United States
Department of
Agriculture

Natural
Resources
Conservation
Service

Washington Basin Outlook Report April 1, 1996

Basin Outlook Reports
and
Federal - State - Private
Cooperative Snow Surveys

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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.

Washington
Water Supply Outlook

April 1996

General Outlook

April 1 signifies the of irrigation season for most of Washington. April also indicates the end of measurable snow accumulation in the mountains. On average most SNOTEL sites in Washington reach peak snowpack between April 1 - 15. This year we are seeing these peaks a little sooner. Unseasonably warm temperatures and lack of precipitation during March have caused sites to peak up to 30 days early.

Streamflow

Forecasts for spring - summer streamflow are for near normal for most of Washington. The lack of normal March snowpack accumulations has brought forecasts down slightly from last month. They vary from 130% of average for the Kettle River near Laurier to 68% of normal for the Elwha River near Port Angeles. April forecasts for some Western Washington streams include: Cedar River near Cedar Falls, 81%; Green River, 90%; and the Skagit River, 95%. Some Eastern Washington streams include Mill Creek at Walla Walla, 94%; the Wenatchee River at Peshastin, 103%; the Columbia River at The Dalles, 105%; and the Colville River, 99%. March streamflows varied greatly throughout the state but were all near to above normal. The Similkameen River at Nighthawk was the highest at 216% of normal; and the Lewis River at Ariel, with 92% of normal, was the lowest in the state. Other streamflows were the following percentage of normal: Cowlitz River, 99%; Okanogan River, 213%; Spokane River, 114%; Columbia River at the Canadian border, 130%; and Yakima River at Parker, 149%. Many of the above normal flows can be attributed to reservoir releases as managers prepare for spring runoff.

BASIN	PERCENT OF AVERAGE MOST PROBABLE FORECAST (50 PERCENT CHANCE OF EXCEEDANCE)
Spokane	84-86
Colville-Pend Oreille	99-113
Okanogan-Methow	110-129
Wenatchee-Chelan	103-131
Yakima	98-123
Walla Walla	94-105
Cowlitz-Lewis	92-123
White-Green-Cedar	81-90
North Puget Sound	77-100
Olympic Peninsula	68-72

Snowpack

The April 1 statewide SNOTEL reading showed the snowpack at 81% of normal, down only slightly from last month. Snowpack varied across the state, with the Olympic Peninsula River Basin reporting the lowest with 34% of average, and the Entiat River Basin retaining the highest at 145% of normal. Westside averages from SNOTEL and April 1 snow surveys include North Puget Sound River Basins with 64% of normal; White-Green-Cedar River Basins with 64%; and Lewis-Cowlitz Basins with 73% of normal. Snowpack along the east slopes of the Cascade Mountains include the Yakima with 84%, and the Wenatchee with 97%. Snowpack in the Spokane River Basin was at 69%; Pend Oreille River Basin, including Canadian data, had 100% of normal. Maximum snow cover was at Lyman Lake SNOTEL in the north-central Cascade Mountains, with a water content of 67.1 inches. This site would normally have 56.9 inches of water content on April 1. High average in the state goes to Pope Ridge SNOTEL in the Entiat River Basin with 152% of normal. Snowpack did not change significantly from last month. Mid-elevation sites have begun normal meltout. However, high mountain snowpack remains the same. March accumulations were minimal.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane	94	70
Colville	52	63
Pend Oreille	126	100
Okanogan	100	104
Methow	82	115
Wenatchee	81	93
Chelan	99	117
Yakima	78	84
Walla Walla	81	80
Cowlitz	82	81
Lewis	59	56
White	80	96
Green	74	51
North Puget Sound	63	64
Olympic Peninsula	39	34

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

Precipitation

During the month of March the National Weather Service and Natural Resources Conservation Service climate stations showed spotty and sporadic precipitation accumulation across the state. Precipitation varied from a high of 150% of average at Walla Walla to a low of 27% of normal at Bunchgrass Meadows SNOTEL site in Pend Oreille County. Basin-wide averages for the water year varied from 109% of normal in the Olympic Peninsula River Basins, to 156% of normal in the Yakima River basin.

BASIN	MARCH PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane	50	135
Colville-Pend Oreille	53	123
Okanogan-Methow	43	112
Wenatchee-Chelan	67	141
Yakima	57	156
Walla Walla	66	128
Cowlitz-Lewis	56	145
White-Green-Cedar	55	144
North Puget Sound	52	145
Olympic Peninsula	40	109

Reservoir

Reservoir storage in Washington remained near to above average for April 1. Reservoir storage in the Yakima Basin was 911,400 acre feet, 123% of normal. Storage at other reservoirs included Roosevelt at 124% of average, and the Okanogan reservoirs with 125% of normal for April 1. The power generation reservoirs include the following: Coeur d'Alene Lake, 141,700 acre feet, or 83% of normal; Chelan Lake, 462,000 acre feet, 218% of average and 68% of capacity; and Ross Lake at 328% of average and 70% of capacity. Many reservoir operators in the state have been releasing water in anticipation of spring runoff and flood control.

BASIN	PERCENT OF CAPACITY	PERCENT OF AVERAGE
Spokane	59	83
Colville-Pend Oreille	44	121
Okanogan-Methow	80	125
Wenatchee-Chelan	68	218
Yakima	86	123
North Puget Sound	70	328

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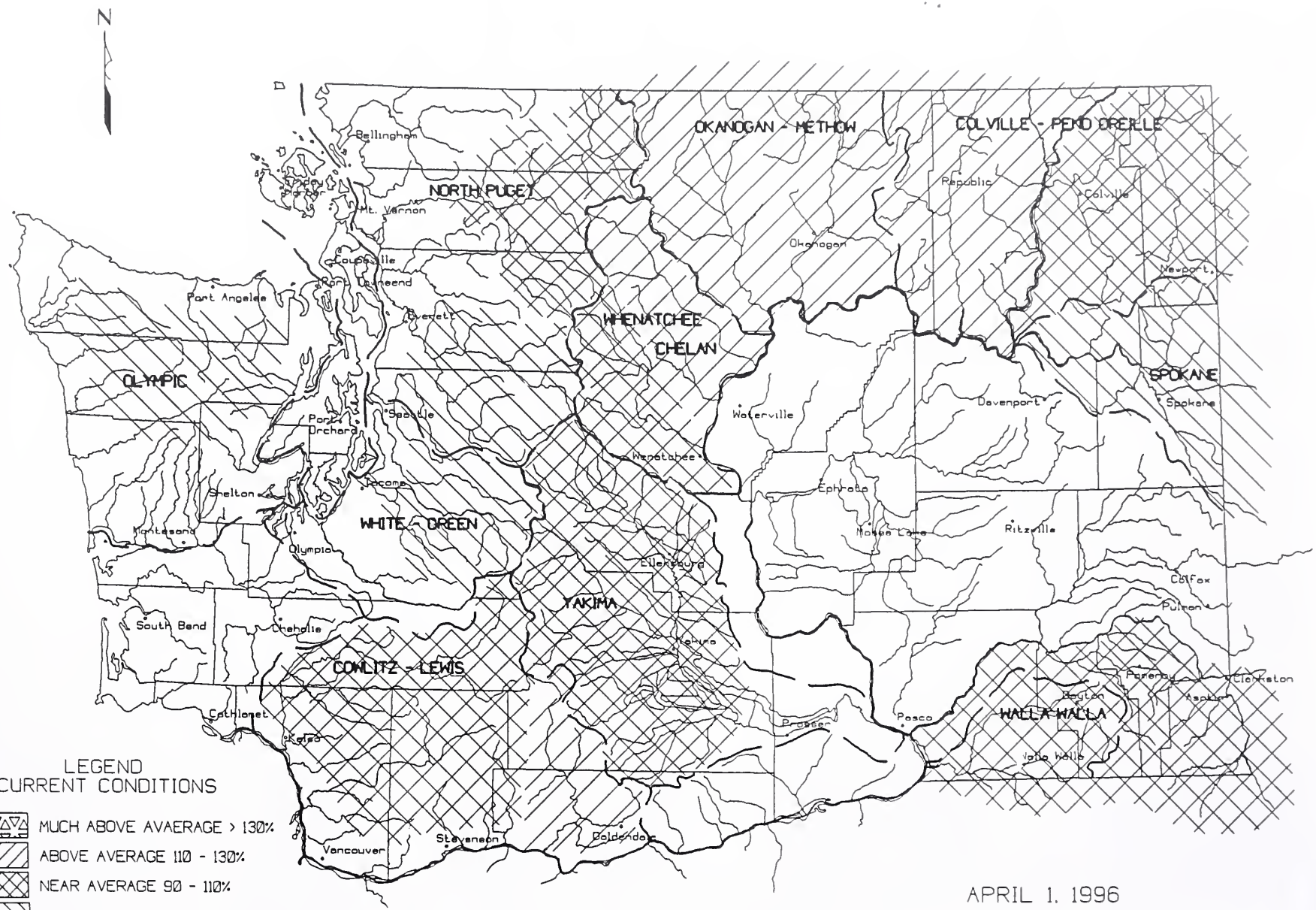

APRIL 1, 1996

STREAMFLOW PROSPECTS
WASHINGTON

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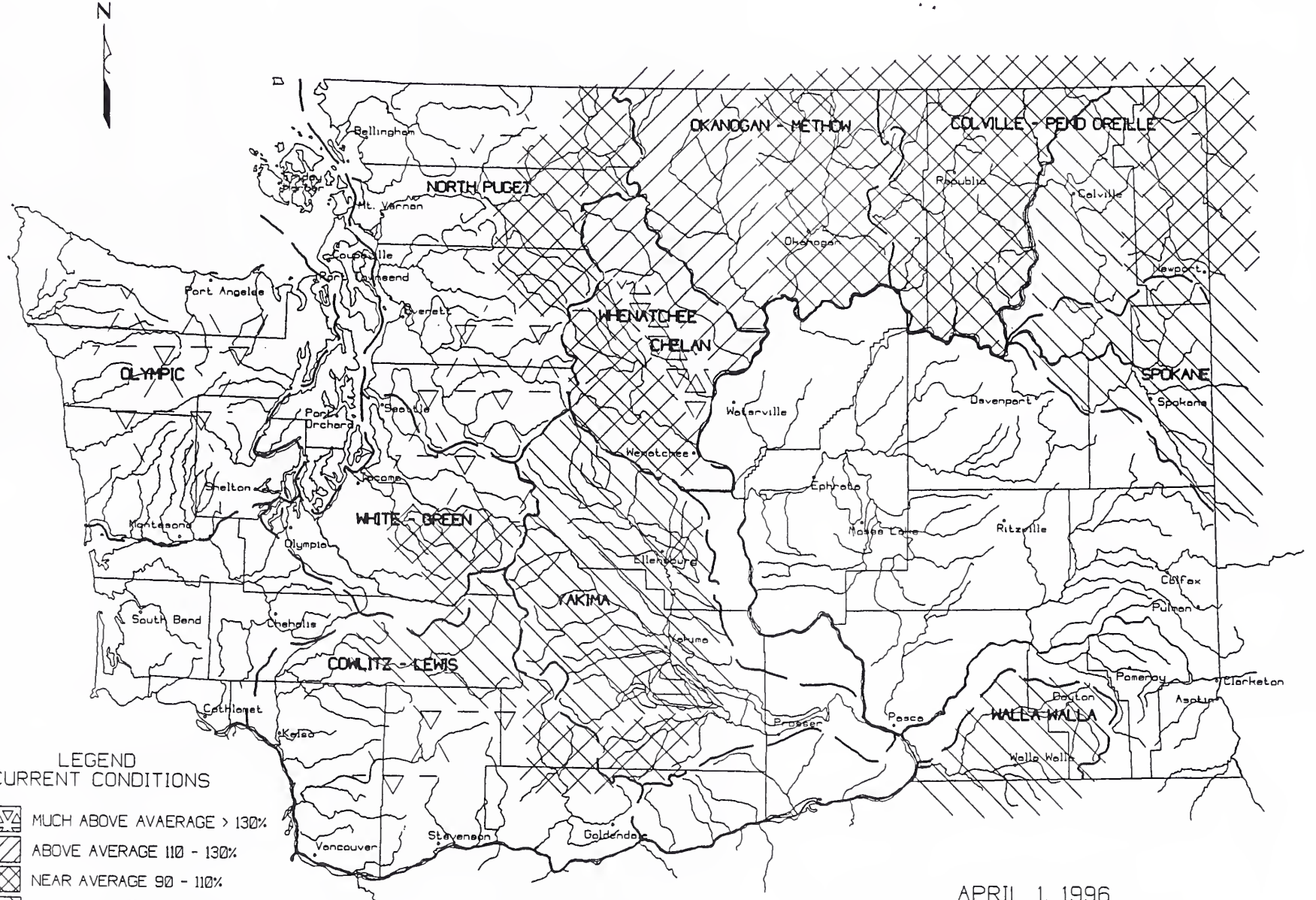
U.S DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE



APRIL 1, 1996

MOUNTAIN SNOWPACK
WASHINGTON

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NATURAL RESOURCES CONSERVATION SERVICE

