORECASTED
-  WATERSHED BOUNDARY

MAY 1, 1995

MOUNTAIN SNOWPACK
WASHINGTON

NTS

US DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

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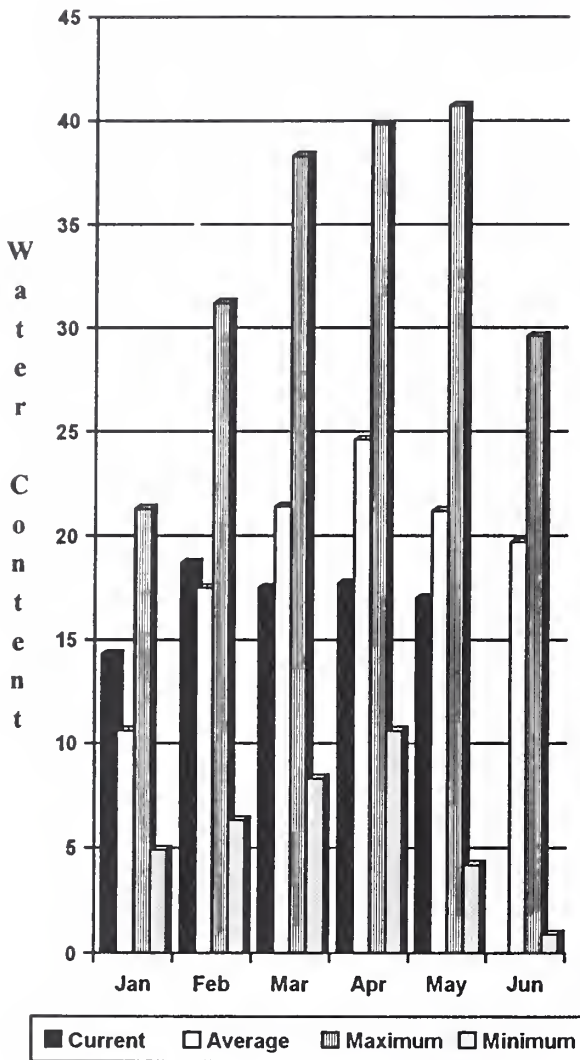
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Olympic Peninsula River Basins

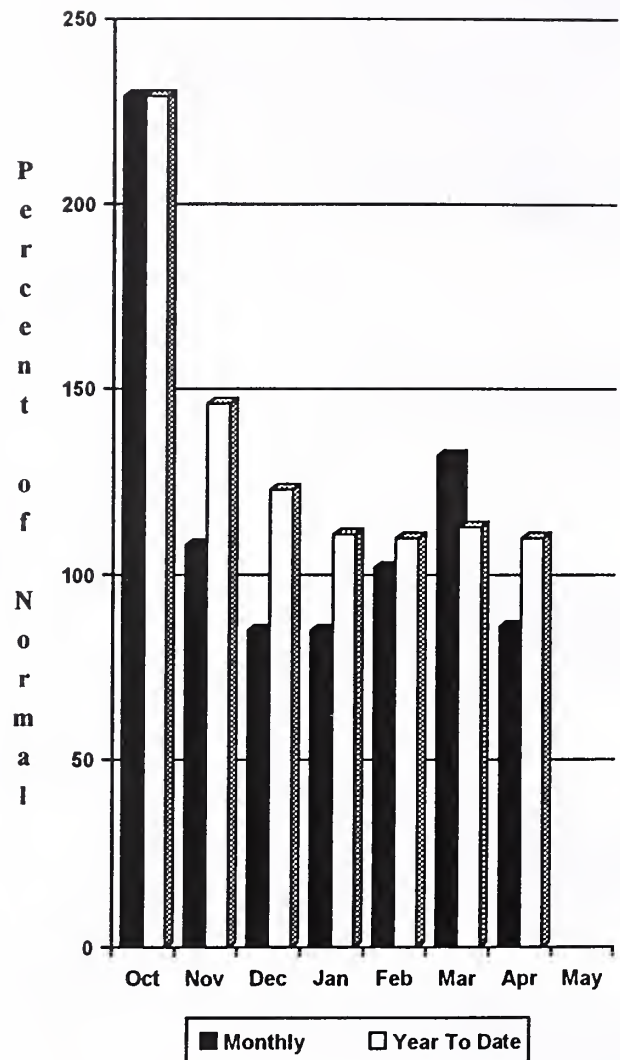
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Spokane River Basin

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

The May 1 forecasts for summer runoff on the Spokane River at Long Lake are 75% of normal, no significant change from last month. The forecast is based on a basin snowpack that is 80% of average and precipitation that is 110% of normal for the water year. Precipitation for April was only 86% of average. Streamflow on the Spokane River was 71% of average for April. May 1 storage in Coeur d'Alene Lake was 140,500 acre feet, 57% of normal, and 59% of capacity. Temperatures in the basin were 1 degree below normal during April.

For more information contact your local Natural Resources Conservation Service office.

SPOKANE RIVER BASIN Streamflow Forecasts - May 1, 1995

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		Drier		Wetter		Chance Of Exceeding *		
		90% (1000AF)	70% (1000AF)	30% (1000AF)	10% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	
SPOKANE near Post Falls (2)	MAY-SEP	970	1190	1340	73	1490	1710	1846
	MAY-JUL	905	1120	1270	73	1420	1630	1749
SPOKANE at Long Lake	MAY-JUL	1080	1310	1460	74	1610	1840	1975
	MAY-SEP	1260	1490	1650	75	1810	2040	2198

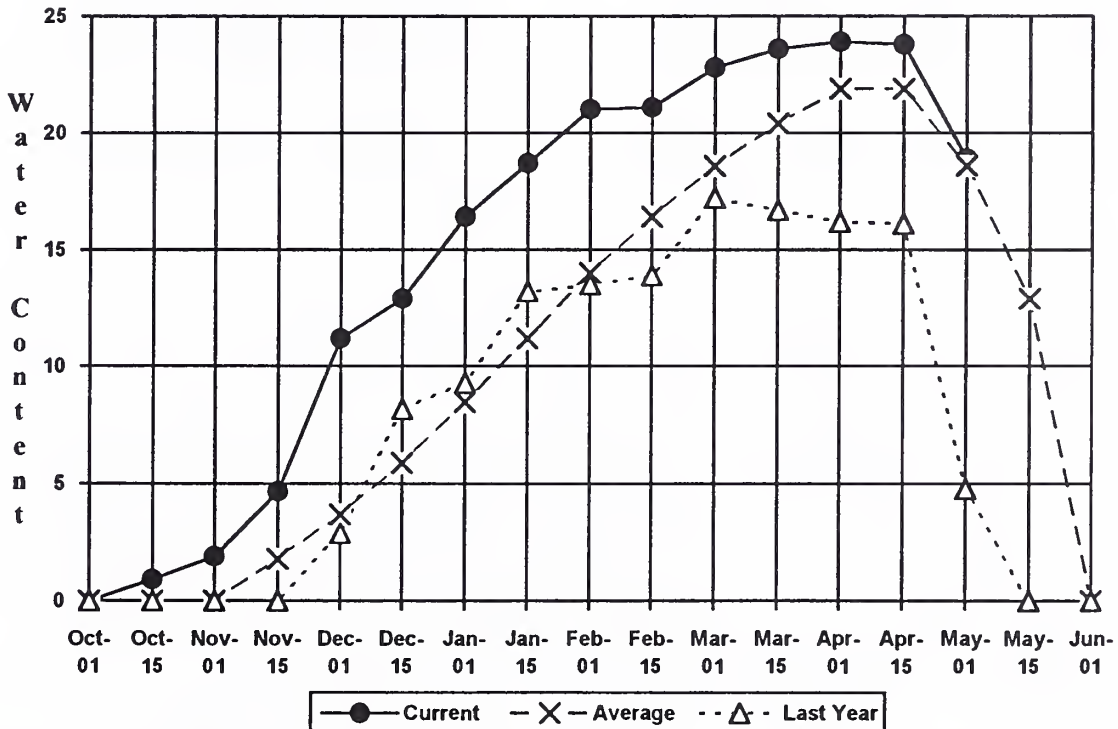
SPOKANE RIVER BASIN Reservoir Storage (1000 AF) - End of April				SPOKANE RIVER BASIN Watershed Snowpack Analysis - May 1, 1995				
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
COEUR D'ALENE	238.5	140.5	184.5	246.7	Spokane River	11	188	80

* 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.

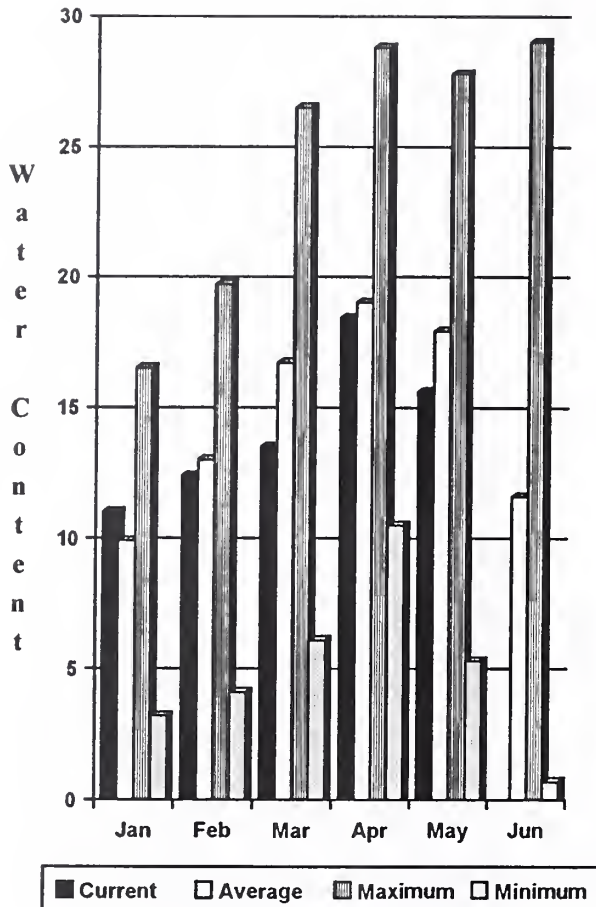
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural flow - actual flow may be affected by upstream water management.

