United States
Department of
Agriculture

Natural
Resources
Conservation
Service

Washington Basin Outlook Report January 1, 1995

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

January 1995

General Outlook

The snowpack varies from a high of 188% of average in the White-Green-Cedar River Basins to a low of 124% in the Spokane Basin. Washington SNOTEL sites averaged 165% of the normal snowpack for January 1. Forecasts for April-September runoff vary from 116% of average for the Yakima River near Parker to 86% for the Pend Oreille Lake inflow. December SNOTEL precipitation was 136% of normal statewide. It varied from 144% of average in the Cowlitz-Lewis River Basins to 85% in the Spokane River Basin. Year-to-date precipitation varies from 160% in the Walla Walla Basin to 113% in the Olympic Peninsula. December temperatures were near to slightly above normal for the state. Spokane was three degrees above, Walla Walla area at normal, and the westside was near normal at one degree above on average. December streamflows varied from 157% of normal for the South Fork Walla Walla to 63% on the Snake River. January 1 reservoir storage varies greatly throughout the state.

Snowpack

The January 1 SNOTEL reading showed the snowpack to be 165% of average. Snowpack varied over the state, with the Spokane-Pend Oreille River Basins the lowest with 124% of average, and the White-Green-Cedar River Basins the highest at 188% of normal. Westside averages include the North Puget River Basins with 168% of average, the Olympics with 143%, and the Lewis-Cowlitz averaged 171% of normal. Snowpack along the east slopes of the Cascade Mountains include the Yakima with 158%, and the Wenatchee with 150%. Snowpack in the Okanogan was at 152%, and the Walla Walla River Basin had 155%. Maximum snow cover was at Paradise SNOTEL near Mount Rainier, with a water content of 47.3 inches. This site would normally have 24.8 inches of water content on January 1.

Precipitation

December precipitation reported from National Weather Service stations showed Central and Southeastern Washington to be near normal with the westside and northern edge ranging from 120-150% of normal. Accumulated precipitation from October 1, 1994 is above average for the state. Precipitation ranges from 113% of normal in the Olympic Peninsula River Basins, to 160% in the Walla Walla River Basin. December precipitation varied from 85% of average in the Spokane River Basin, to 144% in the Cowlitz-Lewis River Basins. SNOTEL sites in Washington showed high elevation water year precipitation values to be 136% of average. Maximum reportable precipitation was at the Alpine Meadows SNOTEL site near Monroe, with 68.6 inches since October 1, 1994; Alpine Meadows is a new SNOTEL site installed in the Tolt River Watershed last summer, therefore an accurate average has not yet been established.