BASIN SUMMARY OF SNOW COURSE DATA

APRIL 1996

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
PEND OREILLE RIVER						
BENTON MEADOW	2370	4/01/96	0	.0	.0	3.8
BENTON SPRING	4920	4/01/96	33	11.6	15.4	18.6
BOYER MOUNTAIN	5250	3/28/96	41	14.8	26.2	25.7
BUNCHGRASS MEADOWS	5000	3/27/96	62	22.1	26.7	29.5
BUNCHGRASS MDWPILLOW	5000	4/01/96	---	22.0E	32.0	26.6
CHEWALAH	4930	3/29/96	30	10.3	20.0	16.1
HEART LAKE TRAIL	4800	3/26/96	49	16.6	13.3	21.6
HOODOO BASIN	6050	3/26/96	133	50.7	39.9	51.0
HOODOO CREEK	5900	3/26/96	114	44.0	32.2	46.3
LOOKOUT PILLOW	5140	4/01/96	---	26.0	25.2	33.4
NELSON CAN.	3100	3/27/96	35	13.1	16.2	15.5
KETTLE RIVER						
BARNES CREEK CAN.	5300	3/29/96	62	24.7	19.2	20.6
BIG WHITE MTN CAN.	5510	3/31/96	58	20.9	23.3	19.4
BUTTE CREEK	4070	3/28/96	23	7.7	8.7	9.0
CARMI CAN.	4100	3/30/96	19	5.7	5.7	6.4
FARRON CAN.	4000	4/01/96	42	13.5	13.3	13.9
GOAT CREEK	3600	3/28/96	7	2.1	4.2	4.3
GRAYSTOKE LAKE CAN.	5940	4/01/96	42	13.0	13.9	17.6
MONASHEE PASS CAN.	4500	3/29/96	43	16.1	13.3	14.0
SUMMIT G.S.	4600	3/28/96	22	6.8	8.9	8.1
TRAPPING CK LOW CAN.	3050	3/30/96	13	4.5	1.7	3.5
TRAPPING CK UP CAN.	4460	3/30/96	21	5.9	6.0	9.8
COLVILLE RIVER						
BAIRD #2	3220	3/27/96	13	4.6	8.5	--
STRANGER MOUNTAIN	4230	3/29/96	24	7.5	14.1	12.2
TOGO	3370	4/01/96	---	6.8E	12.9	10.8
OMAK LAKE, TWIN LAKES						
MOSES MTN PILLOW	4800	4/01/96	---	15.0S	26.6	15.5
SPOKANE RIVER						
FOURTH OF JULY SUM	3200	4/01/96	4	2.2	.0	6.8
LOST LAKE (d)	6110	4/01/96	---	52.6E	45.7	57.0
MOSQUITO RDG PILLOW	5200	4/01/96	---	31.1	32.5	37.3
SUNSET PILLOW	5540	4/01/96	---	24.5	20.8	37.6
LOOKOUT PILLOW	5140	4/01/96	---	26.0	25.2	33.4
NEWMAN LAKE						
QUARTZ PEAK PILLOW	4700	4/01/96	---	12.0	23.9	21.9
RAGGED RIDGE	3330	3/27/96	0	.0	--	3.5
OKANOGAN RIVER						
ABERDEEN LAKE CAN.	4300	4/01/96	25	7.2	4.6	6.1
BLACKWALL PEAK CAN.	6370	4/01/96	---	34.0	33.7	33.8
BRENDA MINE CAN.	4800	3/27/96	39	13.1	12.9	13.0
BROOKMERE CAN.	3200	3/30/96	33	10.3	7.3	8.6
ENDERBY CAN.	6200	3/30/96	103	44.9	35.8	38.6
ESPERON CK. UP CAN.	5410	3/30/96	49	15.4	18.8	18.7
ESPERON CK. MID CAN.	4690	3/30/96	45	14.5	16.3	15.5
FREEZEOUT CK. TRAIL	3500	3/28/96	15	4.8	9.3	11.5
GREYBACK RES CAN.	5120	3/29/96	35	10.6	10.1	9.1
HAMILTON HILL CAN.	4890	4/01/96	43	14.3	11.4	15.1
HARTS PASS	6500	3/29/96	117	44.0	46.9	42.6
HARTS PASS PILLOW	6500	4/01/96	---	53.0S	53.2	41.3
ISINTOK LAKE CAN.	5500	3/27/96	28	8.1	7.7	7.6
LIGHTNING LAKE CAN.	4000	4/01/96	41	13.1	11.2	12.7
LOST HORSE MTN CAN.	6300	4/01/96	42	13.0	9.9	9.5
MCCULLOCH CAN.	4200	3/28/96	18	5.7	2.8	6.7
MISSEZULA MTN CAN.	5090	3/31/96	33	9.9	10.0	9.4
MISSION CREEK CAN.	5800	4/01/96	---	21.4E	18.1	20.4
MONASHEE PASS CAN.	4500	3/29/96	43	16.1	13.3	14.0
MT. KOBAU CAN.	5900	3/30/96	38	12.2	17.7	12.9
MUTTON CREEK #1	5700	3/27/96	35	12.3	21.5	13.2
OYAMA LAKE CAN.	4400	3/28/96	27	8.6	6.9	7.0
POSTILL LAKE CAN.	4500	3/29/96	31	10.3	9.3	9.0
RUSTY CREEK	4000	3/27/96	16	5.3	6.9	5.9
SALMON MDWS PILLOW	4500	4/01/96	---	9.9S	16.1	9.4
SILVER STAR MTN CAN.	6000	3/29/96	78	30.4	30.7	29.2
SUMMERLAND RES CAN.	4200	3/26/96	30	10.1	9.6	9.5
SUNDAY SUMMIT CAN.	4300	4/01/96	13	4.1	1.5	4.7
TROUT CREEK CAN.	4690	3/29/96	29	9.1	7.0	7.2
VASEUX CREEK CAN.	4600	3/28/96	18	5.8	6.1	6.6
WHITE ROCKS MTN CAN.	6000	3/29/96	56	19.7	25.6	23.9
METHOW RIVER						
HARTS PASS	6500	3/29/96	117	44.0	46.9	42.6
HARTS PASS PILLOW	6500	4/01/96	---	53.0S	53.2	41.3
MUTTON CREEK #1	5700	3/27/96	35	12.3	21.5	13.2
RUSTY CREEK	4000	3/27/96	16	5.3	6.9	5.9
SALMON MDWS PILLOW	4500	4/01/96	---	9.9S	16.1	9.4
CHELAN LAKE BASIN						
LYMAN LAKE	5900	4/01/96	---	69.2E	69.3	58.7
LYMAN LAKE PILLOW	5900	4/01/96	---	67.1S	75.1	56.9
MINERS RIDGE PILLOW	6200	4/01/96	---	52.6S	55.6	52.2
PARK CREEK RIDGE	4600	4/01/96	---	52.4E	52.9	43.1
PARK CK RIDGE PILLOW	4600	4/01/96	---	50.6S	40.0	41.6
RAINY PASS	4780	3/28/96	89	33.3	42.4	39.3
RAINY PASS PILLOW	4780	4/01/96	---	51.4S	52.6	38.0
ENTIAT RIVER						
BRIEF	1600	3/29/96	11	2.4	4.7	2.5
POPE RIDGE PILLOW	3540	4/01/96	---	23.9S	25.0	15.7

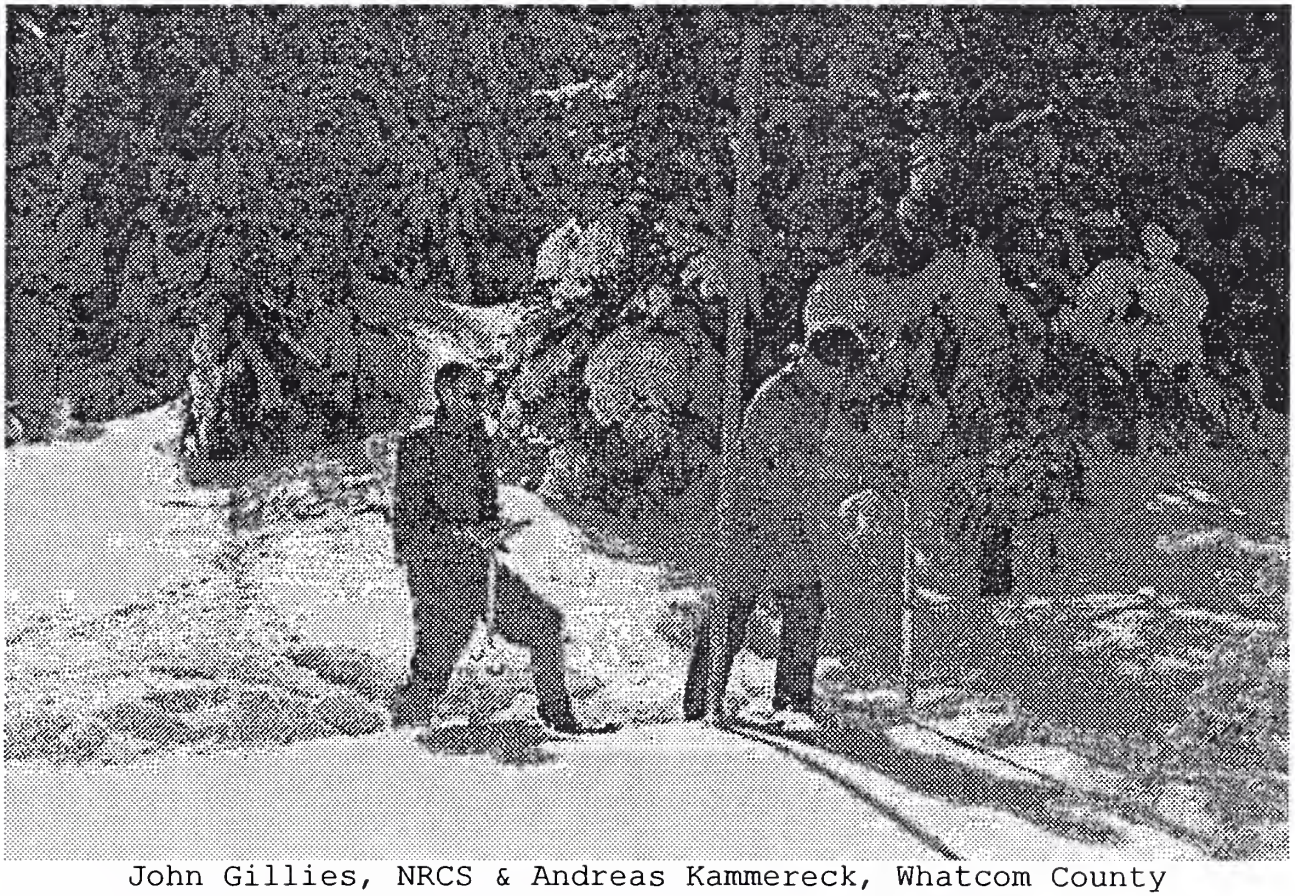
SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
WENATCHEE RIVER						
BERNE-MILL CREEK (d)	3170	3/29/96	58	24.0	30.1	27.2
BLEWETT PASS #2	4270	3/25/96	29	11.9	13.6	15.1
BLEWETT PASS#2PILLOW	4270	4/01/96	---	13.2S	18.6	17.8
CHIWAUKUM G.S.	2500	3/29/96	28	11.0	13.4	8.9
FISH LAKE PILLOW	3370	4/01/96	---	34.5S	35.0	31.9
LYMAN LAKE	5900	4/01/96	---	69.2E	69.3	58.7
LYMAN LAKE PILLOW	5900	4/01/96	---	67.1S	75.1	56.9
MERRITT	2140	3/29/96	29	11.5	15.3	12.8
MISSION RIDGE	5000	3/30/96	43	15.6	20.1	16.5
STEVENS PASS PILLOW	4070	4/01/96	---	31.1S	46.4	42.3
STEVENS PASS SAND SD	3700	3/29/96	55	22.8	32.6	33.7
TROUGH #2 PILLOW	5310	4/01/96	---	13.0S	15.1	9.7
UPPER WHEELER	4400	3/28/96	9	2.7	4.8	7.8
UPPER WHEELER PILLOW	4400	4/01/96	---	12.2S	17.2	13.6
SQUILCHUCK CREEK		NO REPORT				
STEMILT CREEK						
STEMILT SLIDE	5000	3/28/96	28	10.7	13.8	12.8
UPPER WHEELER	4400	3/28/96	9	2.7	4.8	7.8
UPPER WHEELER PILLOW	4400	4/01/96	---	12.2S	17.2	13.6
COLOCKUM CREEK						
TROUGH #2 PILLOW	5310	4/01/96	---	13.0S	15.1	9.7
YAKIMA RIVER						
BIG BOULDER CREEK	3200	4/01/96	---	15.4E	19.2	17.8
BLEWETT PASS #2	4270	3/25/96	29	11.9	13.6	15.1
BLEWETT PASS#2PILLOW	4270	4/01/96	---	13.2S	18.6	17.8
BUMPING LAKE	3450	4/01/96	---	12.4E	16.0	14.2
BUMPING LAKE (NEW)	3400	3/27/96	31	13.2	21.0	18.3
BUMPING RIDGE PILLOW	4600	4/01/96	---	18.0S	25.4	21.2
CAYUSE PASS	5300	4/01/96	---	78.6E	89.0	82.4
COLOCKUM PASS	5370	3/25/96	38	14.9	21.0	16.5
CORRAL PASS PILLOW	6000	4/01/96	---	31.1S	34.6	32.6
FISH LAKE	3370	3/27/96	60	26.9	33.7	31.4
FISH LAKE PILLOW	3370	4/01/96	---	34.5S	35.0	31.9
GREEN LAKE	6000	4/01/96	---	35.4E	43.6	33.9
GREEN LAKE PILLOW	6000	4/01/96	---	21.6S	26.6	20.7
GROUSE CAMP PILLOW	5380	4/01/96	---	18.0S	24.3	19.8
DOMMERIE FLATS	2200	3/29/96	0	.0	.5	4.3
LOST HORSE PILLOW	5000	4/01/96	---	16.4S	20.4	26.4
MORSE LAKE PILLOW	5400	4/01/96	---	46.0S	71.5	47.2
OLALLIE MDWS PILLOW	3960	4/01/96	---	33.5S	43.0	53.5
OLALLIE MEADOWS	3630	4/02/96	37	20.4	24.2	44.8
SASSE RIDGE PILLOW	4200	4/01/96	---	30.6S	40.0	32.1
STAMPEDE PASS PILLOW	3860	4/01/96	---	34.8S	49.9	44.4
TUNNEL AVENUE	2450	3/28/96	30	13.5	21.3	20.8
WHITE PASS ES PILLOW	4500	4/01/96	---	17.5S	25.5	22.9
AHTANUM CREEK						
GREEN LAKE	6000	4/01/96	---	35.4E	43.6	33.9
GREEN LAKE PILLOW	6000	4/01/96	---	21.6S	26.6	20.7
LOST HORSE PILLOW	5000	4/01/96	---	16.4S	20.4	26.4
MILL CREEK						
HIGH RIDGE PILLOW	4980	4/01/96	---	17.7S	23.6	24.4
TOUCHET #2 PILLOW	5530	4/01/96	---	27.6	32.3	31.9
LEWIS - COWLITZ RIVERS						
CAYUSE PASS	5300	4/01/96	---	78.6E	89.0	82.4
JUNE LAKE PILLOW	3200	4/01/96	---	10.9S	31.0	36.3
LONE PINE PILLOW	3800	4/01/96	---	19.6S	31.5	32.1
PARADISE PARK PILLOW	5500	4/01/96	---	56.4S	72.5	62.1
PIGTAIL PEAK PILLOW	5900	4/01/96	---	52.9S	47.5	49.3
POTATO HILL PILLOW	4500	4/01/96	---	18.1S	23.2	25.3
SHEEP CANYON PILLOW	4050	4/01/96	---	8.4S	22.3	39.8
SPENCER MDW PILLOW	3400	4/01/96	---	18.3S	28.1	29.6
SPIRIT LAKE PILLOW	3100	4/01/96	---	.0S	3.8	3.6
SURPRISE LKS PILLOW	4250	4/01/96	---	31.0S	45.3	44.2
WHITE PASS ES PILLOW	4500	4/01/96	---	17.5S	25.5	22.9
WHITE RIVER						
CAYUSE PASS	5300	4/01/96	---	78.6E	89.0	82.4
CORRAL PASS	6000	3/30/96	85	34.8	35.7	40.1
CORRAL PASS PILLOW	6000	4/01/96	---	31.1S	34.6	32.6
MORSE LAKE PILLOW	5400	4/01/96	---	46.0S	71.5	47.2
GREEN RIVER						
COUGAR MTN. PILLOW	3200	4/01/96	---	6.6S	5.0	18.8
GRASS MOUNTAIN #2	2900	3/30/96	0	.0	.0	15.9
LESTER CREEK	3100	3/30/96	32	11.2	17.5	23.3
LYNN LAKE	4000	3/30/96	13	5.0	7.4	22.0
SAWMILL RIDGE	4700	3/30/96	47	19.7	31.7	36.3
STAMPEDE PASS PILLOW	3860	4/01/96	---	34.8S	49.9	44.4
TWIN CAMP	4100	3/30/96	45	17.3	16.9	25.1
CEDAR RIVER						
CITY CABIN	2390	4/01/96	---	6.6E	3.4	13.6
MT. GARDNER	3300	3/27/96	8	3.1	3.3	14.1
MT. GARDNER PILLOW	2860	4/01/96	---	4.7S	3.3	14.0
TINKHAM CREEK PILLOW	3000	4/01/96	---	19.1S	22.6	19.9
MEADOWS PASS PILLOW	3240	4/01/96	---	8.9S	67.0	24.9
SNOQUALMIE RIVER						
ALPINE MEADOWS	3500	3/26/96	42	16.3	47.3	43.7
OLALLIE MDWS PILLOW	3960	4/01/96	---	33.5S	43.0	53.5
OLALLIE MEADOWS	3630	4/02/96	37	20.4	24.2	44.8