Quartz Peak SNOTEL Elevation 4700 ft.

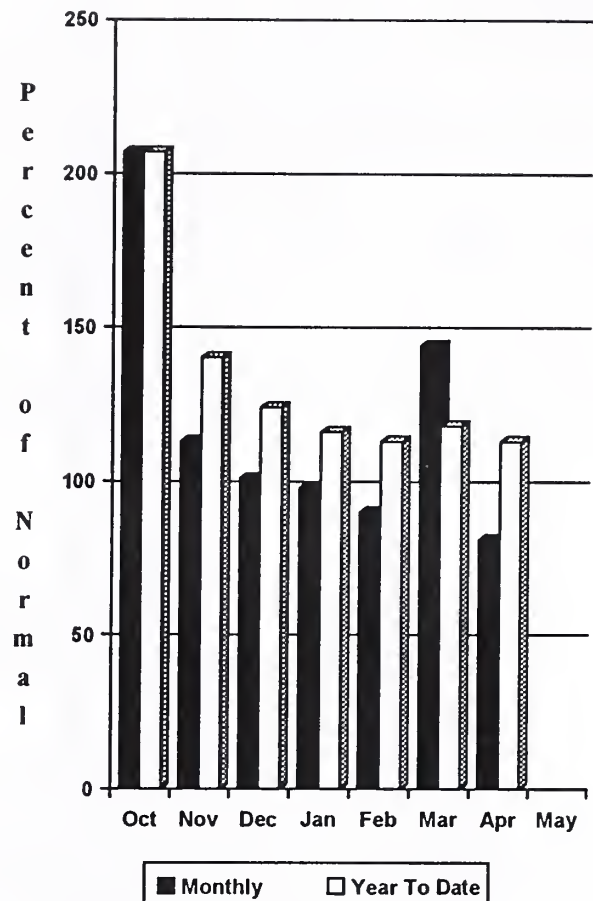


Colville - Pend Oreille River basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

The forecast for the Kettle River streamflow is for 109% of normal, the Pend Oreille below Box Canyon, 67%. The forecast for the Priest River near the town of Priest River is 79% of normal for the summer runoff period. Forecasts for points on the Columbia River, at Birchbank, are 95% and at Grand Coulee Dam, 89% of average. April streamflow was 70% of normal on the Pend Oreille River, 79% on the Columbia at the International Boundary, and 125% on the Kettle River. May 1 snow cover was 87% of normal for the Pend Oreille Basin, and 91% of normal on the Kettle River. Snowpack at Bunchgrass Meadows SNOTEL site contained 28.4 inches of water, compared to the average May 1 reading of 24.9 inches. Precipitation during April was 81% of average, bringing the water year-to-date to 113% of normal. Temperatures were slightly below normal for April.

For more information contact your local Natural Resources Conservation Service office.

COLVILLE - PEND OREILLE RIVER BASINS

Streamflow Forecasts - May 1, 1995

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		Drier		Wetter				
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	Chance Of Exceeding * (% AVG.)	30% (1000AF)	10% (1000AF)	
PEND OREILLE Lake Inflow (1,2)	MAY-JUL	5770	7110	7720	70	8330	9670	11070
	MAY-SEP	6390	7880	8560	70	9240	10700	12290
PRIEST nr Priest River (1,2)	MAY-JUL	335	445	495	79	545	655	627
	MAY-SEP	380	490	540	79	590	700	680
PEND OREILLE bl Box Canyon (1,2)	MAY-JUL	5130	6810	7570	67	8330	10000	11220
	MAY-SEP	5700	7550	8390	67	9230	11100	12430
	MAY-JUN	4270	5670	6300	67	6930	8330	9410
CHAMOKANE CK nr Long Lake	MAY-AUG	5.5	8.3	10.3	110	12.3	15.1	9.4
	JUL-AUG	3.2	3.5	3.6	109	3.7	4.0	3.3
COLVILLE at Kettle Falls	MAY-SEP	66	80	89	106	99	113	84
	MAY-JUL	59	72	80	110	89	102	73
	MAY-JUN	51	63	71	111	79	91	64
KETTLE near Laurier	MAY-SEP	1450	1610	1720	109	1830	1990	1582
	MAY-JUL	1380	1520	1610	108	1700	1840	1489
	MAY-JUN	1230	1340	1420	108	1500	1610	1314
COLUMBIA at Birchbank (1,2)	MAY-JUL	27300	29600	30600	95	31600	33900	32090
	MAY-SEP	34500	37400	38700	95	40000	42900	40760
	MAY-JUN	19200	20800	21500	95	22200	23800	22620
COLUMBIA at Grand Coulee Dm (1,2)	MAY-SEP	45700	49900	51800	89	53700	57900	57921
	MAY-JUL	37200	40600	42200	89	43800	47200	47614
	MAY-JUN	28200	30700	31900	89	33100	35600	35827

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

COLVILLE - PEND OREILLE RIVER BASINS Watershed Snowpack Analysis - May 1, 1995

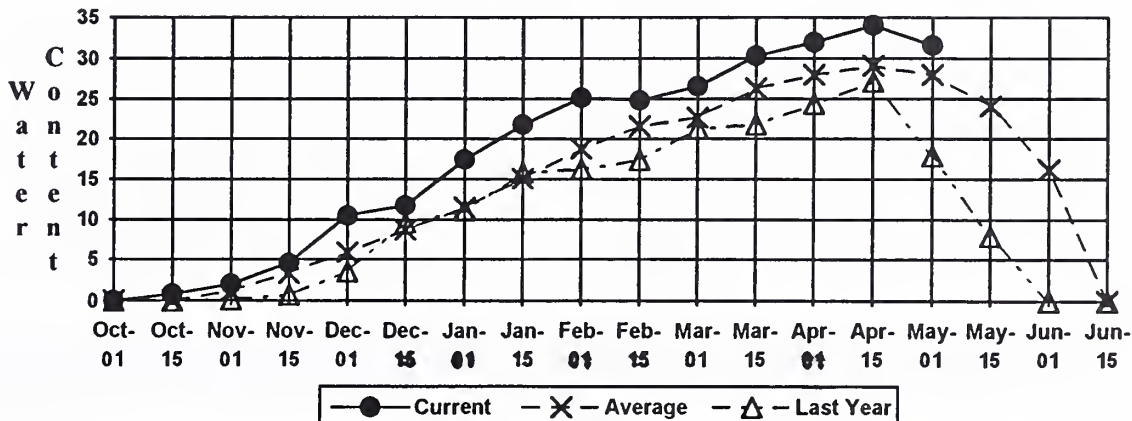
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ROOSEVELT	5232.0	2861.9	4191.0	1310.0	Colville River	0	0	0
BANKS	715.0	608.0	670.9	435.0	Pend Oreille River	88	163	87
					Kettle River	7	154	93

* 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.

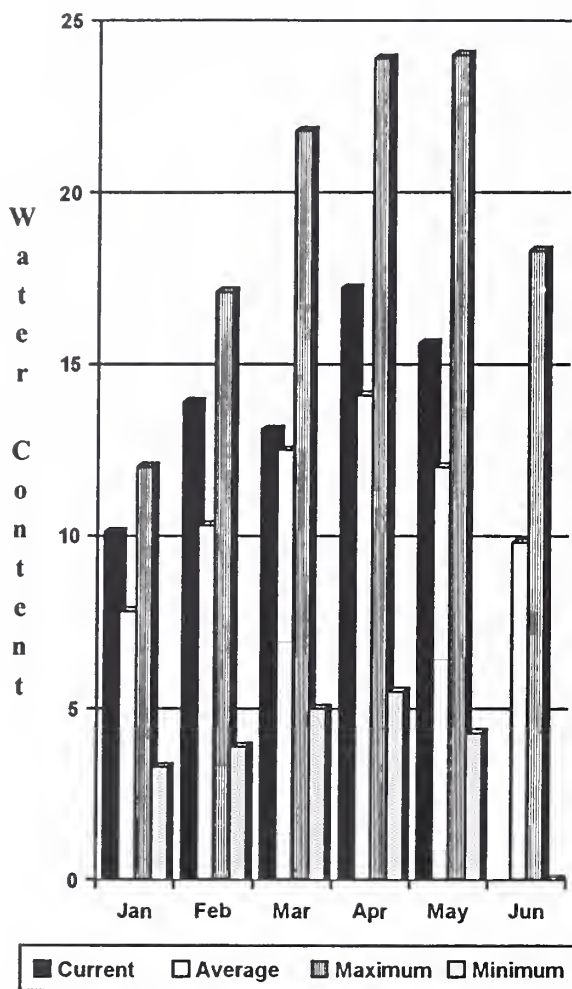
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Bunchgrass Meadow SNOTEL Elevation 5000 ft.

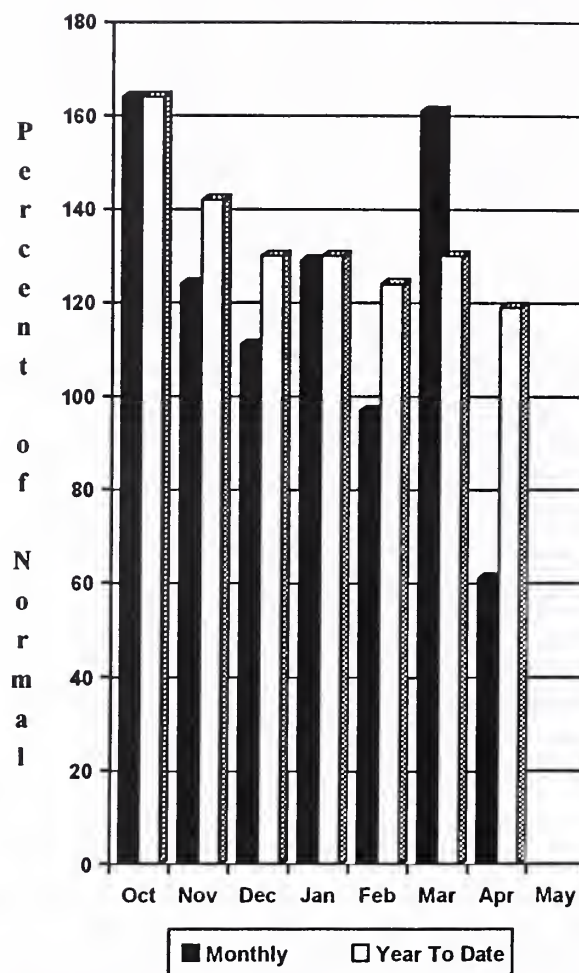


Okanogan - Methow River basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

Summer runoff forecast for the Okanogan River is 103% of normal; the Similkameen River, 100%, the Methow River, 130%; and Salmon Creek, 139% of normal. May 1 snow cover on the Okanogan was 105% of normal, and the Methow, 154%. April precipitation in the Okanogan-Methow was 61% of normal, with water year-to-date at 119% of average. April streamflow for the Methow River was 139% of normal, 121% for the Okanogan River, and 99% for the Similkameen. Snow water content at the Harts Pass SNOTEL, elevation 6500 feet, was 56 inches. Normal for this site is 39.8 inches. Temperatures were near normal for April. Storage in the Salmon Creek Reservoirs near Conconully was 19,600 acre feet, which is 83% of capacity and 122% of the May 1 average.