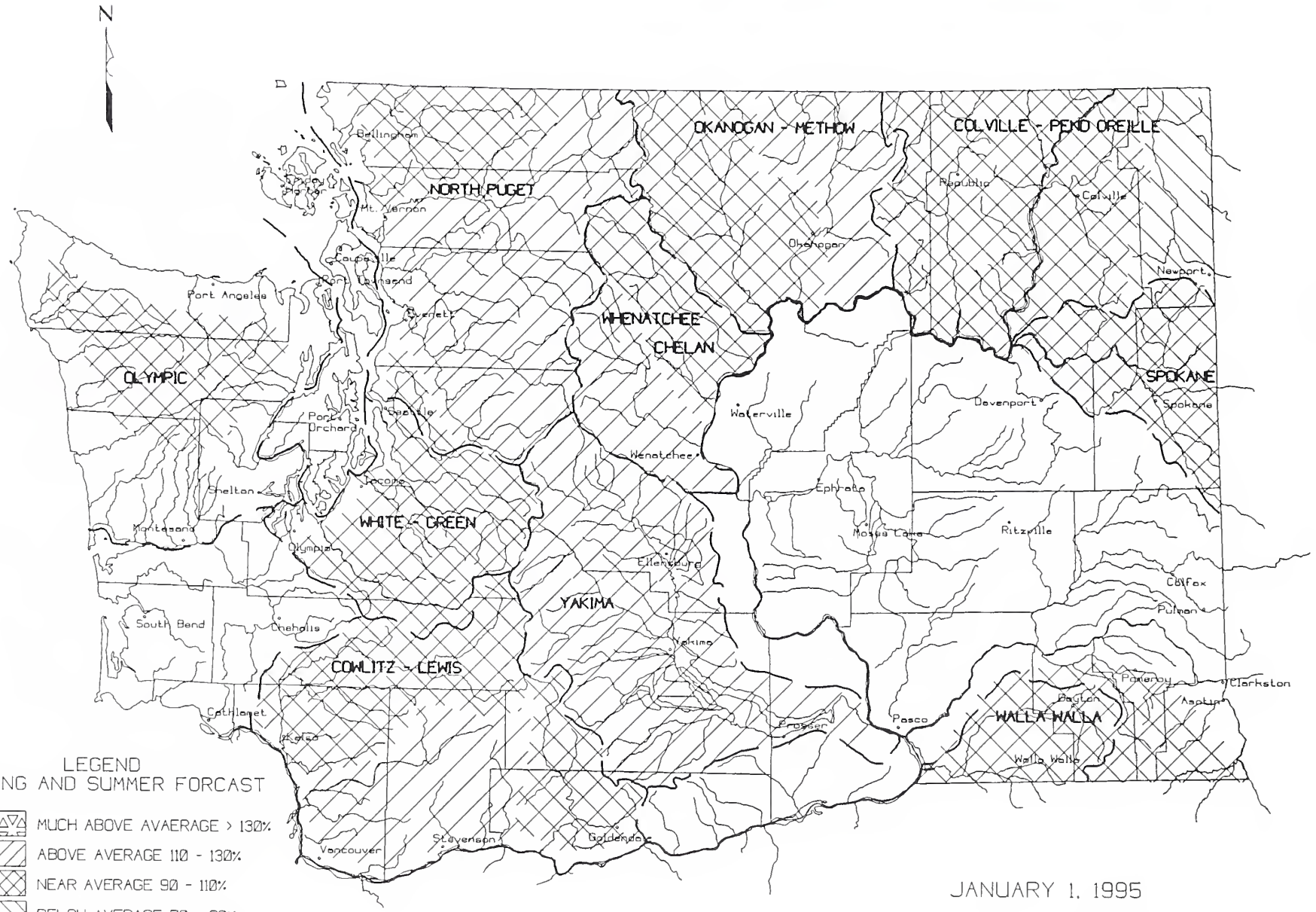
Reservoir

Reservoir storage in Washington was generally below average for January 1. Reservoir storage in the Yakima Basin was 285,000 acre feet, 49% of normal. Storage at other reservoirs included Roosevelt at 106% of average, and the Okanogan reservoirs, 98% of normal for January 1. The power generation reservoirs include the following: Coeur d'Alene Lake, 53,500 acre feet, or 42% of normal; Chelan Lake, 115,500 acre feet, 89% of average and 48% of capacity, and Ross Lake at 132% of average and 38% of capacity.

Streamflow

Forecasts for summer streamflow are for near to above average. They vary from 116% of average for the Yakima near Parker to 86% of normal for the Pend Oreille Lake inflow. January forecasts for some west side streams include: Cedar River at Cedar Falls, 106%; Green River, 109%; and the Dungeness River, 94%. Some eastside streams include the Snake River below Lower Granite Dam, 92%; the Wenatchee River, 115%; and the Colville River, 104%. December streamflows varied greatly throughout the state. The South Fork of the Walla Walla near Milton Freewater was the highest at 157% of average, and the Snake below Lower Granite Dam with 63% of normal was the lowest in the state. Other streamflows were the following percentage of normal: the Cowlitz River, 145%; the Okanogan River, 67%; the Spokane River, 98%; the Columbia at the Canadian border, 79%, and the Yakima River at Kiona, 87%.