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
SKYKOMISH RIVER						
STAMPEDE PASS PILLOW	3860	4/01/96	---	34.8S	49.9	44.4
STEVENS PASS PILLOW	4070	4/01/96	---	31.1S	46.4	42.3
STEVENS PASS SAND SD	3700	3/29/96	55	22.8	32.6	33.7
SKAGIT RIVER						
BEAVER CREEK TRAIL	2200	3/27/96	10	3.8	10.4	11.6
BEAVER PASS	3680	3/27/96	42	15.7	32.4	29.7
BROWN TOP AM	6000	3/27/96	126	52.2	66.2	59.6
DEVILS PARK	5900	3/28/96	108	42.8	48.4	42.9
FREEZEOUT CK. TRAIL	3500	3/28/96	15	4.8	9.3	11.5
HARTS PASS	6500	3/29/96	117	44.0	46.9	42.6
HARTS PASS PILLOW	6500	4/01/96	---	53.0S	53.2	41.3
LIGHTNING LAKE CAN.	4000	4/01/96	41	13.1	11.2	12.7
LYMAN LAKE	5900	4/01/96	---	69.2E	69.3	58.7
LYMAN LAKE PILLOW	5900	4/01/96	---	67.1S	75.1	56.9
MEADOWS CABIN	1900	3/27/96	0	.0	.0	4.8
NEW HOZOMEEN LAKE	2800	3/27/96	14	4.3	6.2	10.4
RAINY PASS	4780	3/28/96	89	33.3	42.4	39.3
RAINY PASS PILLOW	4780	4/01/96	---	51.4S	52.6	38.0
THUNDER BASIN	4200	3/27/96	47	13.6	22.4	34.7
THUNDER BASIN PILLOW	4200	4/01/96	---	29.5S	32.9	34.7

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
BAKER RIVER						
DOCK BUTTE AM	3800	3/28/96	44	18.0	59.0	65.4
EASY PASS AM	5200	3/28/96	100	44.0	97.0	82.9
JASPER PASS AM	5400	3/28/96	120	49.0	94.0	86.0
MARTEN LAKE AM	3600	3/28/96	60	26.0	70.0	73.4
MT. BLUM AM	5800	3/28/96	96	38.0	71.0	63.1
ROCKY CREEK AM	2100	3/28/96	4	2.4	31.0	27.8
SCHREIBERS MDW AM	3400	3/28/96	36	15.0	49.0	58.8
SF THUNDER CK AM	2200	3/28/96	0	.0	.0	4.9
WATSON LAKES AM	4500	3/28/96	60	25.0	56.0	64.9
ELWHA RIVER						
HURRICANE	4500	3/31/96	9	2.3	13.0	22.1
MORSE CREEK						
COX VALLEY	4500	3/30/96	44	15.9	37.9	39.5
DUNGENESS RIVER						
DEER PARK	5200	4/01/96	20	6.8	14.4	20.9
QUILCENE RIVER						
MOUNT CRAG PILLOW	4050	4/01/96	---	16.7S	35.0	31.5
WYNOOCHEE RIVER	NO REPORT					

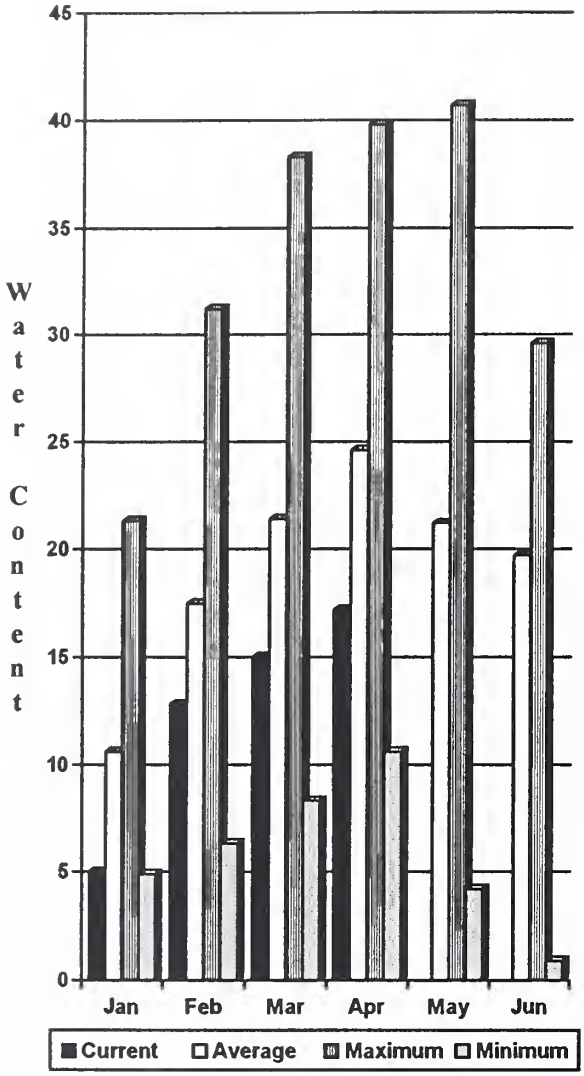
(d) Denotes discontinued site.

WASHINGTON COOPERATIVE SNOW SURVEYS

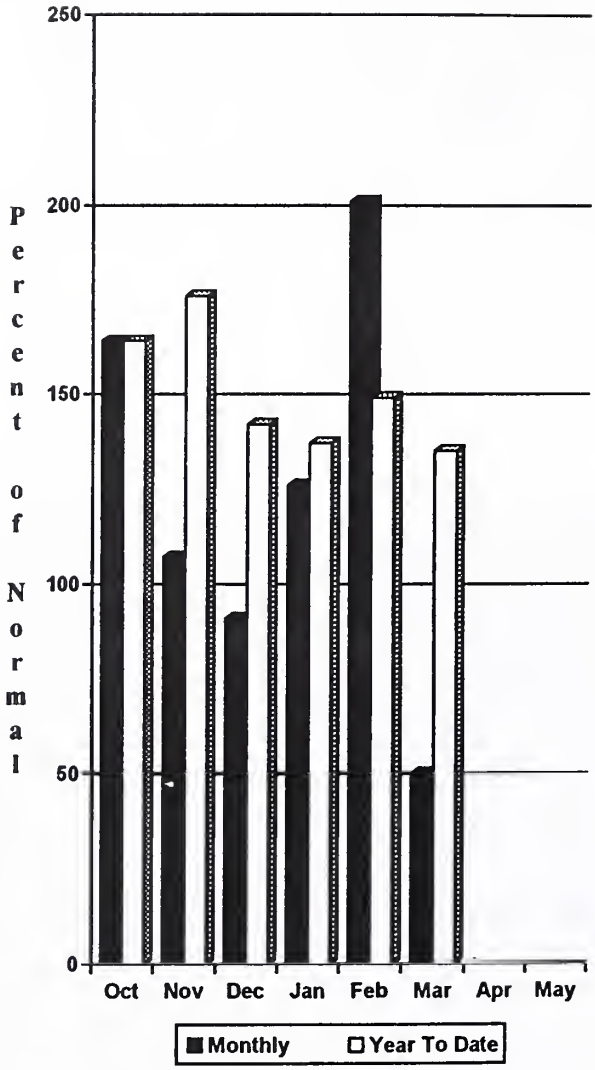


John Gillies, NRCS & Andreas Kammereck, Whatcom County
Ground Truth Survey at Wells Creek SNOTEL Site

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

The April 1 forecasts for summer runoff within the Spokane River Basin averaged 85% of normal, simular to last year at the same time. The forecast is based on a basin snowpack that is 70% of average and precipitation that is 135% of normal for the water year. March precipitation was 50% of average. However Spokane Airport received 104% of normal precipitation. Streamflow on the Spokane River was 114% of average for March. April 1 storage in Coeur d'Alene Lake was 141,700 acre feet, 83% of normal, and 59% of capacity. This level is down considerably from last month.

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

SPOKANE RIVER BASIN

Streamflow Forecasts - April 1, 1996

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SPOKANE near Post Falls (2)	APR-SEP	1848	2117	2300	84	2483	2752	2730
	APR-JUL	1789	2052	2230	85	2408	2671	2633
SPOKANE at Long Lake	APR-JUL	2028	2318	2515	86	2712	3002	2936
	APR-SEP	2195	2496	2700	86	2904	3205	3159

SPOKANE RIVER BASIN
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
COEUR D'ALENE	238.5	141.7	201.5	170.1

SPOKANE RIVER BASIN
Watershed Snowpack Analysis - April 1, 1996

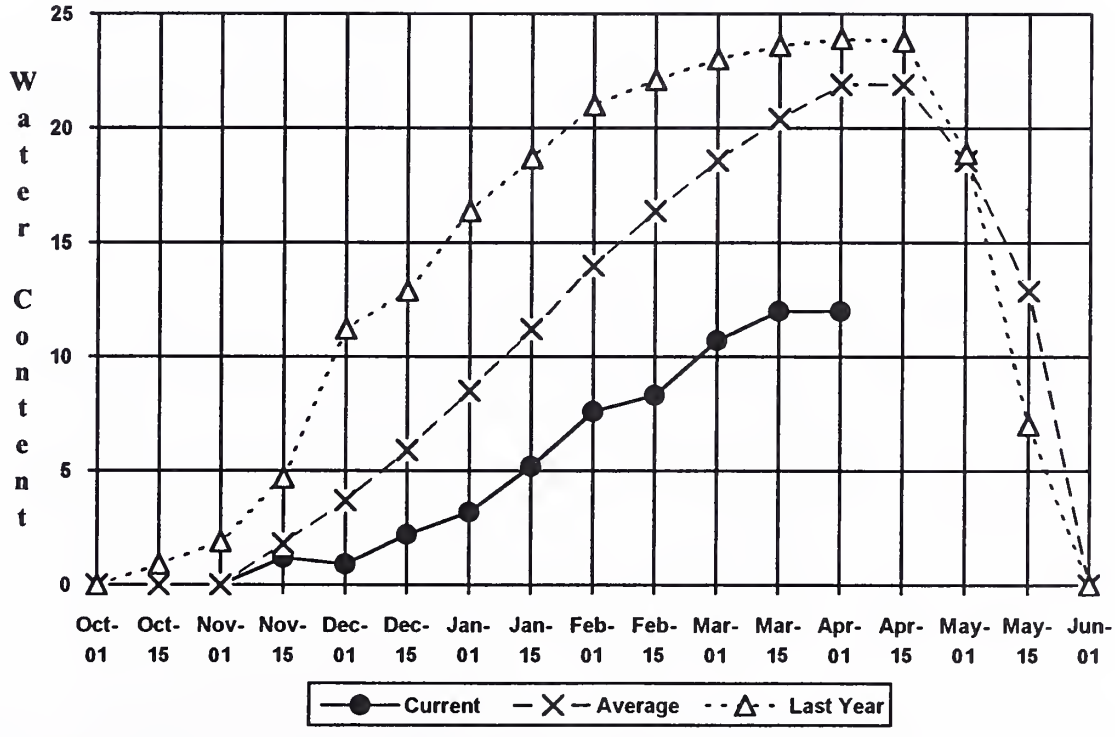
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Spokane River	19	94	70

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

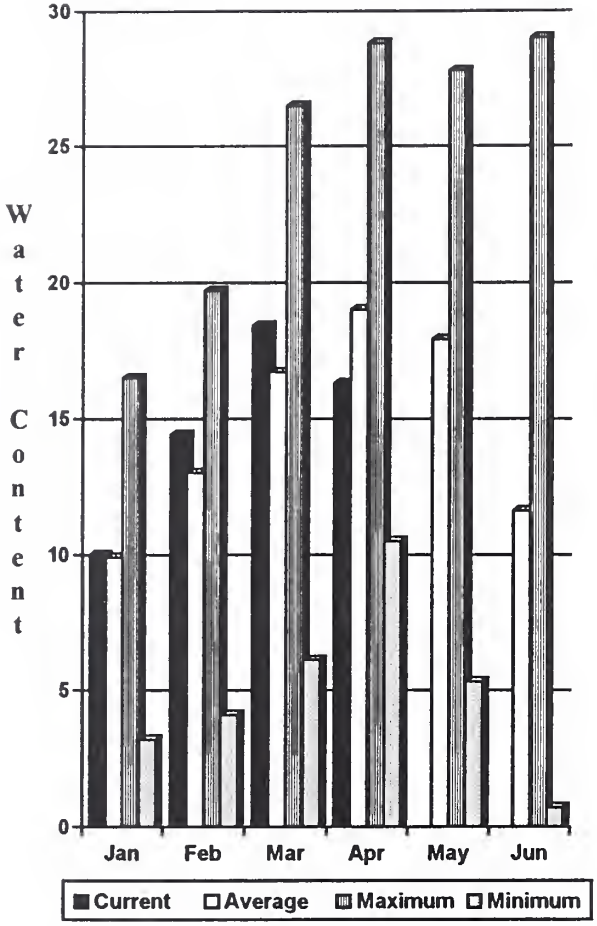
The average is computed for the 1961-1990 base period.