For more information contact your local Natural Resources Conservation Service office.

OKANOGAN - METHOW RIVER BASINS

Streamflow Forecasts - May 1, 1995

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		Drier		Wetter		Chance Of Exceeding *		
		90% (1000AF)	70% (1000AF)	30% (1000AF)	10% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	
SIMILKAMEEN nr Nighthawk (1)	MAY-SEP	1060	1230	1300	100	1370	1540	1300
	MAY-JUL	990	1140	1205	100	1270	1420	1205
	MAY-JUN	810	950	1014	100	1080	1220	1014
OKANOGAN RIVER nr Tonasket (1)	MAY-SEP	1000	1360	1530	103	1700	2060	1485
	MAY-JUL	900	1220	1370	103	1520	1840	1328
	MAY-JUN	765	1020	1130	103	1240	1500	1095
SALMON CREEK near Conconully	MAY-JUL	15.2	21	25	140	29	35	18.0
	MAY-SEP	15.8	22	26	139	31	37	18.9
METHOW RIVER near Pateros	MAY-SEP	1000	1070	1110	130	1150	1220	854
	MAY-JUL	955	1010	1050	134	1090	1140	786
	MAY-JUN	800	855	890	135	925	980	659

OKANOGAN - METHOW RIVER BASINS Reservoir Storage (1000 AF) - End of April

Reservoir	Usable Capacity	*** Usable Storage ***		
		This Year	Last Year	Avg
SALMON LAKE	NO REPORT			
CONCONULLY RESERVOIR	NO REPORT			

OKANOGAN - METHOW RIVER BASINS Watershed Snowpack Analysis - May 1, 1995

Watershed	Number of Data Sites	This Year as % of	
		Last Yr	Average
Okanogan River	24	213	105
Methow River	2	248	154

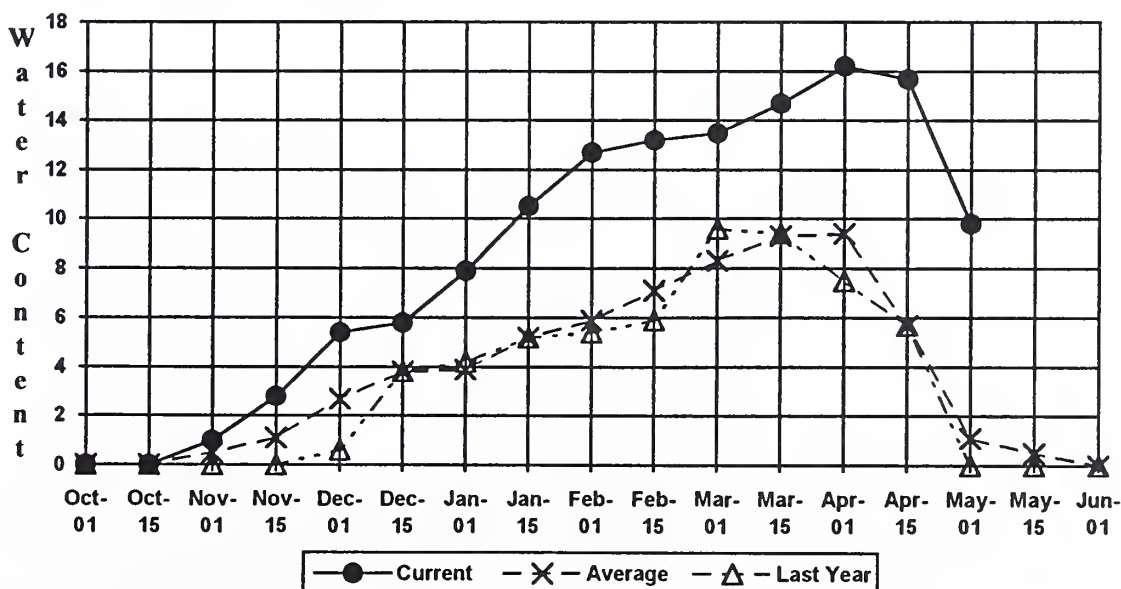
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The average is computed for the 1961-1990 base period.

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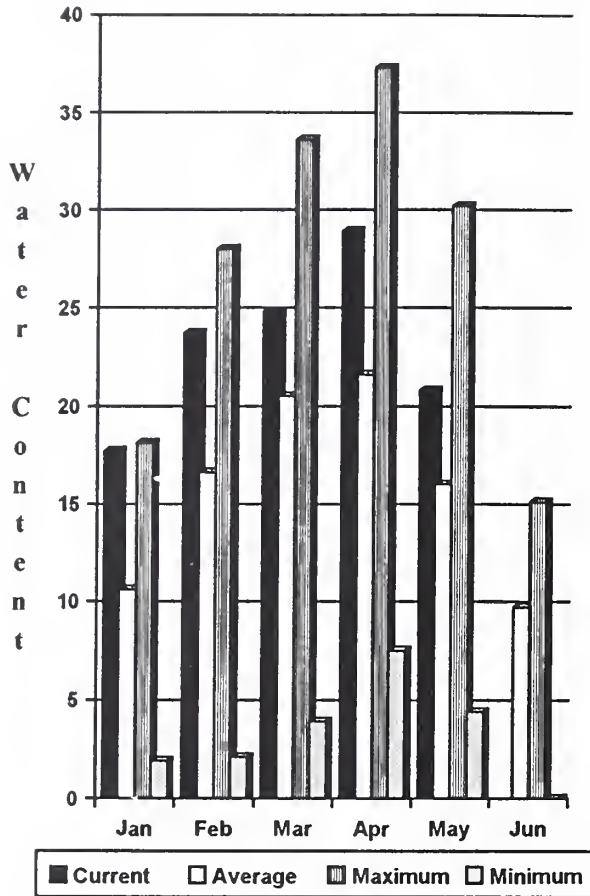
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Salmon Meadows SNOTEL Elevation 4500 ft.

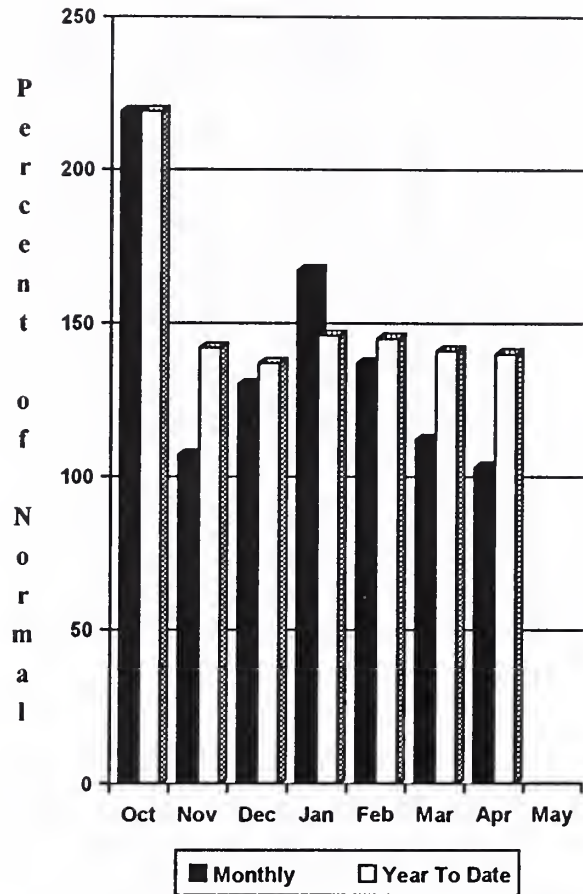


Wenatchee - Chelan River basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

Precipitation during April was 103% of normal in the Wenatchee - Chelan river basin and 140% for the year-to-date. Runoff for the Entiat River is forecast to be 121% of normal for the summer. The May-September forecast for the Chelan and Wenatchee rivers is for 108% of normal, and 104% for the Stehekin. Icicle Creek is forecast to be 114% of normal this summer. Streamflow for April on the Chelan River was 111% of average, and on the Wenatchee River it was 105% of normal. May 1 snowpack in the Wenatchee Basin was 136% of average, which is 194% of last year. The Chelan Basin was 125% of average, and Stemilt Creek was 292% of normal. Pope Ridge SNOTEL on the Entiat River had 14.5 inches of snow water on May 1. Normal is 1.6 inches. Reservoir storage in Lake Chelan was 296,700 acre feet or 66% of May 1 average and 44% of capacity. Lyman Lake SNOTEL had the most snow-water in the basin with 80.7 inches of water. This site would normally have 58.7 inches.

For more information contact your local Natural Resources Conservation Service office.