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



LEGEND
SPRING AND SUMMER FORCAST

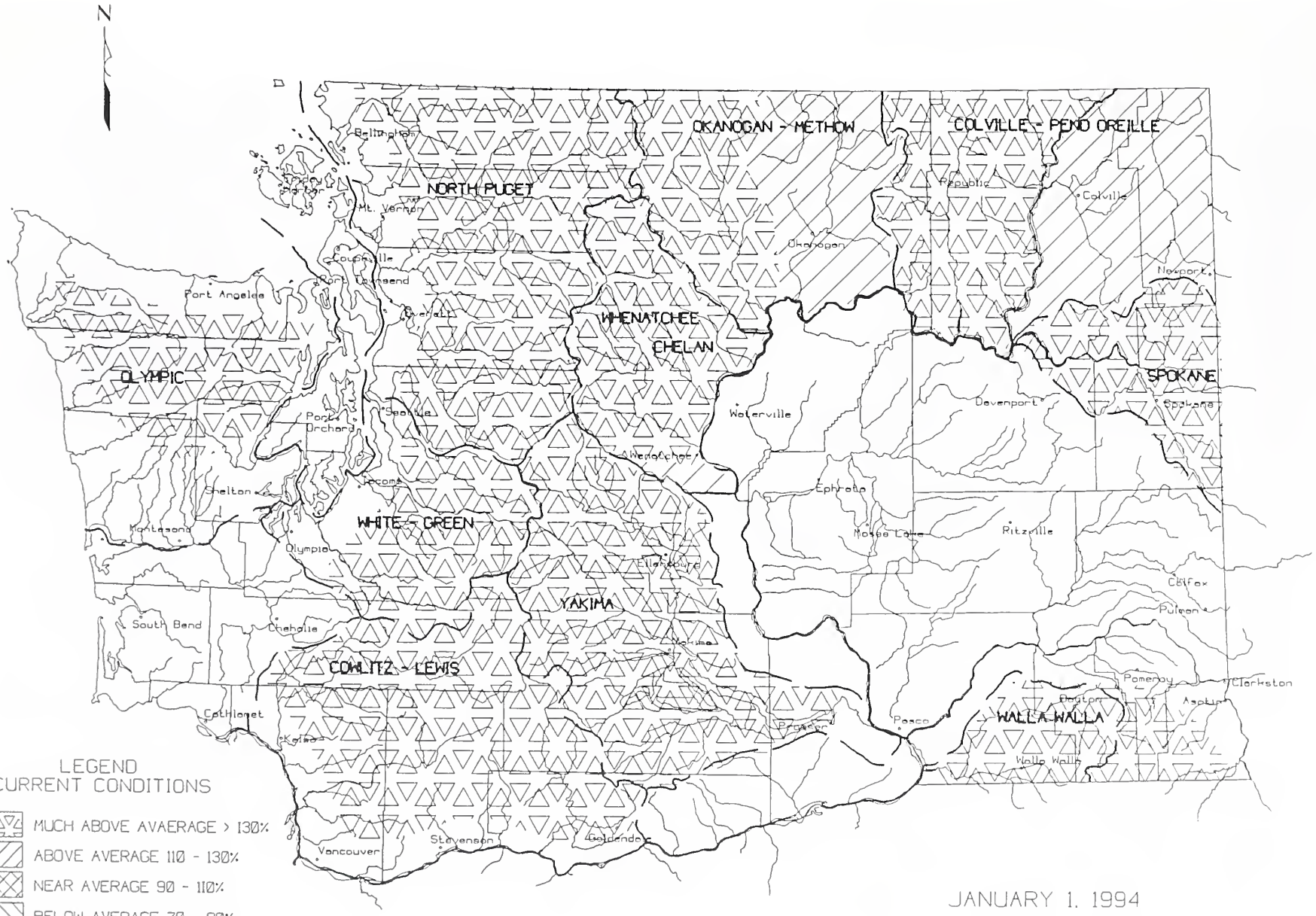
- MUCH ABOVE AVAERAGE > 130%
- ABOVE AVERAGE 110 - 130%
- NEAR AVERAGE 90 - 110%
- BELOW AVERAGE 70 - 90%
- MUCH BELOW AVERAGE < 70%
- NOT FORCASTED
- WATERSHED BOUNDARY