(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.

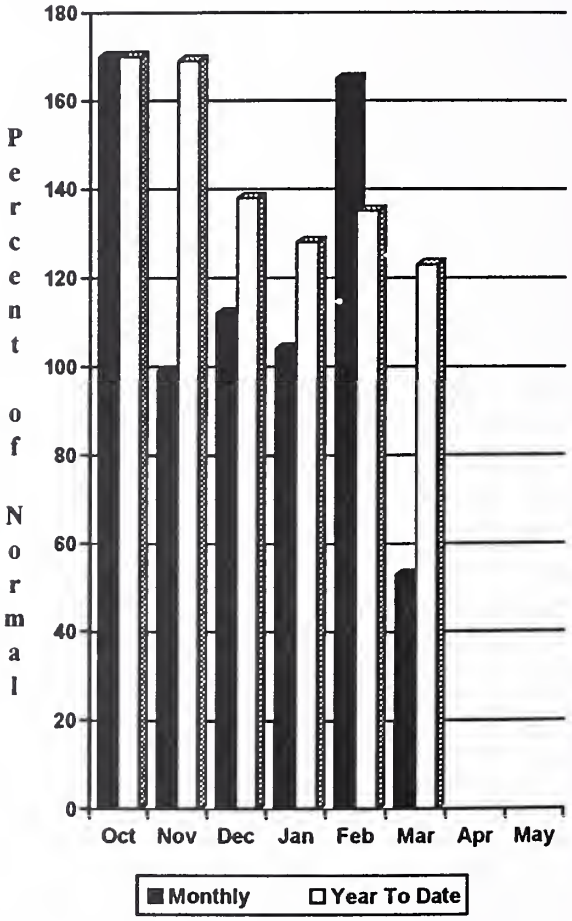
Quartz Peak SNOTEL
Elevation 4700 ft.



Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

Forecasts for the basin are essentially unchanged from last month. Spring and summer forecast for the Kettle River streamflow is for 130% of normal; the Pend Oreille, below Box Canyon, 104%; and Priest River, near the town of Priest River, 103% of normal. Forecast for the Columbia River at Birchbank is for runoff to be 113% of normal. March streamflow was 133% of normal on the Pend Oreille River; 130% on the Columbia at the International Boundary; and 207% on the Kettle River. April 1 snow cover was 100% of normal for the Pend Oreille Basin, 95% for the Kettle River Basin and 63% for the Colville Basin. Precipitation during March was 53% of average, bringing the water year-to-date to 123% of normal.

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

COLVILLE - PEND OREILLE RIVER BASINS

Streamflow Forecasts - April 1, 1996

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
PEND OREILLE Lake Inflow (1,2)	APR-JUL	11248	13072	13900	106	14728	16552	13150
	APR-SEP	12298	14294	15200	106	16106	18102	14370
	APR-JUN	9565	11288	12070	106	12852	14575	11390
PRIEST nr Priest River (1,2)	APR-JUL	628	770	835	103	900	1042	814
	APR-SEP	669	821	890	103	959	1111	868
PEND OREILLE bl Box Canyon (1,2)	APR-JUL	11370	13041	13800	103	14559	16230	13380
	APR-SEP	12110	14272	15100	104	15928	18092	14590
	APR-JUN	9909	11347	12000	104	12653	14091	11570
CHAMOKANE CK nr Long Lake	MAY-AUG	4.62	7.59	9.60	102	11.61	14.58	9.40
COLVILLE at Kettle Falls	APR-SEP	82	111	130	99	149	178	131
	APR-JUL	80	104	120	100	136	160	120
	APR-JUN	75	96	111	100	126	147	111
KETTLE near Laurier	APR-SEP	2125	2295	2410	130	2525	2695	1854
	APR-JUL	2039	2189	2290	130	2391	2541	1761
	APR-JUN	1904	2035	2125	134	2215	2346	1585
COLUMBIA at Birchbank (1,2)	APR-JUL	35408	38291	39600	113	40909	43792	35140
	APR-SEP	44149	47760	49400	113	51040	54651	43810
	APR-JUN	25966	28052	29000	113	29948	32034	25670
COLUMBIA at Grand Coulee Dm (1,2)	APR-SEP	64652	70530	73200	113	75870	81748	64850
	APR-JUL	53832	58761	61000	112	63239	68168	54543
	APR-JUN	42315	46156	47900	112	49644	53485	42756

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
ROOSEVELT	5232	1971.5	3313.7	1586
BANKS	715	648.0	688.2	583

COLVILLE - PEND OREILLE RIVER BASINS
Watershed Snowpack Analysis - April 1, 1996

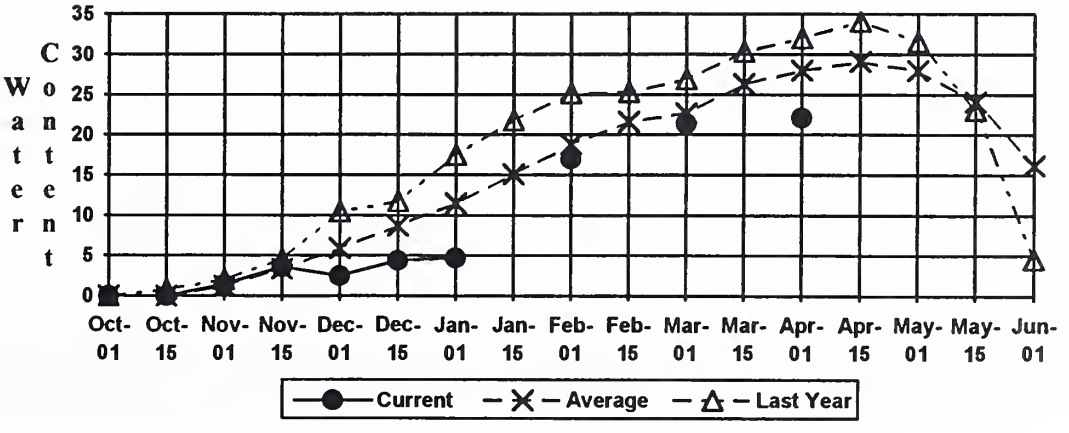
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Colville River	3	52	63
Pend Oreille River	103	126	101
Kettle River	11	102	95

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

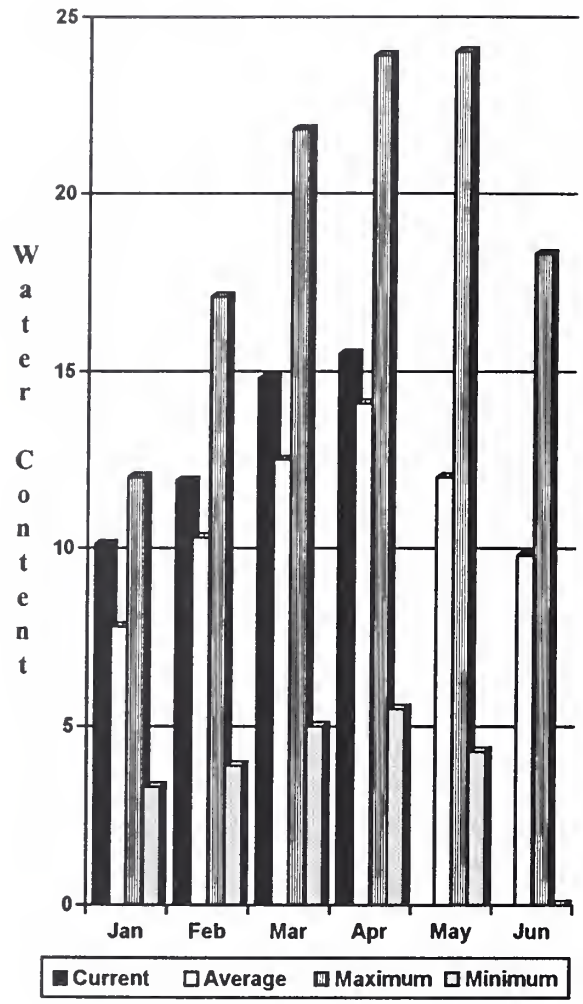
The average is computed for the 1961-1990 base period.

(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.

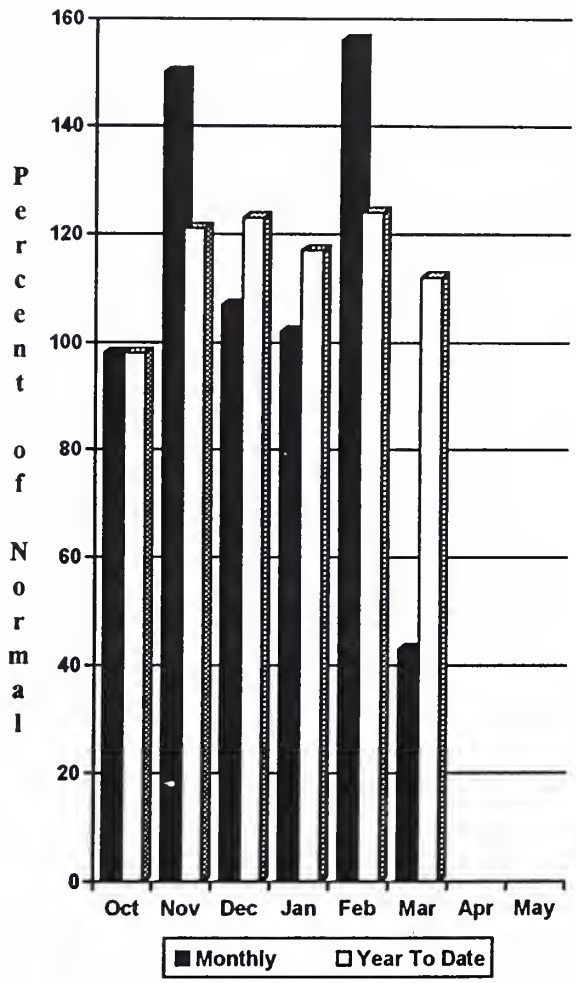
Bunchgrass Meadow SNOTEL
Elevation 5000 ft.



Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

Summer runoff forecast for the Okanogan River is 120% of normal; the Similkameen River, 123%; the Methow River, 129%; and Salmon Creek, 110% of normal. April 1 snow cover in the Okanogan Basin was 104% of normal, and in the Methow, 115%. March precipitation in the Okanogan-Methow was only 43% of normal, with water year-to-date at 112% of average. March streamflow on the Methow River was 181% of normal; 213% on the Okanogan River; and 216% on the Similkameen. Snow-water-content at Harts Pass SNOTEL, elevation 6,500 feet, was 53 inches. Normal for this site is 41.3 inches. Storage in the Conconully Reservoirs was 18,800 acre feet, which is 80% of capacity and 125% of the April 1 average.

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

OKANOGAN - METHOW RIVER BASINS

Streamflow Forecasts - April 1, 1996

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SIMILKAMEEN nr Nighthawk (1)	APR-SEP	1413	1626	1720	123	1814	2085	1399
	APR-JUL	1318	1512	1600	123	1688	1882	1304
	APR-JUN	1102	1286	1370	123	1454	1638	1113
OKANOGAN RIVER nr Tonasket (1)	APR-SEP	1380	1756	1940	120	2124	2501	1624
	APR-JUL	1260	1614	1775	121	1936	2290	1467
	APR-JUN	1094	1366	1490	121	1614	1886	1234
SALMON CREEK near Conconully	APR-JUL	9.3	16.3	21	110	26	33	19.1
	APR-SEP	9.[illegible]	17.0	22	110	27	34	20
METHOW RIVER near Pateros	APR-SEP	970	1167	1215	129	1263	1460	942
	APR-JUL	1020	1083	1125	129	1167	1230	873
	APR-JUN	862	920	960	129	1000	1058	746

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
SALMON LAKE	10.5	8.25	8.1	8.0
CONCONULLY RESERVOIR	13.0	10.57	7.6	7.0

OKANOGAN - METHOW RIVER BASINS
Watershed Snowpack Analysis - April 1, 1996

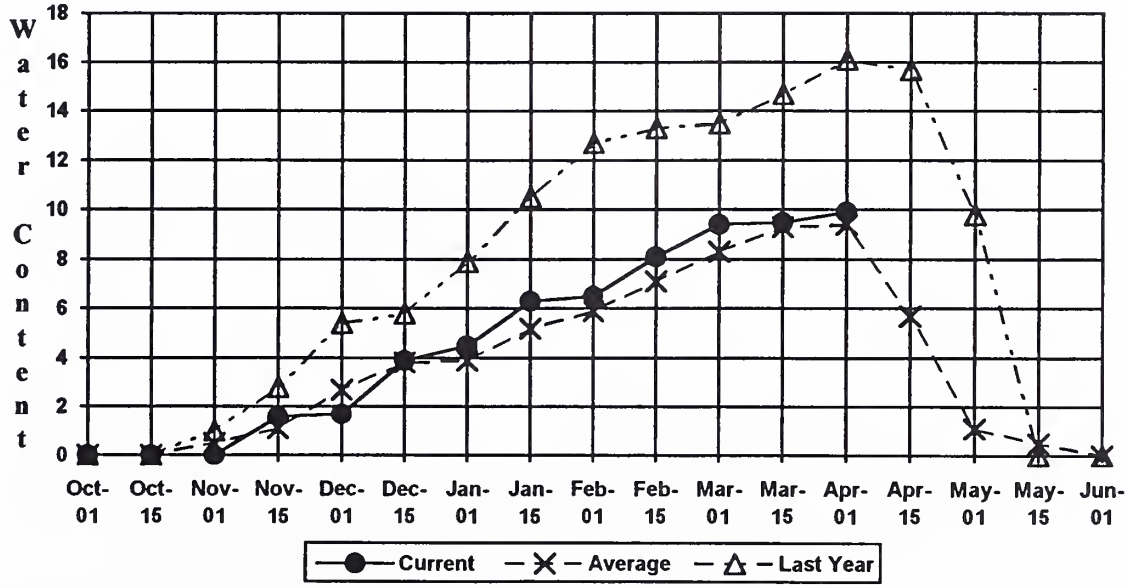
Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
Okanogan River	30	100	104
Methow River	4	82	115