WENATCHEE - CHELAN RIVER BASINS

Streamflow Forecasts - May 1, 1995

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		Drier		50% (Most Probable)		Wetter		
		90% (1000AF)	70% (1000AF)	50% (1000AF)	10% (% AVG.)	30% (1000AF)	10% (1000AF)	
CHELAN RIVER near Chelan	MAY-SEP	1010	1080	1125	108	1170	1240	1041
	MAY-JUL	895	955	996	110	1040	1100	905
	MAY-JUN	655	720	765	110	810	875	693
STEHEKIN near STEHEKIN	MAY-SEP	705	750	781	104	815	860	751
	MAY-JUL	575	620	651	104	680	730	625
	MAY-JUN	405	450	485	105	520	565	462
ENTIAT RIVER near Ardenvoir	MAY-SEP	230	245	252	121	260	275	208
	MAY-JUL	205	220	228	121	235	250	188
	MAY-JUN	157	171	180	120	190	205	150
WENATCHEE at Plain	MAY-SEP	1000	1070	1125	108	1180	1250	1042
	MAY-JUL	905	965	1005	109	1040	1100	925
	MAY-JUN	710	755	788	110	820	865	716
WENATCHEE R. at Peshastin	MAY-JUL	920	1180	1355	106	1530	1790	1277
	MAY-JUN	735	935	1070	107	1210	1410	997
STEMILT nr Wenatchee (miners in)	MAY-SEP	115	142	160	116	178	205	138
ICICLE CREEK nr Leavenworth	APR-SEP	300	370	420	114	470	540	370
	APR-JUL	275	345	388	114	435	500	340
	APR-JUN	220	270	308	114	345	395	270
COLUMBIA R. bl Rock Island Dam (2)	MAY-SEP	50900	55100	58000	92	60900	65100	62987
	MAY-JUL	41800	45300	47700	91	50100	53600	52239
	MAY-JUN	31600	34200	36000	91	37800	40400	39509

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

WENATCHEE - CHELAN RIVER BASINS Watershed Snowpack Analysis - May 1, 1995

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	296.7	281.3	448.8	Chelan Lake Basin	4	194	125
					Entiat River	1	0	906
					Wenatchee River	7	194	136
					Squilchuck Creek	0	0	0
					Stemilt Creek	1	700	292
					Colockum Creek	1	0	552

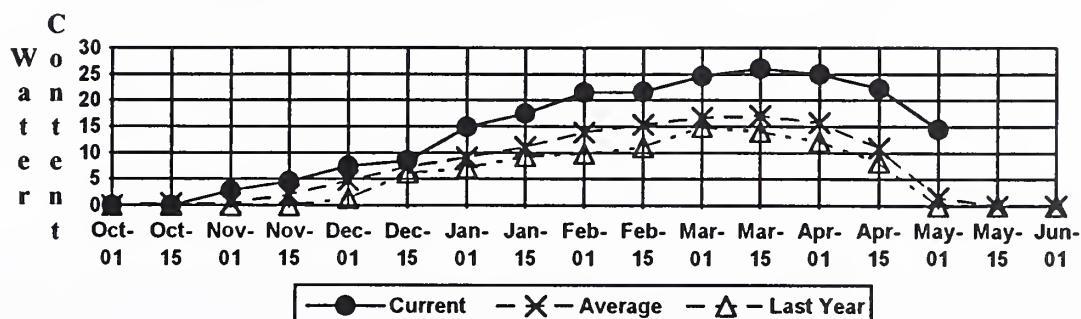
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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.

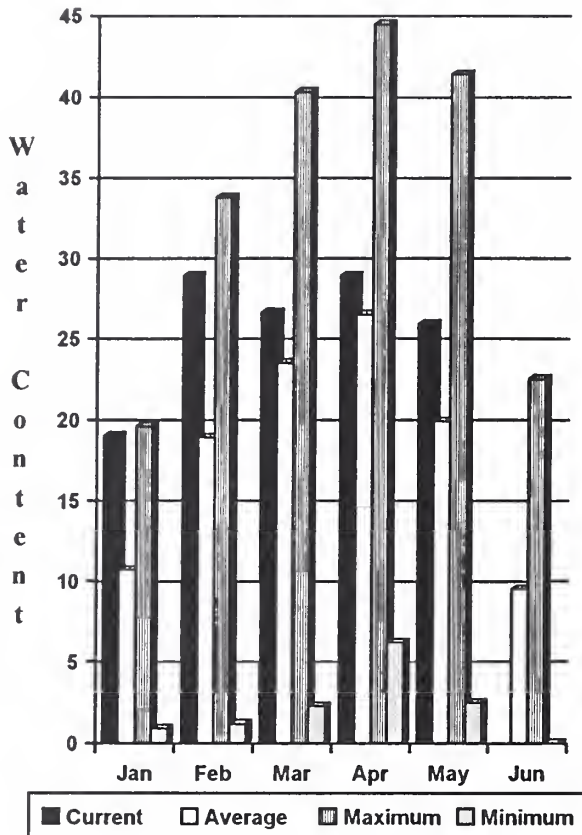
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Pope Ridge SNOTEL Elevation 3540 ft.

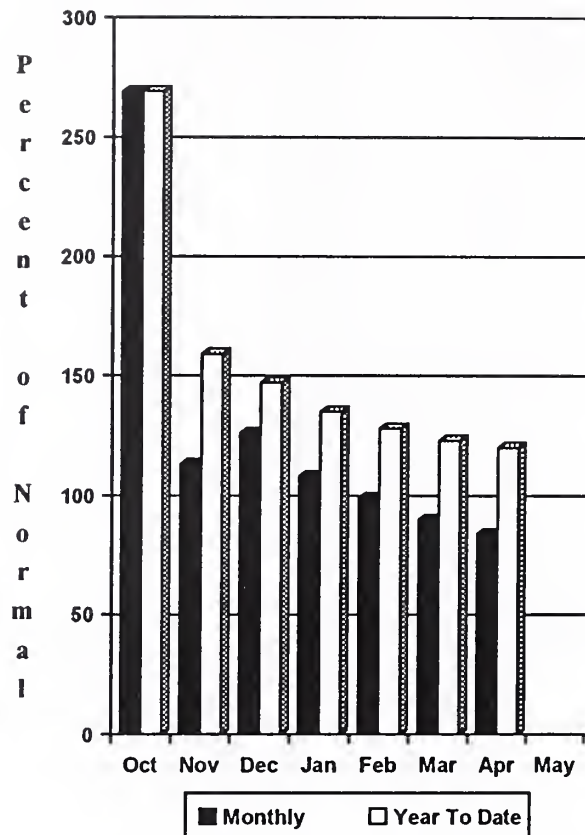


Yakima River Basin

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

May 1 reservoir storage for the five major reservoirs was 756,200 acre feet, 97% of average and 71% of capacity. May 1 summer streamflow forecasts are for near to slightly above normal in the Yakima Basin. Forecasts for the Yakima River at Cle Elum are for 99% of normal. Naches River, 112%; the Yakima River at Parker, 104%; Ahtanum Creek, 100%, and the Tieton River, 110%. The Klickitat River near Glenwood is forecast for 121% of normal flow this summer. April streamflows dropped from last month with the Yakima River at Parker 90% of normal, 85% for the Yakima near Cle Elum, and 87% for the Naches River. May 1 snowpack was 129% based upon 15 snow course and SNOTEL readings within the Yakima Basin. Snow surveys also reported 150% of average snowpack for Ahtanum Creek. April precipitation was 84% of normal and 120% for the water year-to-date. Temperatures were 1.4 degrees below normal for April. 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 Natural Resources Conservation Service office.

YAKIMA RIVER BASIN
Streamflow Forecasts - May 1, 1995

Forecast Point	Forecast Period	Future Conditions					Wetter		30-Yr Avg. (1000AF)
		Drier		Future Conditions		Wetter			
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	Chance Of Exceeding * (% AVG.)	30% (1000AF)	10% (1000AF)		
KEECHELUS LAKE INFLOW	MAY-JUL	79	89	96	100	103	113	96	
	MAY-SEP	86	99	107	100	115	128	107	
	MAY-JUN	64	74	81	100	88	98	81	
KACHESS LAKE INFLOW	MAY-JUL	73	79	84	98	89	96	86	
	MAY-SEP	76	85	90	98	96	104	92	
	MAY-JUN	62	69	73	99	77	84	74	
CLE ELUM LAKE INFLOW	MAY-JUL	315	330	345	102	360	375	339	
	MAY-SEP	345	370	385	102	400	425	378	
	MAY-JUN	250	270	282	102	295	315	276	
YAKIMA at Cle Elum	MAY-JUN	475	515	540	99	565	605	546	
	MAY-JUL	580	620	650	99	680	720	657	
	MAY-SEP	645	695	730	99	765	815	740	
BUMPING LAKE INFLOW	MAY-SEP	117	128	135	115	142	153	117	
	MAY-JUL	110	118	124	117	130	138	106	
	MAY-JUN	89	96	101	117	106	113	86	
AMERICAN RIVER near Nile	MAY-SEP	95	104	110	108	116	125	102	
	MAY-JUL	86	94	100	108	105	113	92	
	MAY-JUN	68	77	82	110	88	96	75	
RIMROCK LAKE INFLOW	MAY-SEP	200	215	225	110	235	250	204	
	MAY-JUL	170	180	187	112	194	205	167	
	MAY-JUN	129	138	145	113	152	162	128	
NACHES near Naches	MAY-SEP	680	735	770	112	805	860	686	
	MAY-JUL	625	670	700	115	730	775	609	
	MAY-JUN	515	555	580	115	605	645	505	
AHTANUM CREEK nr Tampico (2)	MAY-SEP	30	35	38	100	41	47	38	
	MAY-JUL	26	31	34	100	37	42	34	
	MAY-JUN	22	25	28	100	31	34	28	
YAKIMA near Parker	MAY-SEP	1470	1570	1640	104	1710	1810	1580	
	MAY-JUL	1310	1400	1464	105	1530	1620	1390	
	MAY-SEP	1470	1570	1640	104	1710	1810	1580	
KLiCKITAT near Glenwood	MAY-JUN	91	100	106	121	112	120	87	
	MAY-SEP	123	134	142	121	149	160	117	

Reservoir	YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of April				YAKIMA RIVER BASIN Watershed Snowpack Analysis - May 1, 1995			
	Usable Capacity	*** Usable Storage This Year	Last Year	Avg	Watershed	Number of Data Sites	This Year as % of Last Yr	% of Average
KEECHELUS	157.8	130.4	102.9	119.0	Yakima River	15	182	127
KACHESS	239.0	154.5	102.2	197.0	Ahtanum Creek	1	211	150
CLE ELUM	436.9	303.3	187.3	308.0				
BUMPING LAKE	33.7	8.5	25.4	15.0				
RIMROCK	198.0	159.5	95.4	144.0				