U S DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

JANUARY 1, 1995

STREAMFLOW PROSPECTS
WASHINGTON

NTS



US DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

JANUARY 1, 1994

MOUNTAIN SNOWPACK
WASHINGTON

NTS

LOST - DATA CURRENT AS OF: 1/1/95

BASIN SUMMARY OF SNOW COURSE DATA

JANUARY 1995

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
PEND OREILLE RIVER						
BENTON MEADOW	2370	1/04/95	12	3.5	2.8	2.7
BENTON SPRING	4920	1/04/95	39	12.5	7.0	8.0
BUNCHGRASS MDW PILLOW	5000	1/01/95	---	17.8S	11.1	10.9
HOODOO BASIN	6050	1/01/95	---	24.7E	12.3	20.4
HOODOO CREEK	5900	1/01/95	---	21.0E	10.8	18.0
LOOKOUT PILLOW	5140	1/01/95	---	14.3	8.4	13.5
NELSON CAN.	3100	12/28/94	38	10.1	6.0	7.2
KETTLE RIVER						
BARNES CREEK CAN.	5300	1/02/95	38	10.9	9.2	8.7
BIG WHITE MTN CAN.	5510	12/31/94	43	12.2	8.0	7.2
COLVILLE RIVER NO REPORT						
OMAK LAKE, TWIN LAKES						
MOSES MTN PILLOW	4800	1/01/95	---	8.5S	4.1	6.5
SPOKANE RIVER						
FOURTH OF JULY SUM	3200	1/03/95	22	6.4	3.0	3.4
LOST LAKE (d)	6110	1/01/95	---	28.7E	13.7	23.6
MOSQUITO RDG PILLOW	5200	1/01/95	---	19.4	9.7	15.7
SUNSET PILLOW	5540	1/01/95	---	14.3	8.4	15.8
LOOKOUT PILLOW	5140	1/01/95	---	14.3	8.4	13.5
NEWMAN LAKE						
QUARTZ PEAK PILLOW	4700	1/01/95	---	16.4S	9.3	8.5
OKANOGAN RIVER						
ENDERBY CAN.	6200	12/31/94	67	16.5	16.9	18.6
GREYBACK RES CAN.	5120	1/03/95	24	6.1	4.5	3.1
HAMILTON HILL CAN.	4890	1/01/95	30	7.6	4.7	8.4
HARTS PASS PILLOW	6500	1/01/95	---	27.6S	11.7	17.9
ISINTOK LAKE CAN.	5500	12/29/94	22	3.7	2.1	3.5
MISSEZULA MTN CAN.	5090	12/30/94	31	7.6	3.4	--
MT. KOBAU CAN.	5900	12/29/94	29	7.1	3.6	6.3
SALMON MDWS PILLOW	4500	1/01/95	---	7.9S	4.2	3.9
SILVER STAR MTN CAN.	6000	1/02/95	55	17.5	10.3	13.4
SUMMERLAND RES CAN.	4200	12/28/94	26	5.3	2.8	4.5
WHITE ROCKS MTN CAN.	6000	12/29/94	50	15.0	8.4	11.6
METHOW RIVER						
HARTS PASS PILLOW	6500	1/01/95	---	27.6S	11.7	17.9
SALMON MDWS PILLOW	4500	1/01/95	---	7.9S	4.2	3.9
CHELAN LAKE BASIN						
LYMAN LAKE	5900	1/01/95	---	38.9E	16.7	23.5
LYMAN LAKE PILLOW	5900	1/01/95	---	42.1S	18.0	25.4
MINERS RIDGE PILLOW	6200	1/01/95	---	33.4S	16.4	25.6
PARK CK RIDGE PILLOW	4600	1/01/95	---	23.2S	10.7	18.4
RAINY PASS PILLOW	4780	1/01/95	---	32.2S	12.7	15.4
ENTIAT RIVER						
POPE RIDGE PILLOW	3540	1/01/95	---	14.9S	7.1	9.1