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

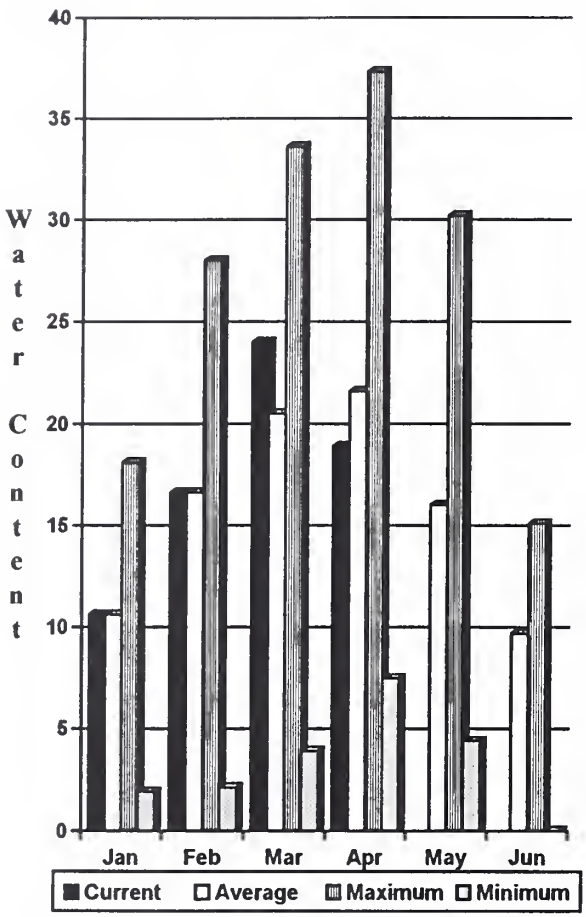
The average is computed for the 1961-1990 base period.

(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.

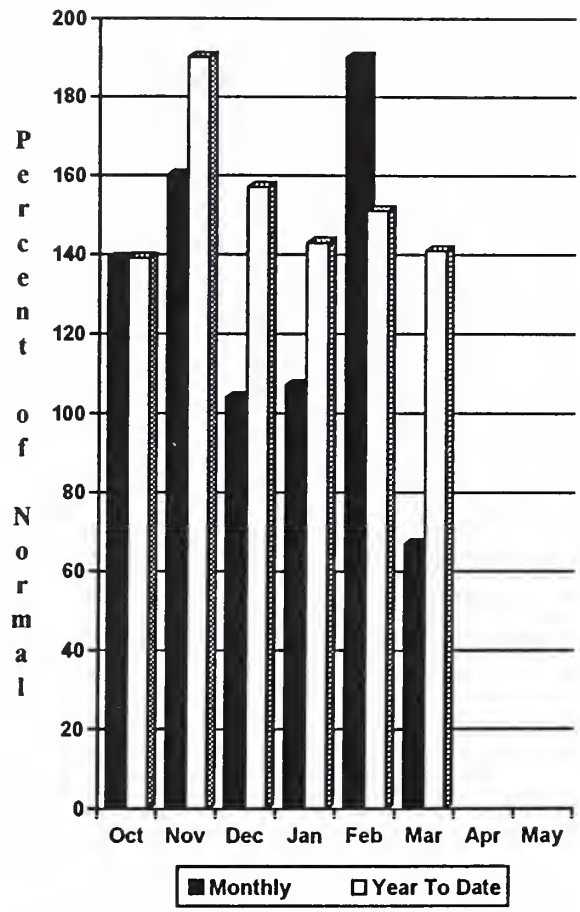
Salmon Meadows SNOTEL
Elevation 4500 ft.



Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

Precipitation during March was 67% of normal in the basin and 141% for the year-to-date. Runoff for the Entiat River is forecast to be 131% of normal for the summer. The April-September forecast for the Chelan River is for 111% of normal; for the Wenatchee River, 108%; and 112% for the Stehekin. Icicle Creek is forecast to be near normal this summer. Streamflow for March on the Chelan River was 171% of average; on the Wenatchee River it was 168% of normal. April 1 snowpack in the Wenatchee Basin was 93% of average. The Chelan Basin was 117% of average, and Stemilt Creek Watershed was at 87% of normal. Snowpack in the Entiat River Basin was at 145% of average. Reservoir storage in Lake Chelan was 462,000 acre feet or 218% of the April 1 average and 68% of capacity. Lyman Lake SNOTEL had the most snow water with 67.1 inches of water. This site normally has 56.9 inches and last year it had 75.1 inches on April 1.

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

WENATCHEE - CHELAN RIVER BASINS

Streamflow Forecasts - April 1, 1996

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
CHELAN RIVER near Chelan	APR-SEP	1154	1235	1290	111	1345	1426	1160
	APR-JUL	1024	1093	1140	111	1187	1256	1024
	APR-JUN	782	852	900	111	948	1018	812
STEHEKIN near STEHEKIN	APR-SEP	829	886	925	112	964	1021	827
	APR-JUL	708	754	785	112	816	862	701
	APR-JUN	522	569	600	112	631	678	538
ENTIAT RIVER near Ardenvoir	APR-SEP	273	288	298	131	308	323	227
	APR-JUL	246	260	270	131	280	294	206
	APR-JUN	197	211	220	130	229	243	169
WENATCHEE at Plain	APR-SEP	1146	1231	1289	108	1347	1432	1190
	APR-JUL	1039	1107	1153	108	1199	1267	1072
	APR-JUN	844	899	936	108	973	1028	864
WENATCHEE R. at Peshastin	APR-SEP	1164	1471	1680	103	1889	2196	1636
	APR-JUL	1034	1311	1500	101	1689	1966	1485
	APR-JUN	865	1088	1240	103	1392	1615	1204
STEMILT nr Wenatchee (miners in)	MAY-SEP	100	126	144	104	162	188	138
ICICLE CREEK nr Leavenworth	APR-SEP	252	322	370	100	418	488	370
	APR-JUL	232	296	340	100	384	448	340
	APR-JUN	184	235	270	100	305	356	270
COLUMBIA R. bl Rock Island Dam (2)	APR-SEP	70678	76229	80000	114	83771	89322	70485
	APR-JUL	59224	63914	67100	112	70286	74976	59736
	APR-JUN	46492	50158	52650	112	55142	58808	47007

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
CHELAN LAKE	676.1	462.0	270.4	212.1

WENATCHEE - CHELAN RIVER BASINS
Watershed Snowpack Analysis - April 1, 1996

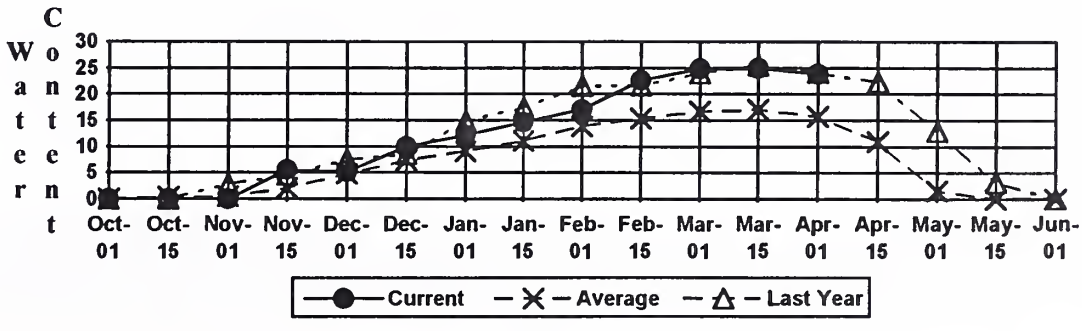
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Chelan Lake Basin	4	99	117
Entiat River	2	89	145
Wenatchee River	13	81	93
Squilchuck Creek	0	0	0
Stemilt Creek	2	74	87
Colockum Creek	1	86	134

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

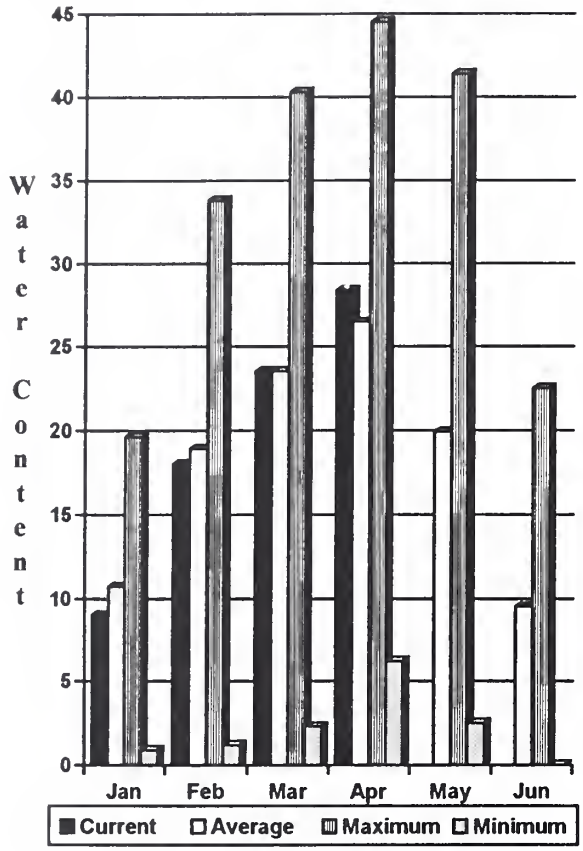
The average is computed for the 1961-1990 base period.

(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.

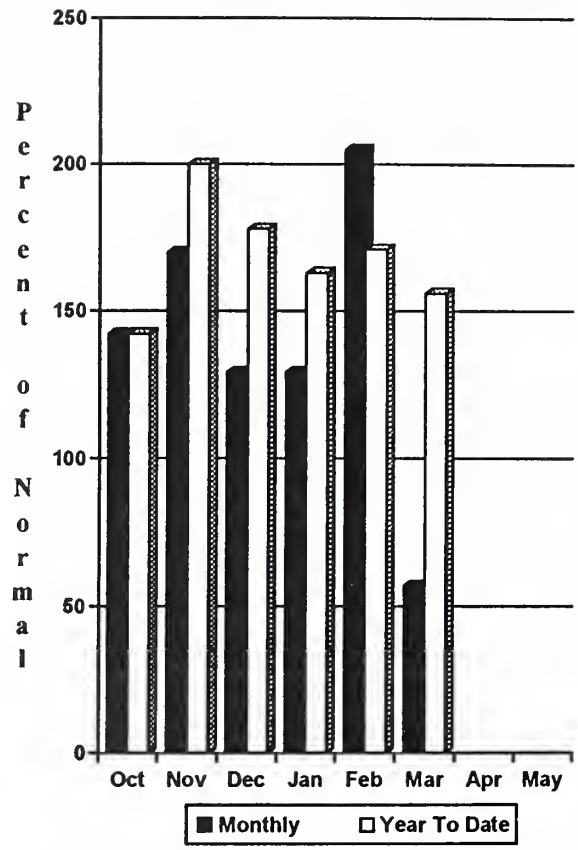
Pope Ridge SNOTEL
Elevation 3540 ft.



Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

April 1 reservoir storage for the five major reservoirs was 911,400 acre feet, 123% of average. April 1 summer streamflow forecasts are for near to above normal in the Yakima Basin. Forecasts for the Yakima River at Cle Elum are for 103% of normal; Naches River, 105%; the Yakima River at Parker, 102%; Ahtanum Creek, 107%; and the Tieton River, 105%. The Klickitat River near Glenwood is forecast at 123% of normal flows this summer. March streamflows within the basin were; the Yakima River at Parker, 149% of normal; the Yakima near Cle Elum, 128%; and the Naches River at 156%. April 1 snowpack was 84%, based upon 22 snow courses and SNOTEL readings within the Yakima Basin. Precipitation was 57% of normal for March and 156% for the water year-to-date. 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 - April 1, 1996

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
KEECHELUS LAKE INFLOW	APR-JUL	107	117	124	100	131	141	124
	APR-SEP	115	127	135	100	143	155	135
	APR-JUN	91	102	109	100	116	127	109
KACHESS LAKE INFLOW	APR-JUL	98	106	111	100	116	124	111
	APR-SEP	101	110	116	98	122	131	118
	APR-JUN	86	95	101	102	107	116	99
CLE ELUM LAKE INFLOW	APR-JUL	396	418	433	106	448	470	409
	APR-SEP	423	448	465	104	482	507	448
	APR-JUN	326	349	365	106	381	404	345
YAKIMA at Cle Elum	APR-JUN	672	718	750	104	782	828	721
	APR-JUL	795	837	865	104	893	935	832
	APR-SEP	861	908	940	103	972	1019	915
BUMPING LAKE INFLOW	APR-SEP	127	135	140	103	145	153	136
	APR-JUL	116	123	128	103	133	140	124
	APR-JUN	92	101	107	103	113	122	104
AMERICAN RIVER near Nile	APR-SEP	105	112	117	99	122	129	118
	APR-JUL	95	102	107	98	112	119	109
	APR-JUN	76	85	91	99	97	105	92
RIMROCK LAKE INFLOW	APR-SEP	225	240	250	105	260	275	238
	APR-JUL	191	202	210	105	218	229	200
	APR-JUN	148	161	170	105	179	192	162
NACHES near Naches	APR-SEP	797	840	870	105	900	943	832
	APR-JUL	729	771	800	106	829	871	755
	APR-JUN	602	649	680	105	711	758	651
AHTANUM CREEK nr Tampico (2)	APR-SEP	32	42	49	107	56	66	46
	APR-JUL	30	39	45	107	51	60	42
	APR-JUN	25	33	39	107	44	52	36
YAKIMA near Parker	APR-SEP	1861	1962	2030	102	2098	2199	1994
	APR-JUL	1711	1800	1860	103	1920	2009	1805
	APR-JUN	1487	1581	1645	103	1709	1803	1597
KLICKITAT near Glenwood	APR-JUN	118	127	133	121	139	148	110
	APR-SEP	150	163	172	123	181	194	140