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

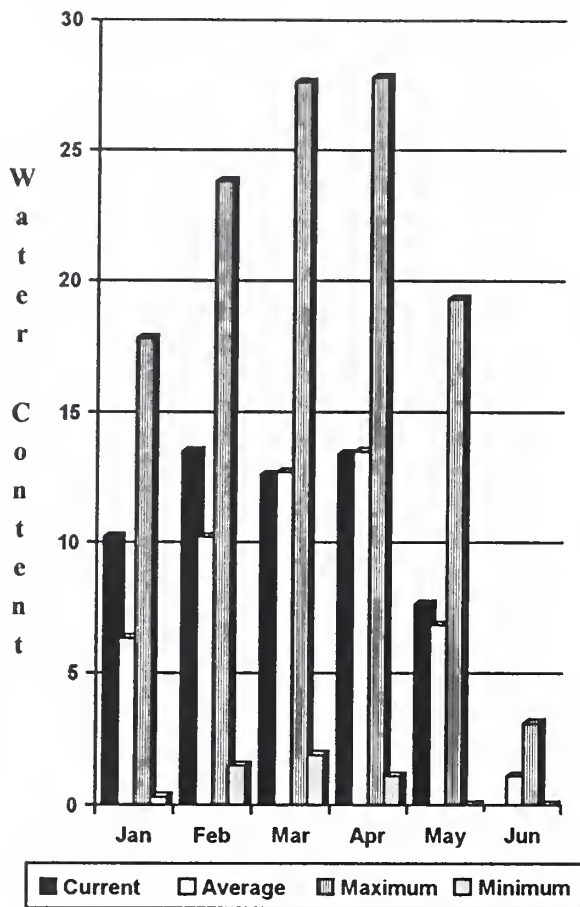
The average is computed for the 1961-1990 base period.

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

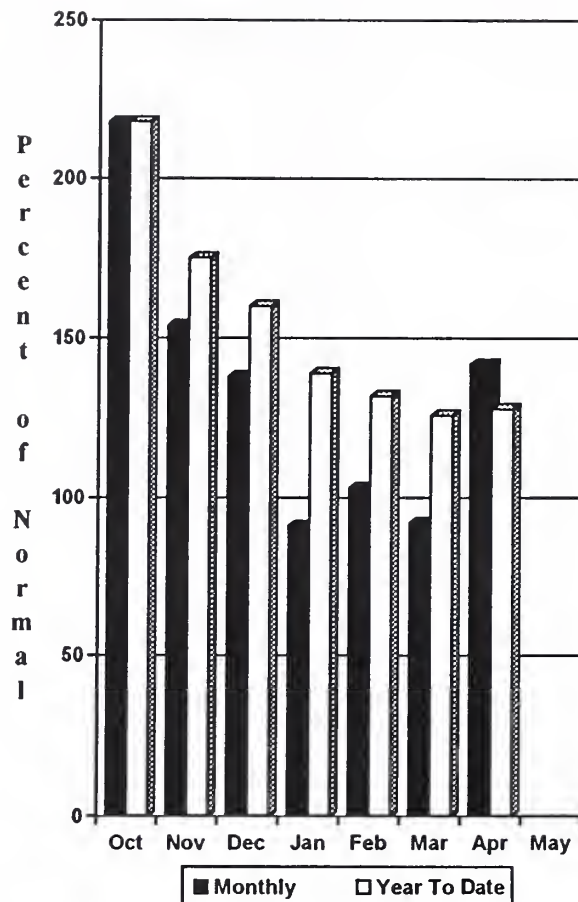
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Walla Walla River Basin

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

April precipitation was 142% of average, bringing the year-to-date precipitation to 128% of normal in the Walla Walla River Basin. May 1 snowpack was at 112% of normal. The forecast is for 101% of average streamflow in the Walla Walla River for the coming summer, 120% for the Grande Ronde at Troy, and 127% for Mill Creek. April streamflow was 132% of normal for the Walla Walla River, 72% for the Snake River, and 96% on the Grande Ronde River near Troy. The Touchet SNOTEL site had 30.1 inches of water equivalent, compared to the normal May 1 reading of 27.3 inches. Temperatures were 2.7 degrees above normal for April.

For more information contact your local Natural Resources Conservation Service office.

WALLA WALLA RIVER BASIN

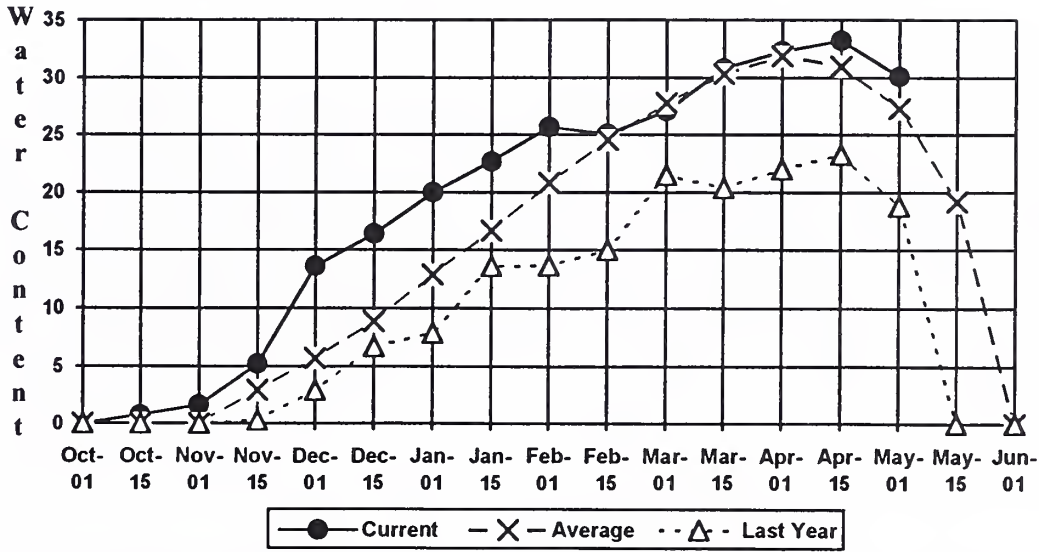
Streamflow Forecasts - May 1, 1995

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		Drier		Wetter		Chance Of Exceeding *		
		90% (1000AF)	70% (1000AF)	30% (1000AF)	10% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	
GRANDE RONDE at Troy (1)	MAY-JUL	1.0	1.0	1050	120	1.0	1.0	872
	MAY-SEP	890	1080	1160	120	1240	1430	970
SNAKE blw Lower Granite Dam (1,2)	MAY-JUL	12600	14900	15900	94	16900	19200	16940
	MAY-SEP	14700	17300	18500	94	19700	22300	19650
MILL CREEK at Walla Walla	MAY-SEP	6.3	8.2	9.5	127	10.8	12.7	7.5
	MAY-JUL	6.1	8.0	9.3	127	10.6	12.5	7.3
	MAY-JUN	6.0	7.8	9.0	127	10.2	12.0	7.1
SF WALLA WALLA nr Milton Freewater	MAY-JUL	32	35	37	101	40	43	37
COLUMBIA R. at The Dalles (2)	MAY-SEP	64500	71400	76000	89	80600	87500	85635
	MAY-JUL	53600	59300	63200	88	67100	72800	71413
	MAY-JUN	42100	46500	49500	89	52500	56900	55578

WALLA WALLA RIVER BASIN Reservoir Storage (1000 AF) - End of April					WALLA WALLA RIVER BASIN Watershed Snowpack Analysis - May 1, 1995			
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	236	112

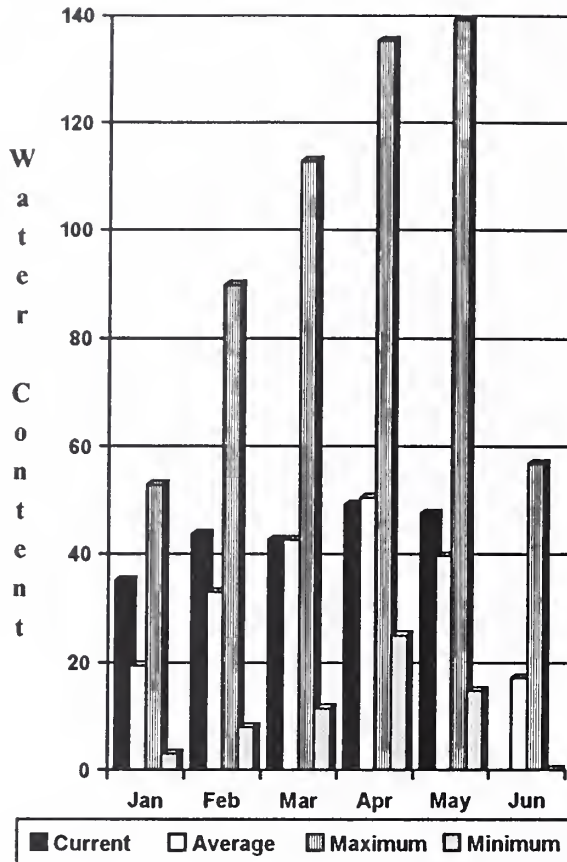
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.
 The average is computed for the 1961-1990 base period.
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Touchet #2 SNOTEL Elevation 5530 ft.

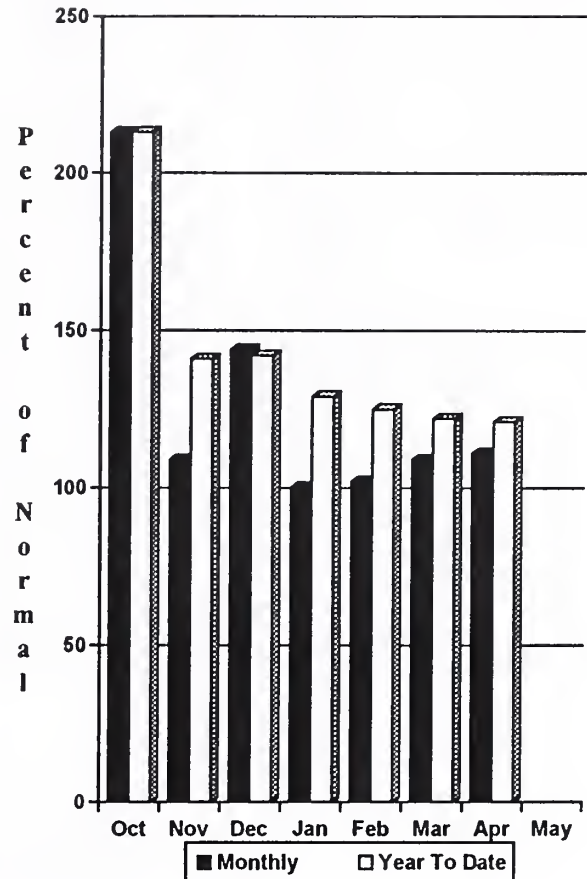


Cowlitz - Lewis River basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

The Lewis River is forecast for near normal flows this summer. The Cowlitz River is forecast for 95% of normal runoff. April streamflow on the Cowlitz River was 76% of average, and 78% on the Lewis River. April precipitation was 111% of normal, bringing the precipitation down slightly to 121% of average for the water year. May 1 snow cover for the Cowlitz River Basin was 117% and the Lewis River Basin had 123% of average. The Paradise Park SNOTEL recorded the most water content for the basin with 80.2 inches of water. Normal May 1 water content is 61.6 inches. Temperatures were near normal for April.

For more information contact your local Natural Resources Conservation Service office.

COWLITZ - LEWIS RIVER BASINS

Streamflow Forecasts - May 1, 1995

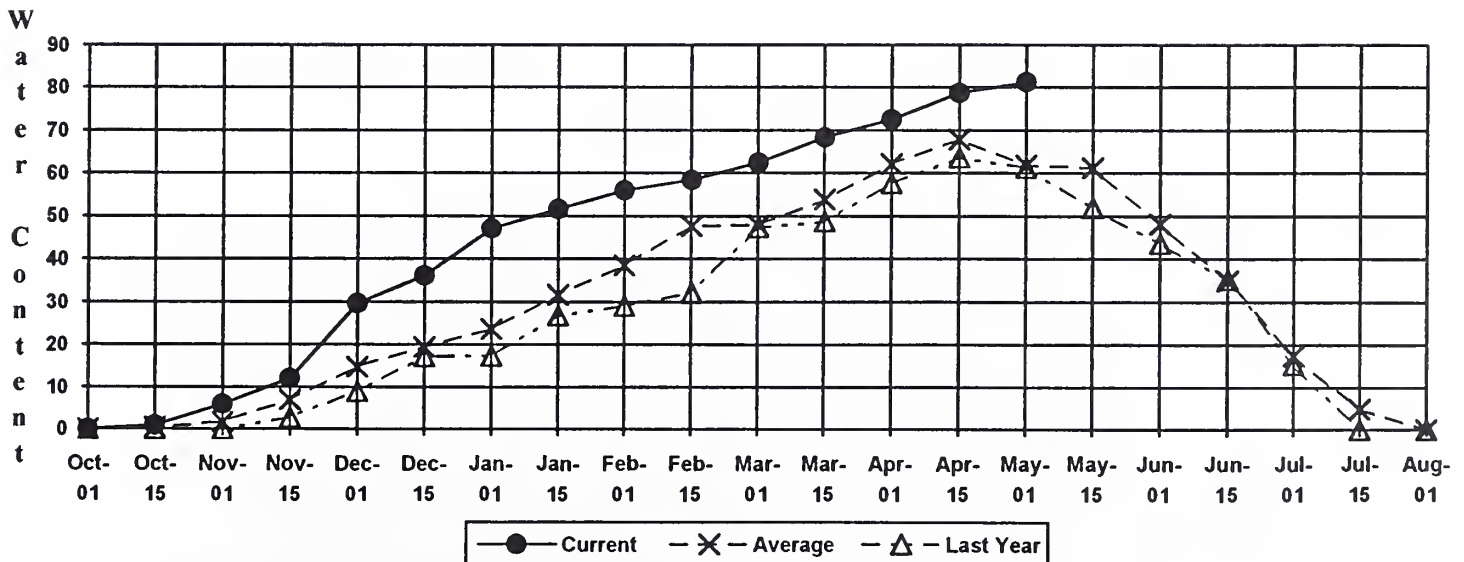
Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		Drier			Wetter			
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	10% (1000AF)	10% (1000AF)	Chance Of Exceeding * (% AVG.)	
LEWIS RIVER at Ariel (2)	MAY-SEP	720	845	930	110	1020	1140	848
	MAY-JUL	590	695	765	110	835	940	696
	MAY-JUN	490	575	635	110	695	780	578
COWLITZ R. b1 Mayfield Dam (2)	MAY-SEP	720	1180	1500	98	1820	2280	1531
	MAY-JUL	615	1000	1270	98	1540	1930	1292
	MAY-JUN	490	805	1020	98	1230	1550	1038
COWLITZ R. at Castle Rock (2)	MAY-SEP	915	1510	1910	95	2310	2910	2021
	MAY-JUL	770	1260	1600	95	1940	2430	1679
	MAY-JUN	610	1010	1280	95	1550	1950	1349
KLICKITAT near Glenwood	MAY-JUN	91	100	106	121	112	120	87
	MAY-SEP	123	134	142	121	149	160	117

COWLITZ - LEWIS RIVER BASINS Reservoir Storage (1000 AF) - End of April				COWLITZ - LEWIS RIVER BASINS Watershed Snowpack Analysis - May 1, 1995				
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					Cowlitz River	7	145	117
					Lewis River	4	126	123

* 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.

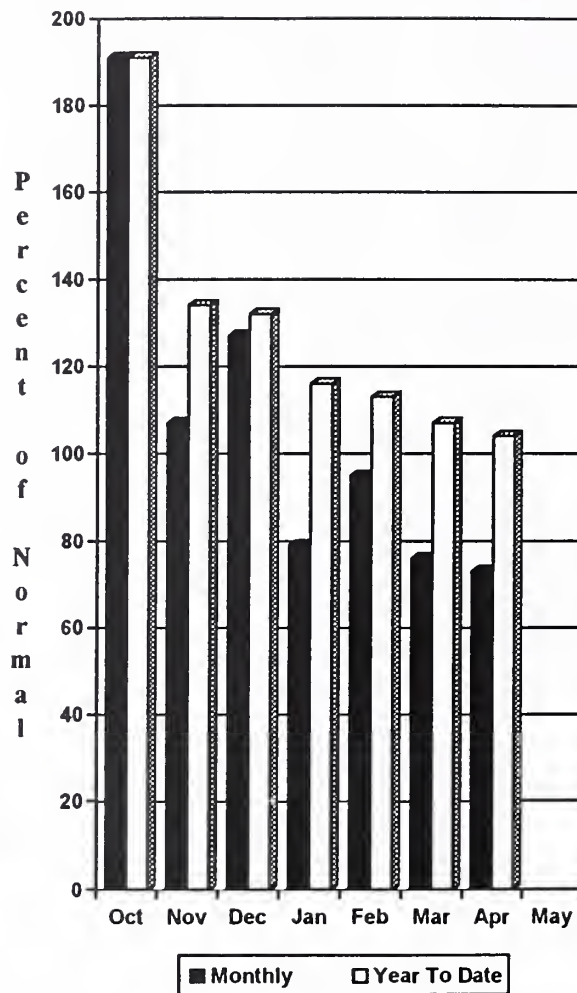
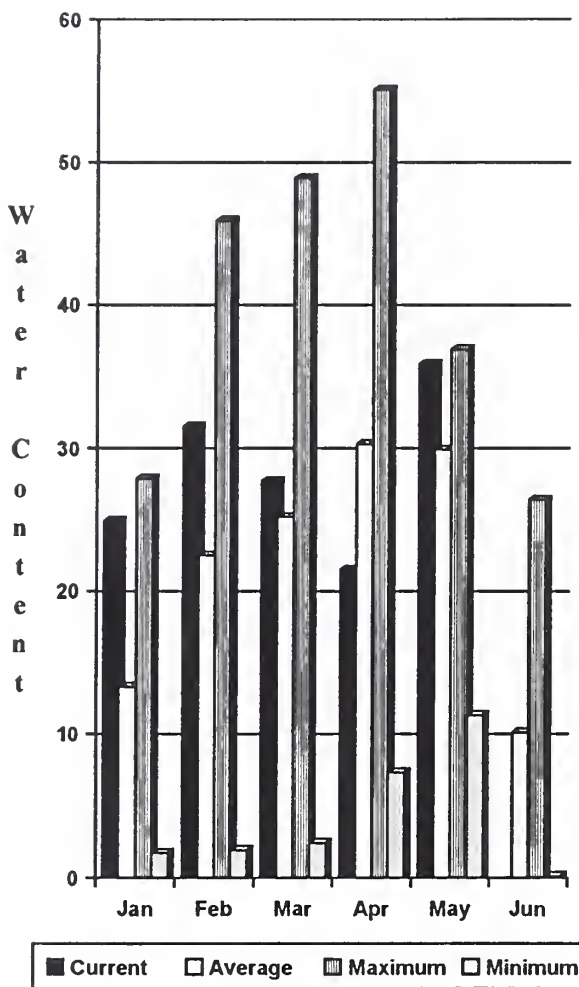
Paradise SNOTEL Elevation 5120 ft.



White - Green - Cedar River basins

Mountain Snowpack* (inches)

Precipitation* (% of normal)



*Based on selected stations

Summer runoff is forecast to be 65% of normal for the Green River, 69% for the Cedar River near Cedar Falls, 75% for the Rex River, 89% for the South Fork of the Tolt River, and 65% for the Cedar River at Cedar Falls. May 1 snowpack was 141% of normal in the White River Basin and 98% in the Green River Basin. The Cedar River Basin was not reported this month. Water content on May 1 at the Morse Lake SNOTEL near Chinook Pass on the White River, at an elevation of 5400 feet, was 78.7 inches. This site has a May 1 average of 41.4 inches. April precipitation was 73% of normal, bringing the water year-to-date to 104% of average. The National Weather Service reported temperatures at Stampede Pass to be 1.6 degrees above average for April.