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
KEECHELUS	157.8	137.9	130.7	110.0
KACHESS	239.0	220.5	130.9	187.0
CLE ELUM	436.9	371.0	246.0	290.0
BUMPING LAKE	33.7	15.6	8.1	11.0
RIMROCK	198.0	166.4	164.4	142.0

YAKIMA RIVER BASIN
Watershed Snowpack Analysis - April 1, 1996

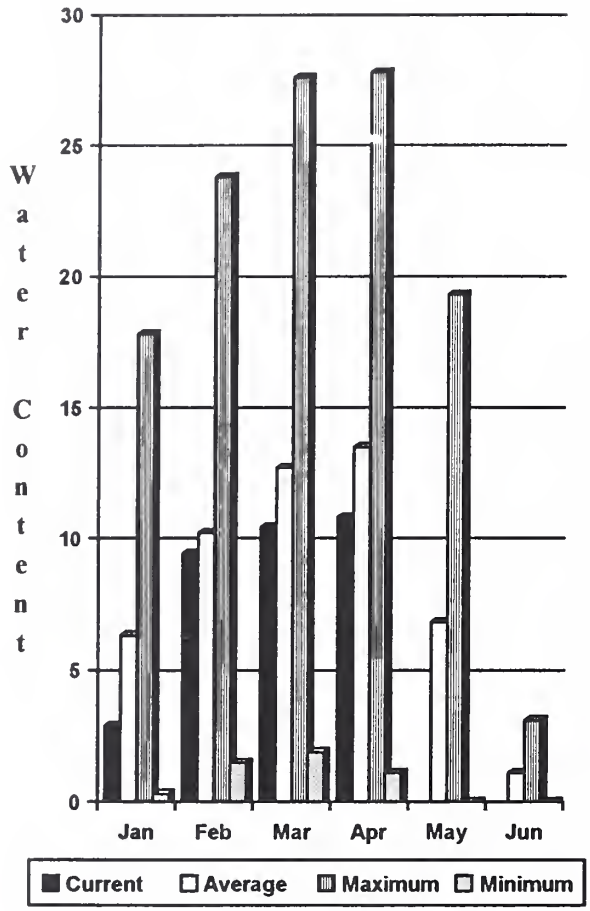
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Yakima River	22	78	84
Ahtanum Creek	2	81	104

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

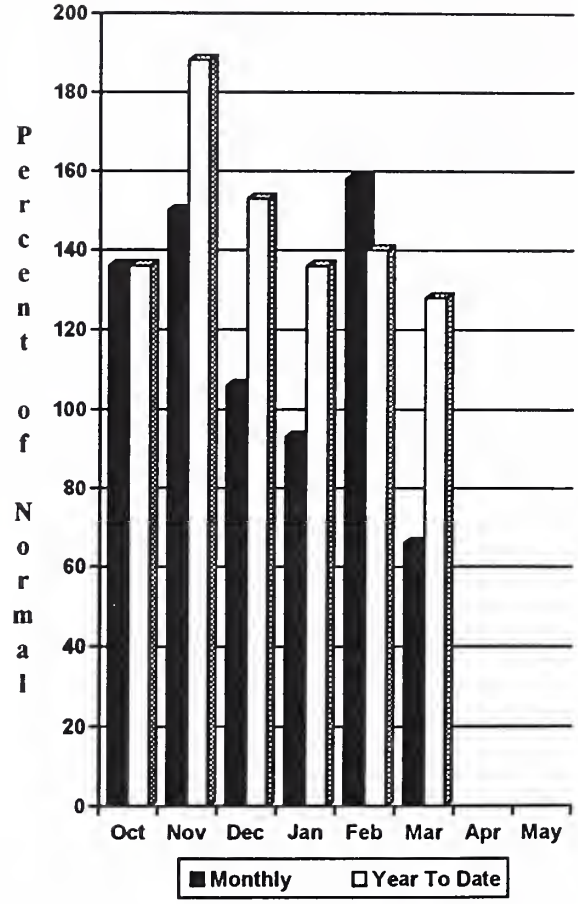
The average is computed for the 1961-1990 base period.

(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.

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

March precipitation was 66% of average, bringing the year-to-date precipitation to 128% of normal. April 1 snowpack was 80% of average. The forecast is for 99% of average streamflow in the Walla Walla River for the coming summer; for the Grande Ronde at Troy, 98%; and 94% for Mill Creek. March streamflow was 195% of normal for the South Fork Walla Walla River; 153% for the Snake River; and 132% for the Grande Ronde River near Troy. The Touchet SNOTEL site had 27.6 inches of snow-water-equivalent. The normal April 1 reading for this site is 31.9 inches.

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

WALLA WALLA RIVER BASIN

Streamflow Forecasts - April 1, 1996

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
GRANDE RONDE at Troy (1)	APR-JUL	923	1083	1190	98	1297	1602	1214
	APR-SEP	917	1170	1285	98	1400	1653	1312
SNAKE blw Lower Granite Dam (1,2)	APR-JUL	16984	20365	21900	101	23435	26816	21650
	APR-SEP	19075	22874	24600	101	26326	30125	24360
MILL CREEK at Walla Walla	APR-SEP	10.1	13.7	16.1	94	18.5	22	17.1
	APR-JUL	9.9	13.5	15.9	94	18.3	22	16.9
	APR-JUN	9.9	13.4	15.8	95	18.2	22	16.7
SF WALLA WALLA nr Milton Freewater	APR-JUL	45	49	53	99	56	61	53
	APR-SEP	56	61	65	99	69	74	66
COLUMBIA R. at The Dalles (2)	APR-SEP	90900	98700	104000	105	109300	117100	98982
	APR-JUL	75663	82354	86900	103	91446	98137	84760
	APR-JUN	61909	67322	71000	103	74678	80091	68925

WALLA WALLA RIVER BASIN
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

WALLA WALLA RIVER BASIN
Watershed Snowpack Analysis - April 1, 1996

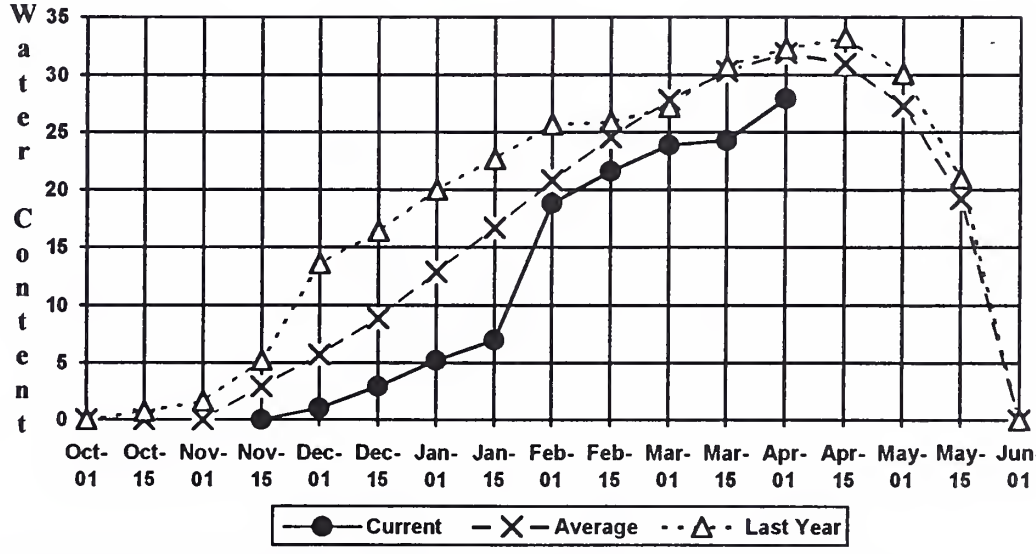
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Mill Creek	2	81	80

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

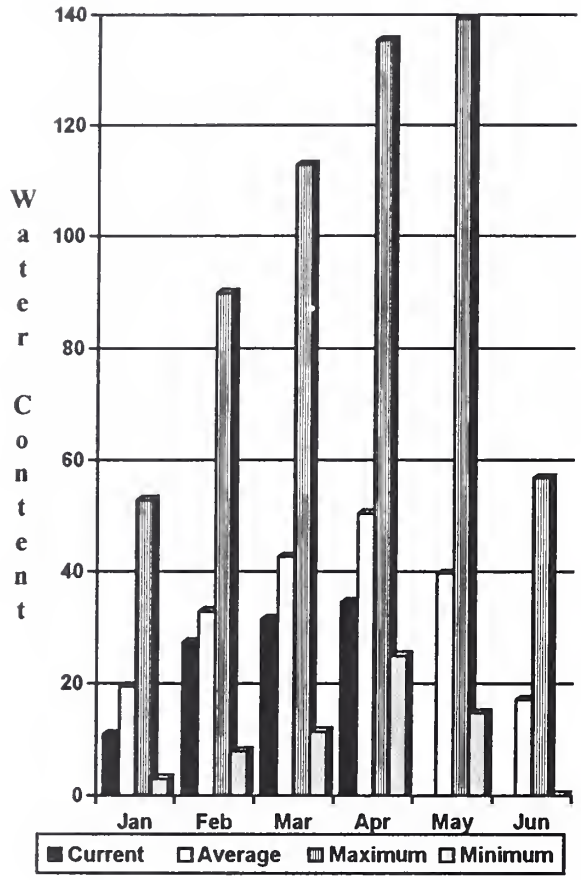
The average is computed for the 1961-1990 base period.

(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.

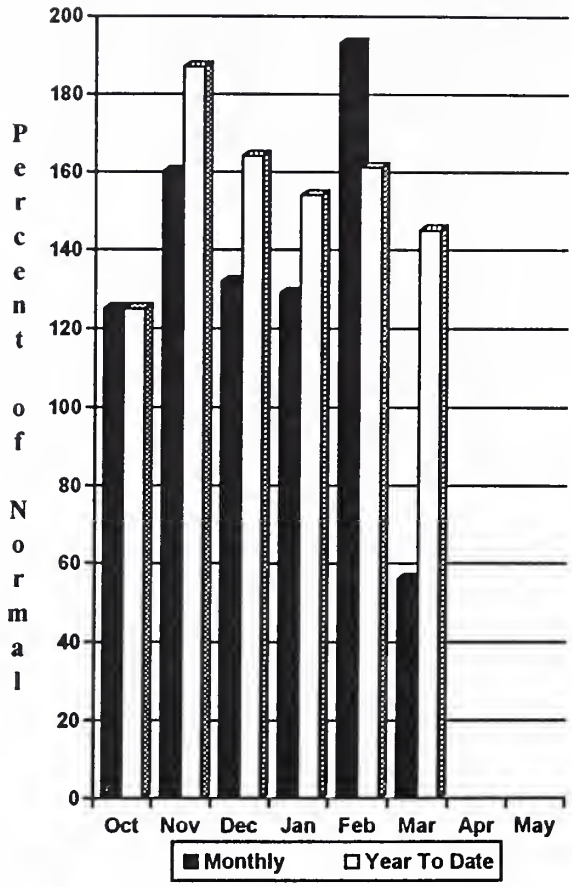
Touchet #2 SNOTEL
Elevation 5530 ft.



Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

The forecast for summer runoff in the Lewis River Basin is 100% of normal; the Cowlitz River at Castle Rock is forecast for 101% of normal runoff. March streamflow for the Cowlitz River was 99% of average, and 92% for the Lewis River. March precipitation was 56% of normal, 145% of average for the water year. April 1 snow cover for the Cowlitz River Basin was 81%, and the Lewis River Basin was 56% of average, both down slightly from last month. The Paradise Park SNOTEL recorded the most water content for the basin with 56.4 inches of water. Normal April 1 water content is 62.1 inches.

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

COWLITZ - LEWIS RIVER BASINS

Streamflow Forecasts - April 1, 1996

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
LEWIS RIVER at Ariel (2)	APR-SEP	867	1065	1200	100	1335	1533	1204
	APR-JUL	759	932	1050	100	1168	1341	1051
	APR-JUN	676	829	933	100	1037	1190	933
COWLITZ R. bl Mayfield Dam (2)	APR-SEP	965	1501	1820	92	2139	2699	1970
	APR-JUL	911	1321	1600	92	1879	2289	1731
	APR-JUN	770	1122	1360	92	1598	1950	1477
COWLITZ R. at Castle Rock (2)	APR-SEP	1520	2292	2680	101	3068	3920	2667
	APR-JUL	1503	2001	2340	101	2679	3177	2325
	APR-JUN	1295	1724	2015	101	2306	2735	1995
KLICKITAT near Glenwood	APR-JUN	118	127	133	121	139	148	110
	APR-SEP	150	163	172	123	181	194	140

COWLITZ - LEWIS RIVER BASINS
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

COWLITZ - LEWIS RIVER BASINS
Watershed Snowpack Analysis - April 1, 1996

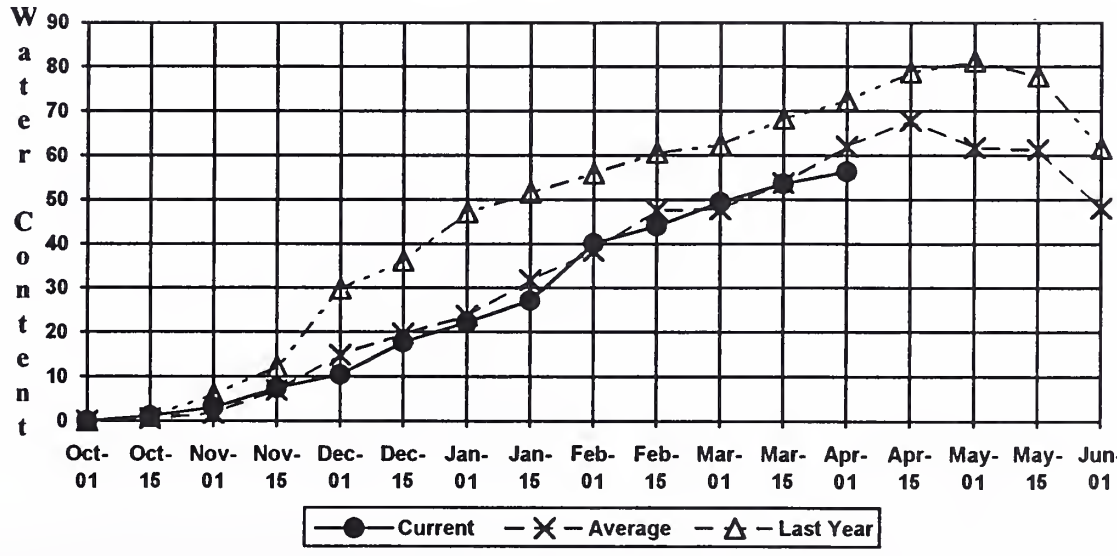
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Cowlitz River	7	82	81
Lewis River	4	59	56