For more information contact your local Natural Resources Conservation Service office.

WHITE - GREEN - CEDAR RIVER BASINS

Streamflow Forecasts - May 1, 1995

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		Drier		Wetter				
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	30% (1000AF)	10% (1000AF)	Chance Of Exceeding * (% AVG.)	
GREEN RIVER below Howard Hanson Dam	MAY-JUL	75	97	112	66	127	149	170
	MAY-SEP	87	112	128	65	145	169	198
	MAY-JUN	65	84	97	66	110	129	147
CEDAR RIVER near Cedar Falls	MAY-JUL	25	32	38	67	43	50	56
	MAY-SEP	29	38	44	69	50	59	64
	MAY-JUN	24	30	34	72	38	44	47
REX RIVER near Cedar Falls	MAY-JUL	8.4	11.5	13.7	71	15.9	19.0	19.2
	MAY-SEP	12.0	15.0	17.0	75	19.0	22	22
	MAY-JUN	7.6	10.1	11.8	70	13.5	16.0	16.8
CEDAR RIVER at Cedar Falls	MAY-JUL	4.0	22	35	65	48	66	54
	MAY-SEP	0.0	21	36	65	51	72	55
	MAY-JUN	11.0	25	34	65	43	57	52
SOUTH FORK TOLT near Index	MAY-JUL	7.4	8.9	9.9	87	10.9	12.4	11.4
	MAY-SEP	9.2	11.1	12.4	89	13.7	15.6	13.9
	MAY-JUN	6.1	7.3	8.1	87	8.9	10.1	9.3

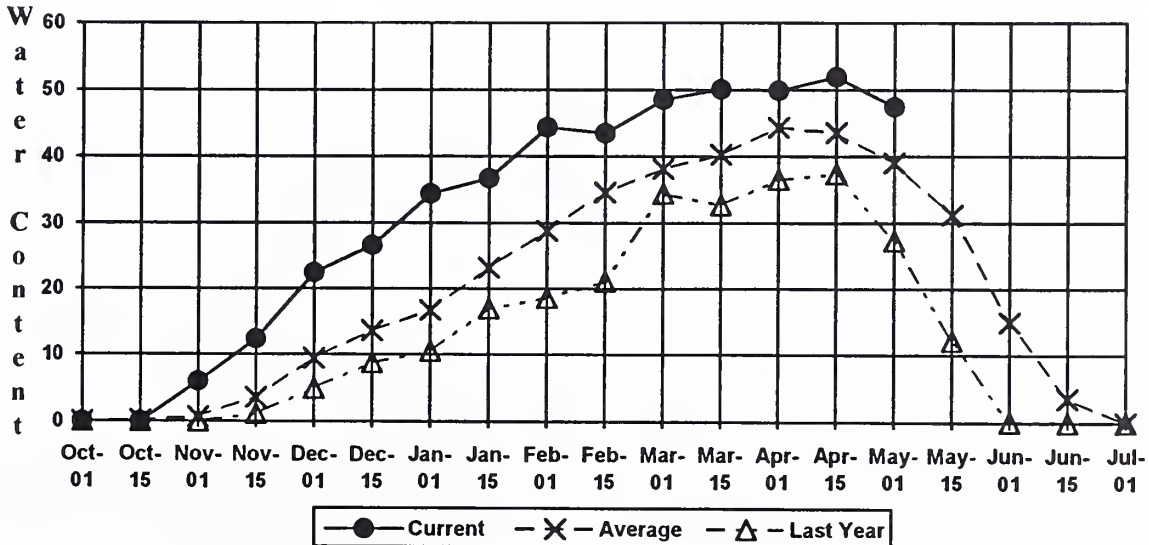
WHITE - GREEN RIVER BASINS Reservoir Storage (1000 AF) - End of April				WHITE - GREEN RIVER BASINS Watershed Snowpack Analysis - May 1, 1995				
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					White River	3	183	141
					Green River	2	174	98
					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.

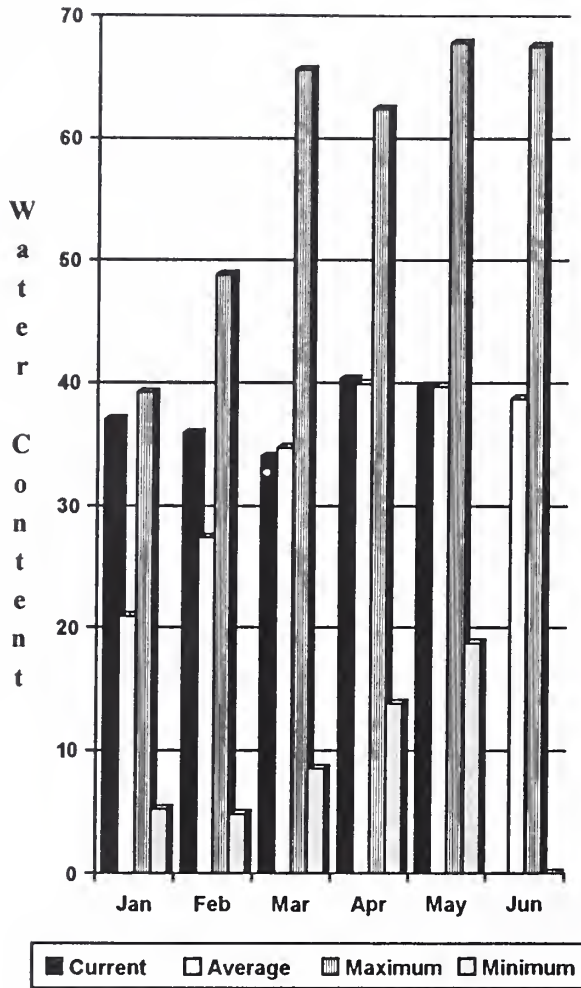
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural flow - actual flow may be affected by upstream water management.

Stampede Pass SNOTEL Elevation 3860 ft.

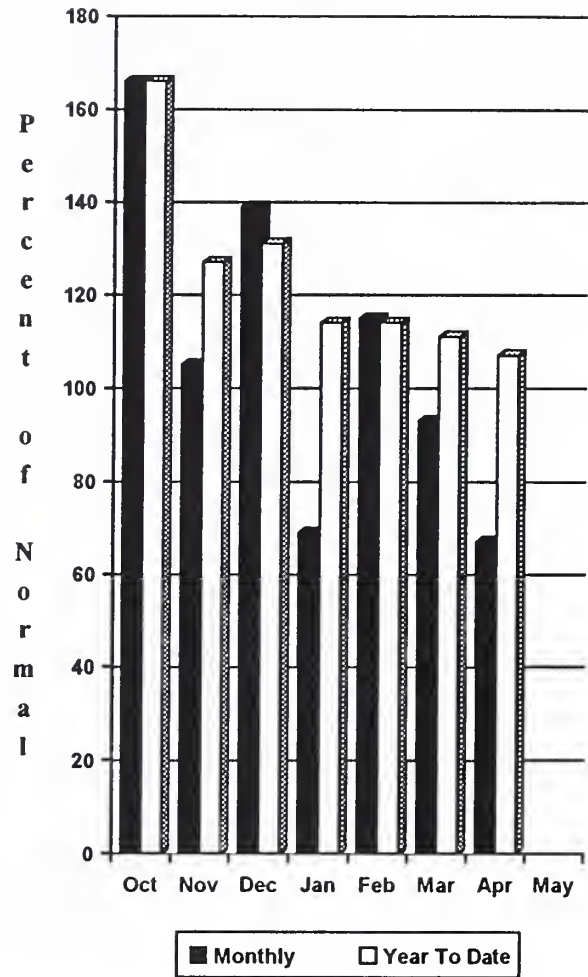


North Puget Sound River basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

Forecast for the Skagit River streamflow is for 108% of normal for the spring and summer period. April streamflow in the Skagit River was 76% of average. Other forecast points include the Baker River at 103% and Thunder Creek at 99% of average. Basin-wide precipitation for April was 67% of average. Water year-to-date remains at 107% of normal. May 1 snow cover in the Skagit River Basin was 110%, the Baker River Basin was 86% and the Snohomish River Basin was 105% of average. Rainy Pass SNOTEL, at 4780 feet, had 49.7 inches of water content, down from 52.6 inches last month. Normal May 1 water content is 34.3 inches. May 1 reservoir storage showed Ross Lake at 87% of normal and 40% of capacity. April temperatures were near normal.

For more information contact your local Natural Resources Conservation Service office.