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

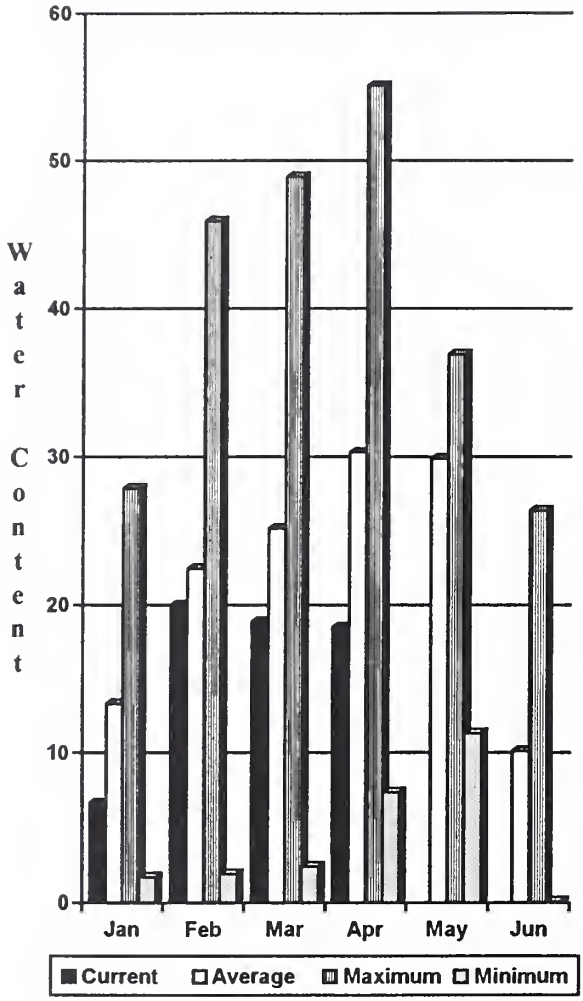
The average is computed for the 1961-1990 base period.

(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.

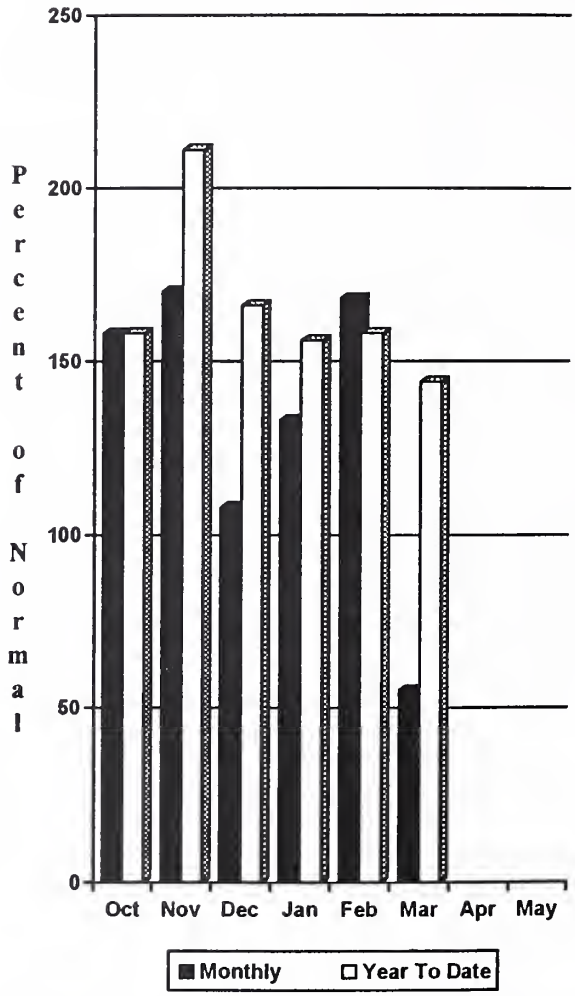
Paridise SNOTEL
Elevation 5120 ft.



Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

Summer runoff is forecast to be 90% of normal for the Green River; and 81% for the Cedar River near Cedar Falls; 81% for the Rex River; 85% for the South Fork of the Tolt River; and 84% for the Cedar River at Cedar Falls. All forecasts in the basin are down slightly from last month. April 1 snowpack was 96% of normal in the White River Basin, 51% in the Green River Basin, and 45% of normal in the Cedar River Basin. Water content on April 1 at the Morse Lake SNOTEL, at an elevation of 5,400 feet, was 46 inches. This site has a April 1 average of 47.2 inches and usually carries snow well into June. March precipitation was 55% of normal, bringing the water year-to-date to 144% of average for the Basin.

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

WHITE - GREEN - CEDAR RIVER BASINS

Streamflow Forecasts - April 1, 1996

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
GREEN RIVER below Howard Hanson Dam	APR-JUL	180	210	230	90	250	280	257
	APR-SEP	206	236	257	90	278	308	285
	APR-JUN	164	191	210	90	229	256	234
CEDAR RIVER near Cedar Falls	APR-JUL	49	57	63	82	69	77	77
	APR-SEP	54	63	69	81	75	84	85
	APR-JUN	43	51	56	82	61	69	68
REX RIVER near Cedar Falls	APR-JUL	15.8	19.4	22	81	24	28	27
	APR-SEP	18.6	22	24	81	27	30	30
	APR-JUN	15.0	18.2	20	81	22	26	25
CEDAR RIVER at Cedar Falls	APR-JUL	48	60	69	84	78	90	82
	APR-SEP	51	62	70	84	77	89	83
	APR-JUN	46	59	67	84	76	88	80
SOUTH FORK TOLT near Index	APR-JUL	10.3	11.7	12.7	84	13.7	15.1	15.2
	APR-SEP	12.1	14.0	15.2	85	16.4	18.3	17.8
	APR-JUN	8.6	10.2	11.2	86	12.2	13.8	13.1

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

WHITE - GREEN RIVER BASINS
Watershed Snowpack Analysis - April 1, 1996

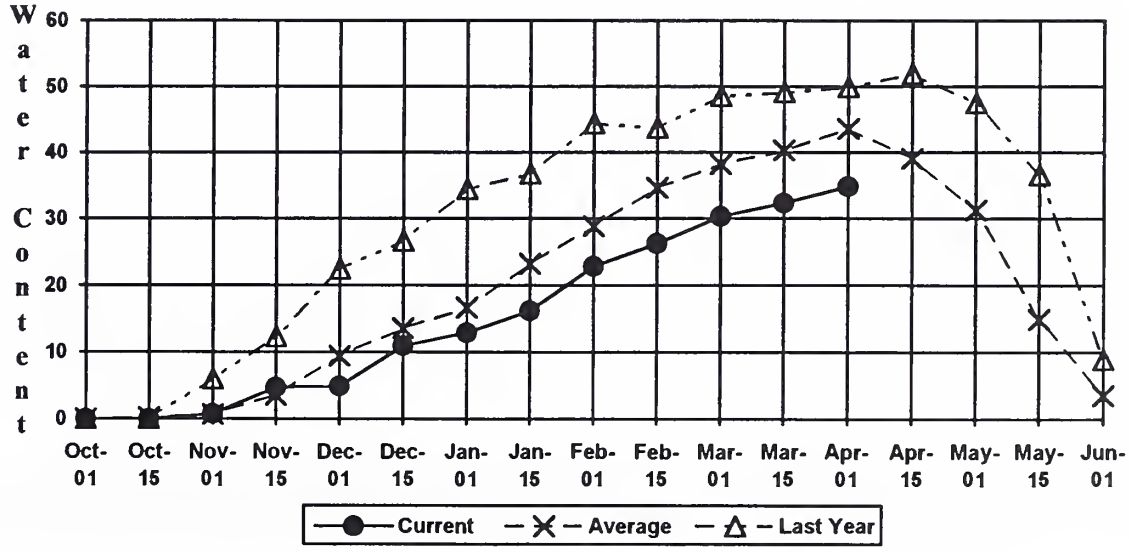
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
White River	3	80	96
Green River	7	74	51
Cedar River	2	145	35

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

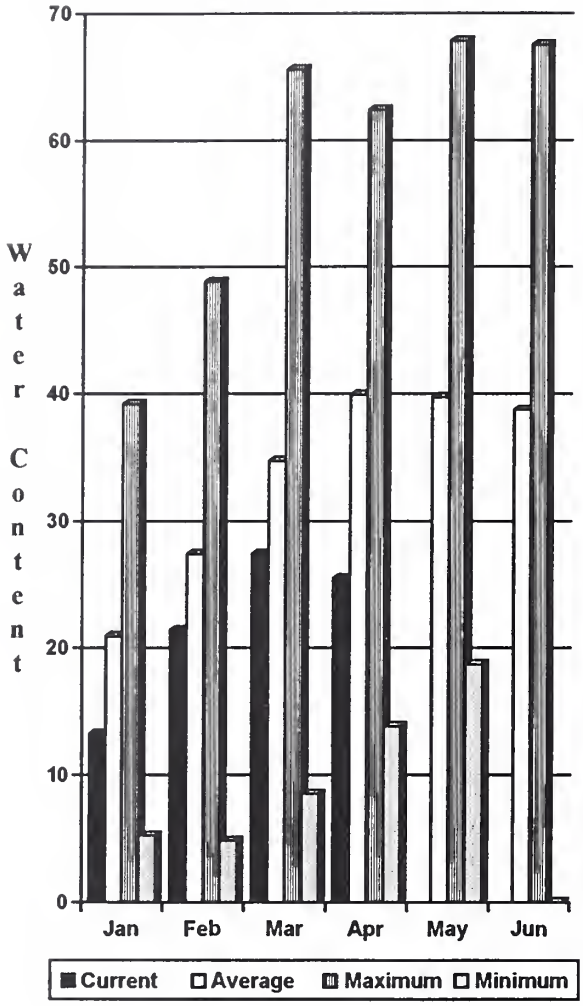
The average is computed for the 1961-1990 base period.

(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.

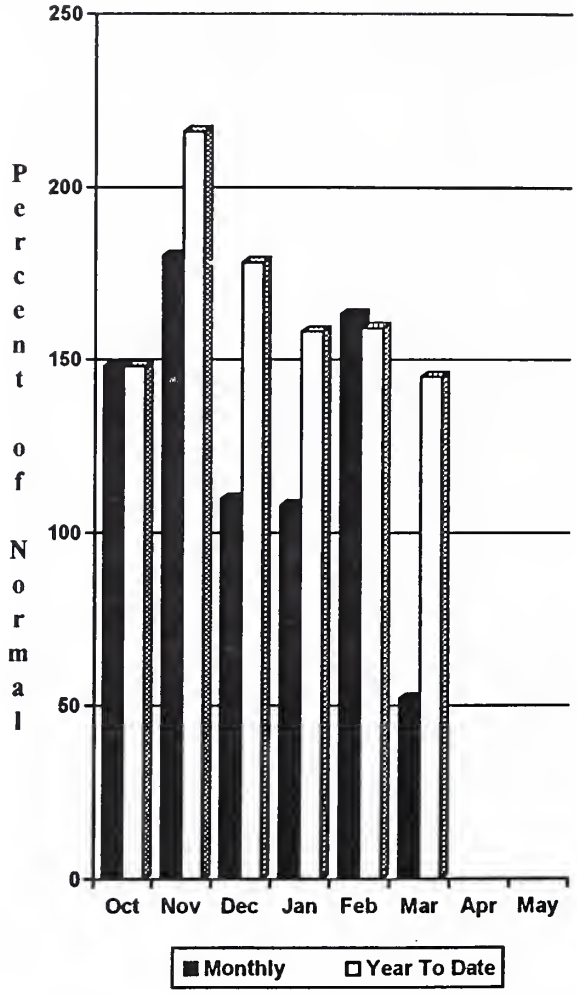
Stampede Pass SNOTEL
Elevation 3860 ft.



Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

Forecast for the Skagit River streamflow is for 95% of normal for the spring and summer periods. March streamflow in the Skagit River was 107% of average. Other forecast points included the Baker River at 77%, and Thunder Creek at 100%. Basin-wide precipitation for March was 52% of average, bringing the water year-to-date to 145% of normal. April 1 snow cover in the Skagit River Basin was 90%; the Baker River Basin was 41%; and the Snohomish River Basin was 61% of average. Rainy Pass SNOTEL, at 4,780 feet, had 51.4 inches of water content. Normal April 1 water content is 38 inches. April 1 reservoir storage showed Ross Lake at 328% normal and 70% of capacity.