NORTH PUGET SOUND RIVER BASINS

Streamflow Forecasts - May 1, 1995

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		Drier		Wetter		Chance Of Exceeding *		
		90% (1000AF)	70% (1000AF)	30% (1000AF)	10% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	
THUNDER CREEK near Newhalem	MAY-JUL	182	196	206	99	215	230	209
	MAY-SEP	285	300	306	99	315	325	308
	MAY-JUN	108	120	129	100	138	151	129
SKAGIT RIVER at Newhalem (2)	MAY-SEP	1810	2000	2120	108	2240	2430	1963
	MAY-JUL	1500	1650	1750	109	1850	2000	1608
	MAY-JUN	1070	1210	1295	109	1380	1520	1188
BAKER RIVER near Concrete	MAY-JUL	675	725	761	108	795	845	703
	MAY-SEP	825	900	954	103	1010	1080	930
	MAY-JUN	435	485	516	108	550	595	478

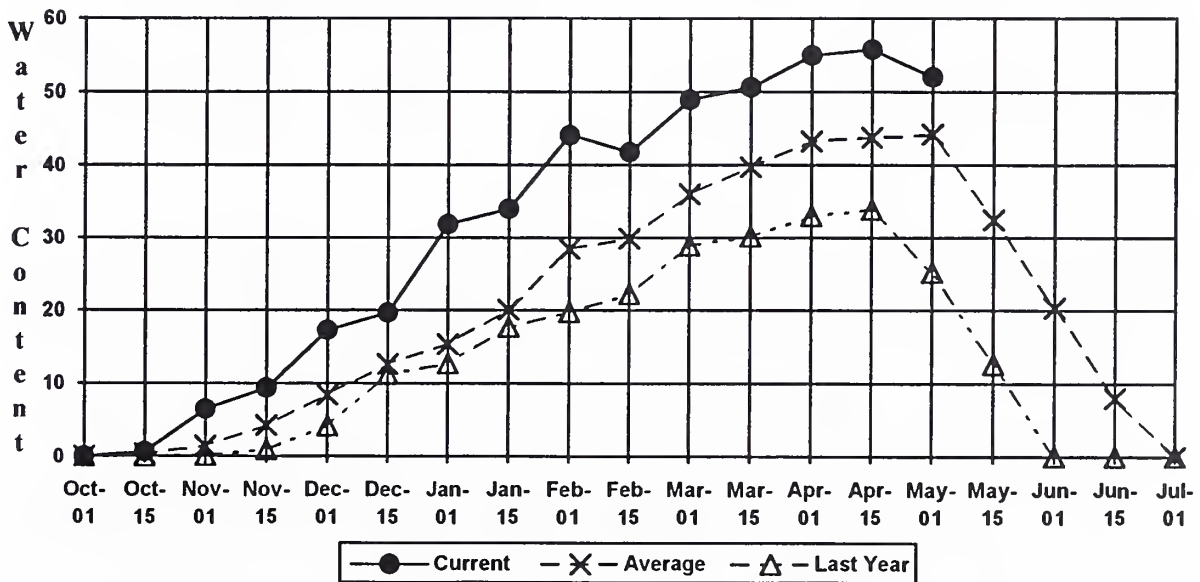
NORTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of April				NORTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - May 1, 1995				
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ROSS	1404.1	557.8	893.3	644.4	Snohomish River	3	133	105
DIABLO RESERVOIR	90.6	87.5	87.0	---	Skagit River	13	185	110
GORGE RESERVOIR		NO REPORT			Baker River	2	152	110

* 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.

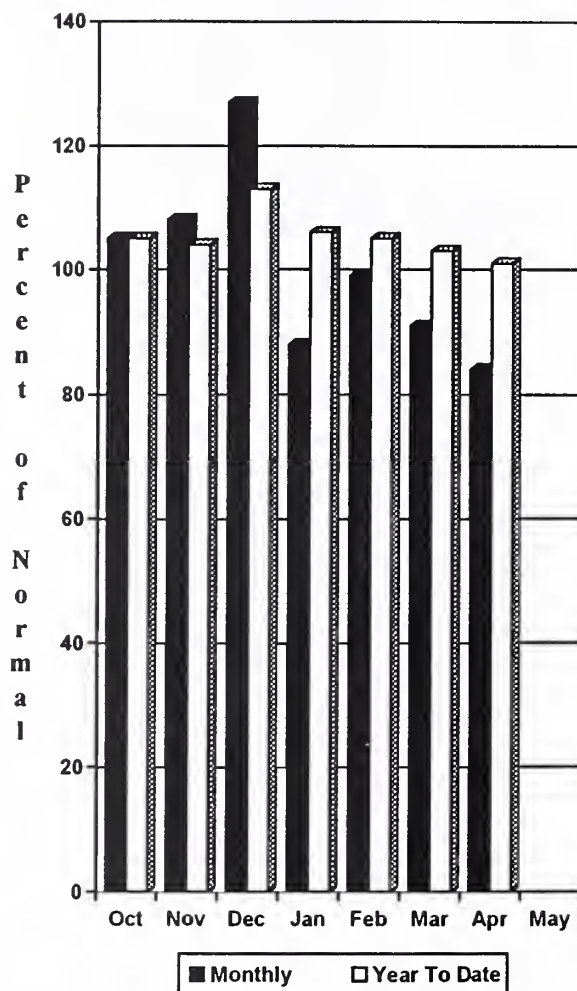
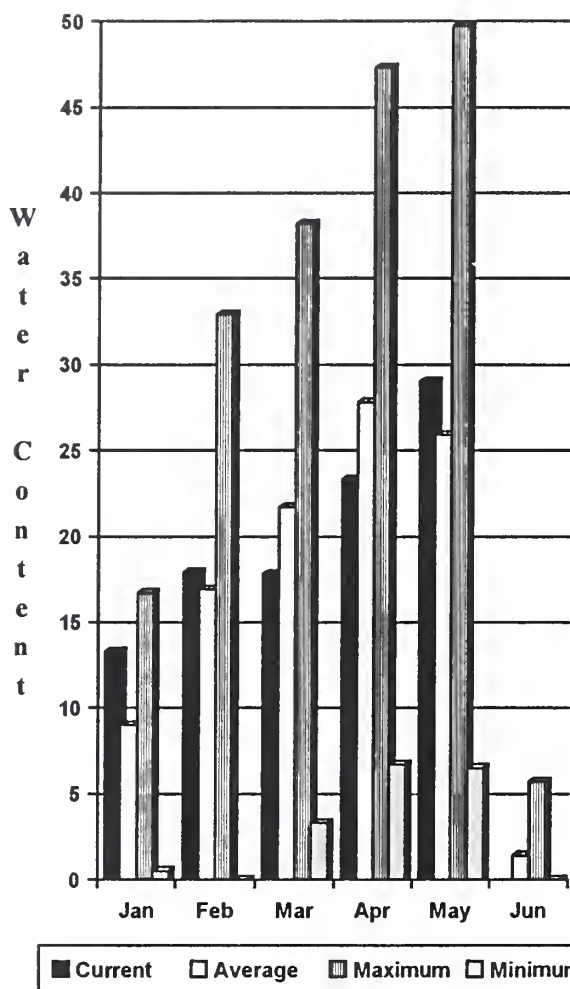
Rainy Pass SNOTEL Elevation 4780 ft.



Olympic Peninsula River basins

Mountain Snowpack* (inches)

Precipitation* (% of normal)



*Based on selected stations

May forecasts of runoff for streamflow in the basin are for 88% of average for the Dungeness River and 83% of normal for the Elwha River. April precipitation was 84% of average. Precipitation has accumulated at 101% of normal for the water year. April precipitation at Quillayute was 5.9 inches, which is slightly below normal at 83% of average. Average May 1 snow cover in the Olympic Basin varied as follows; Elwa River, 56%, Morse Creek, 97%, Dungeness River, 71%, and the Quilcene River, 167% of normal. The Mount Crag SNOTEL near Quilcene had 33.7 inches of snow water equivalent on May 1. Normal for this site is 16.6 inches. Temperatures at Quillayute were 1.1 degrees above normal for April.

For more information contact your local Natural Resources Conservation Service office.

OLYMPIC PENINSULA RIVER BASINS Streamflow Forecasts - May 1, 1995

Forecast Point	Forecast Period	<<==== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)		
		90% (1000AF)		70% (1000AF)		Chance Of Exceeding * 50% (Most Probable) (% AVG.)			30% (1000AF) 10% (1000AF)	
DUNGENESS RIVER nr Sequim	MAY-SEP	100	114	123	88	133	147	140		
	MAY-JUL	79	90	97	87	105	116	112		
	MAY-JUN	53	62	69	87	76	85	79		
ELWHA RIVER nr Port Angeles	MAY-SEP	275	320	353	83	385	430	427		
	MAY-JUL	225	260	284	83	310	345	342		

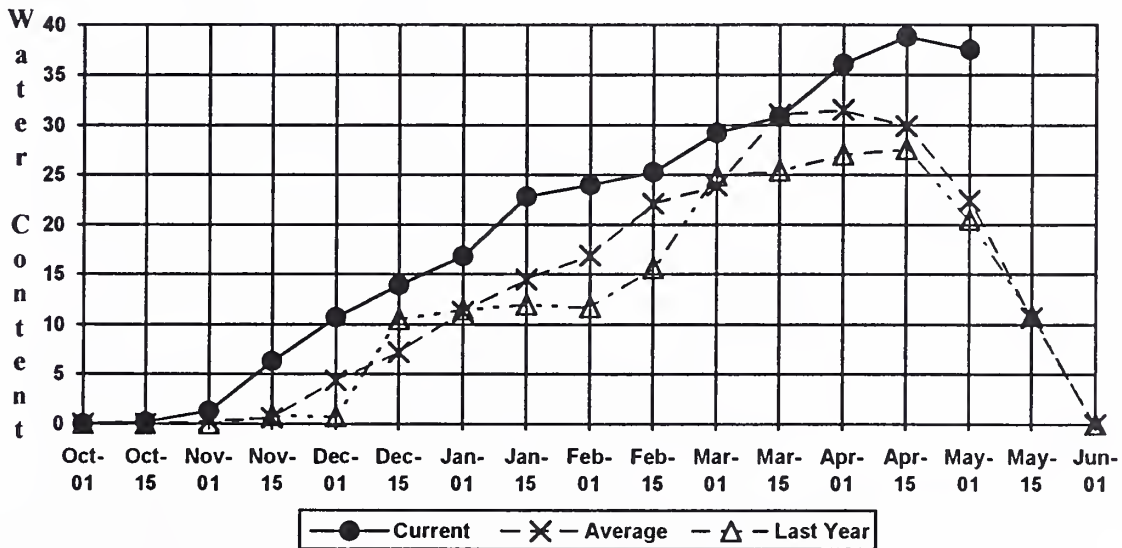
OLYMPIC PENINSULA RIVER BASINS Reservoir Storage (1000 AF) - End of April				OLYMPIC PENINSULA RIVER BASINS Watershed Snowpack Analysis - May 1, 1995				
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					Elwha River	1	174	56
					Morse Creek	1	160	97
					Dungeness River	1	440	71
					Quilcene River	1	184	167
					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 Elevation 4050 ft.



In addition to basin outlook reports, a Water Supply Forecast for the Western United States is published by the Natural Resources Conservation Service and National Weather Service monthly, January through May. Reports may be obtained from the Natural Resources Conservation Service, West National Technical Center, 101 SW Main Street, Suite 1700, Portland, OR 97204-3225.

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

Canada

Ministry of the Environment
Investigations Branch, Victoria, British Columbia

State

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal

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
Yakama 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.



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