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

NORTH PUGET SOUND RIVER BASINS

Streamflow Forecasts - April 1, 1996

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
THUNDER CREEK near Newhalem	APR-JUL	202	217	228	99	239	254	230
	APR-SEP	301	316	327	100	338	353	328
	APR-JUN	123	138	149	100	160	175	149
SKAGIT RIVER at Newhalem (2)	APR-SEP	1716	1930	2075	95	2220	2434	2185
	APR-JUL	1440	1619	1740	95	1861	2040	1830
	APR-JUN	1121	1257	1350	96	1443	1579	1410
BAKER RIVER near Concrete	APR-JUL	544	603	644	77	685	744	836
	APR-SEP	697	770	820	77	870	943	1064
	APR-JUN	372	432	473	77	514	574	611

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
ROSS	1404.1	978.2	636.2	298.0
DIABLO RESERVOIR	90.6	85.4	84.7	---
GORGE RESERVOIR	9.8	7.9	8.1	---

NORTH PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - April 1, 1996

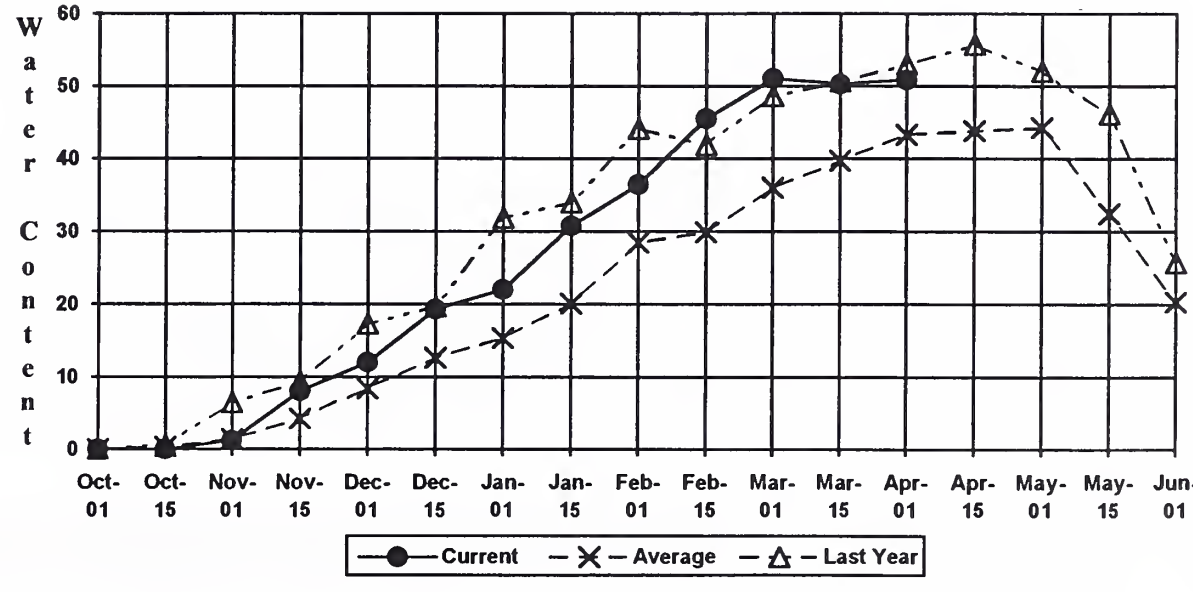
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Snohomish River	6	65	61
Skagit River	12	83	91
Baker River	9	41	41

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

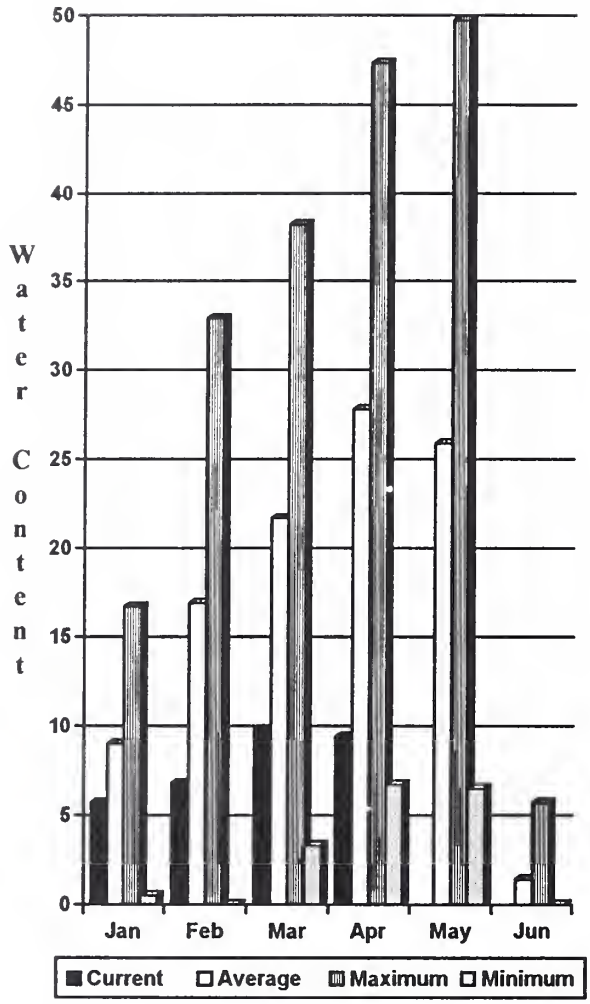
The average is computed for the 1961-1990 base period.

(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.

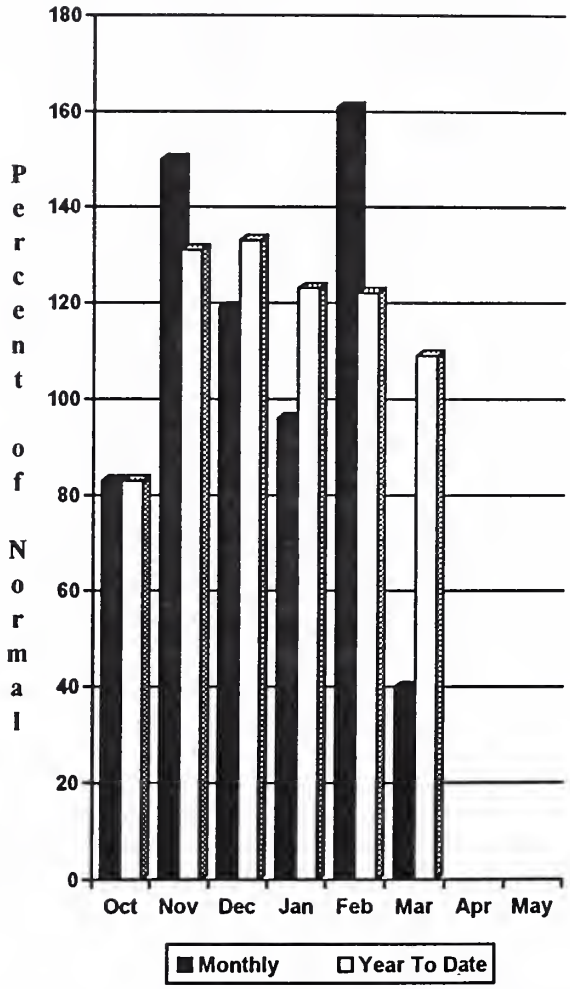
Rainy Pass SNOTEL
Elevation 4780 ft.



Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

The April forecasts for streamflow runoff in the Dungeness River Basin is for 72% of average; the Elwha River is forecasted for 68% of average. The Big Quilcene can expect below normal runoff this summer as well. March precipitation was 40% of average, total accumulation has dropped to 109% of normal for the water year. March precipitation at Quillayute was 5.17 inches, which is below normal at 47% of average. Average April 1 snow cover in the Olympic Basin was much below average at 34%. The Mount Crag SNOTEL near Quilcene had 16.7 inches of snow water-equivalent on April 1. Normal for this site is 31.5 inches.

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

OLYMPIC PENINSULA RIVER BASINS

Streamflow Forecasts - April 1, 1996

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
DUNGENESS RIVER nr Sequim	APR-SEP	90	105	115	72	125	140	160
	APR-JUL	74	86	94	72	102	114	131
	APR-JUN	55	64	71	72	77	86	98
ELWHA RIVER nr Port Angeles	APR-SEP	252	304	340	68	376	428	502
	APR-JUL	216	259	288	69	317	360	417

OLYMPIC PENINSULA RIVER BASINS
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

OLYMPIC PENINSULA RIVER BASINS
Watershed Snowpack Analysis - April 1, 1996

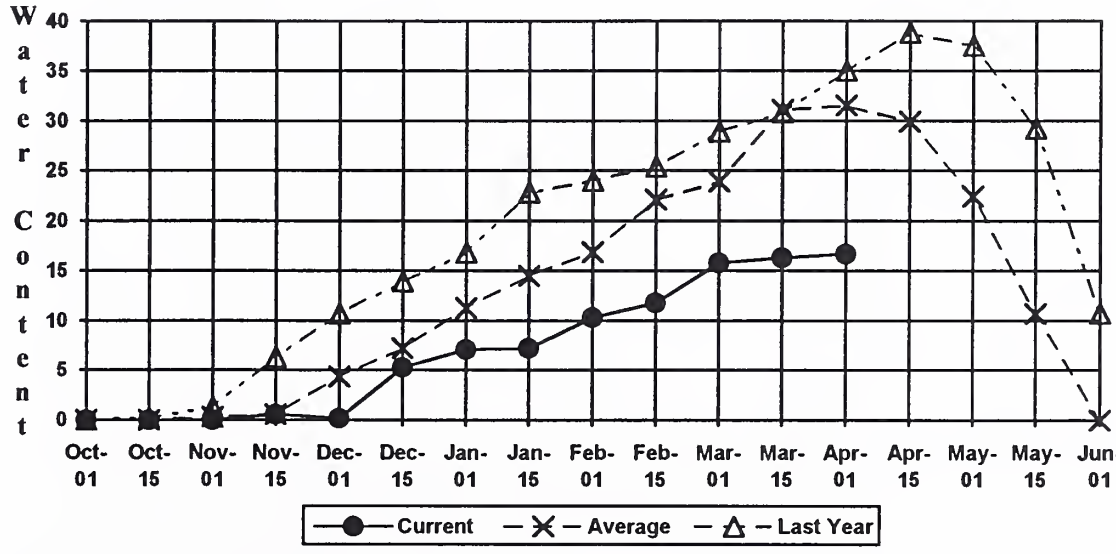
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Elwha River	1	18	10
Morse Creek	1	42	40
Dungeness River	1	47	33
Quilcene River	1	48	53
Wynoochee River	0	0	0

* 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.

Mount Crag SNOTEL
Elevation 4050 ft.



Interpreting Streamflow Forecasts

Introduction

Each month, five forecasts are issued for each forecast point and each forecast period. Unless otherwise specified, all streamflow forecasts are for streamflow volumes that would occur naturally without any upstream influences. Water users need to know what the different forecasts represent if they are to use the information correctly when making operational decisions. The following is an explanation of each of the forecasts.

Most Probable (50 Percent Chance of Exceeding) Forecast. This forecast is the best estimate of streamflow volume that can be produced given current conditions and based on the outcome of similar past situations. There is a 50 percent chance that the streamflow volume will exceed this forecast value. There is a 50 percent chance that the streamflow volume will be less than this forecast value.

The most probable forecast will rarely be exactly right, due to errors resulting from future weather conditions and the forecast equation itself. This does not mean that users should not use the most probable forecast; it means that they need to evaluate existing circumstances and determine the amount of risk they are willing to take by accepting this forecast value.

To Decrease the Chance of Having Too Little Water

If users want to make sure there is enough water available for their operations, they might determine that a 50 percent chance of the streamflow volume being lower than the most probable forecast is too much risk to take. To reduce the risk of not having enough water available during the forecast period, users can base their operational decisions on one of the forecasts with a greater chance of being exceeded (or possibly some point in-between). These include:

70 Percent Chance of Exceeding Forecast. There is a 70 percent chance that the streamflow volume will exceed this forecast value. There is a 30 percent chance the streamflow volume will be less than this forecast value.

90 Percent Chance of Exceeding Forecast. There is a 90 percent chance that the streamflow volume will exceed this forecast value. There is a 10 percent chance the streamflow volume will be less than this forecast value.

To Decrease the Chance of Having Too Much Water

If users want to make sure they don't have too much water, they might determine that a 50 percent chance of the streamflow being higher than the most probable forecast is too much of a risk to take. To reduce the risk of having too much water available during the forecast period, users can base their operational decisions on one of the forecasts with a smaller chance of being exceeded. These include:

30 Percent Chance of Exceeding Forecast. There is a 30 percent chance that the streamflow volume will exceed this forecast value. There is a 70 percent chance the streamflow volume will be less than this forecast value.

10 Percent Chance of Exceeding Forecast. There is a 10 percent chance that the streamflow volume will exceed this forecast value. There is a 90 percent chance the streamflow volume will be less than this forecast value.

Using the forecasts—an example

Using the Most Probable Forecast. Using the example forecasts shown below, users can reasonably expect 36,000 acre-feet to flow past the gaging station on the Mary's River near Deeth between March 1 and July 31.

Using the Higher Exceedance Forecasts. If users anticipate a somewhat drier trend in the future (monthly and seasonal weather outlooks are available from the National Weather Service every two weeks), or if they are operating at a level where an unexpected shortage of water could cause problems, they might want to plan on receiving only 20,000 acre-feet (from the 70 percent chance of exceeding forecast). In seven out of ten years with similar conditions, streamflow volumes will exceed the 20,000 acre-foot forecast.

If users anticipate extremely dry conditions for the remainder of the season, or if they determine the risk of using the 70 percent chance of exceeding forecast is too great, then they might plan on receiving only 5000 acre-feet (from the 90 percent chance of exceeding forecast). Nine out of ten years with similar conditions, streamflow volumes will exceed the 5000 acre-foot forecast.

Using the Lower Exceedance Forecasts. If users expect wetter future conditions, or if the chance that five out of every ten years with similar conditions would produce streamflow volumes greater than 36,000 acre-feet was more than they would like to risk, they might plan on receiving 52,000 acre-feet (from the 30 percent chance of exceeding forecast) to minimize potential flooding problems. Three out of ten years with similar conditions, streamflows will exceed the 52,000 acre-foot forecast.

In years when users expect extremely wet conditions for the remainder of the season and the threat of severe flooding and downstream damage exists, they might choose to use the 76,000 acre-foot (10 percent chance of exceeding) forecast for their water management operations. Streamflow volumes will exceed this level only one year out of ten.

UPPER HUMBOLDT RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	<—DRIER— FUTURE CONDITIONS —WETTER—> Chance of Exceeding 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	25 YR. (1000AF)
MARY'S RIVER nr Deeth	MAR-JUL	5.0	20.0	36	77	52	76	47
	APR-JUL	8.0	17.0	31	74	45	67	42
LAMOILLE CREEK nr Lamoille	MAR-JUL	6.0	16.0	24	79	32	43	31
	APR-JUL	4.0	15.0	22	75	30	41	30
NF HUMBOLDT RIVER at Devils Gate	MAR-JUL	6.0	12.0	43	73	74	12t	59

For more information concerning streamflow forecasting ask your local SCS field office for a copy of "A Field Office Guide for Interpreting Steamflow Forecasts".

Issued by

Paul W. Johnson
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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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Washington Basin Outlook Report

Natural Resources Conservation Service
Spokane, WA