WENATCHEE RIVER						
BERNE-MILL CREEK (d)	3170	12/30/94	69	20.1	9.3	11.2
BLEWETT PASS#2 PILLOW	4270	1/01/95	---	12.7S	6.3	8.3
CHIWAUKUM G.S.	2500	12/30/94	30	9.3	4.2	4.8
FISH LAKE PILLOW	3370	1/01/95	---	23.0S	13.4	12.4
LYMAN LAKE	5900	1/01/95	---	38.9E	16.7	23.5
LYMAN LAKE PILLOW	5900	1/01/95	---	42.1S	18.0	25.4
MERRITT	2140	12/30/94	42	12.5	4.1	7.1
STEVENS PASS PILLOW	4070	1/01/95	---	32.5S	8.3	15.3
STEVENS PASS SAND SD	3700	12/30/94	80	23.6	10.4	14.6
TROUGH #2 PILLOW	5310	1/01/95	---	8.9S	6.1	4.9
UPPER WHEELER PILLOW	4400	1/01/95	---	7.5S	5.0	5.9
SQUILCHUCK CREEK NO REPORT						
STEMILT CREEK						
UPPER WHEELER PILLOW	4400	1/01/95	---	7.5S	5.0	5.9
COLOCKUM CREEK						
TROUGH #2 PILLOW	5310	1/01/95	---	8.9S	6.1	4.9
YAKIMA RIVER						
BLEWETT PASS#2 PILLOW	4270	1/01/95	---	12.7S	6.3	8.3
BUMPING LAKE (NEW)	3400	12/28/94	32	9.3	5.2	7.5
BUMPING RIDGE PILLOW	4600	1/01/95	---	18.0S	9.2	9.6
CORRAL PASS PILLOW	6000	1/01/95	---	22.7S	7.6	13.5
FISH LAKE	3370	12/28/94	78	23.7	12.1	10.7
FISH LAKE PILLOW	3370	1/01/95	---	23.0S	13.4	12.4
GREEN LAKE PILLOW	6000	1/01/95	---	13.5S	7.6	9.0
GROUSE CAMP PILLOW	5380	1/01/95	---	14.0S	7.8	8.9
DOMMERIE FLATS	2200	12/29/94	25	8.0	2.6	3.9
LOST HORSE PILLOW	5000	1/01/95	---	9.1S	5.9	15.3
MORSE LAKE PILLOW	5400	1/01/95	---	40.2S	18.3	19.1
OLALLIE MDWS PILLOW	3960	1/01/95	---	29.2S	15.9	20.3
SASSE RIDGE PILLOW	4200	1/01/95	---	22.3S	9.9	12.4
STAMPEDE PASS PILLOW	3860	1/01/95	---	34.4S	10.5	16.7
TUNNEL AVENUE	2450	12/27/94	53	16.4	6.1	8.1
WHITE PASS ES PILLOW	4500	1/01/95	---	15.5S	7.5	9.8
AHTANUM CREEK						
GREEN LAKE PILLOW	6000	1/01/95	---	13.5S	7.6	9.0
LOST HORSE PILLOW	5000	1/01/95	---	9.1S	5.9	15.3
MILL CREEK						
HIGH RIDGE PILLOW	4980	1/01/95	---	16.7S	5.1	9.7
TOUCHET #2 PILLOW	5530	1/01/95	---	20.0S	8.5	12.9
LEWIS - COWLITZ RIVERS						
JUNE LAKE PILLOW	3200	1/01/95	---	34.1S	13.9	11.5
LONE PINE PILLOW	3800	1/01/95	---	21.4S	12.7	12.0
PARADISE PARK PILLOW	5500	1/01/95	---	47.1S	17.3	23.6
PIGTAIL PEAK PILLOW	5900	1/01/95	---	34.0S	12.9	20.1
POTATO HILL PILLOW	4500	1/01/95	---	15.9S	7.5	10.5
SHEEP CANYON PILLOW	4050	1/01/95	---	22.3S	10.1	15.2
SPENCER MDW PILLOW	3400	1/01/95	---	21.5S	10.3	9.4
SPIRIT LAKE PILLOW	3100	1/01/95	---	3.1S	2.4	1.8
SURPRISE LKS PILLOW	4250	1/01/95	---	28.4E	14.1	20.2
WHITE PASS ES PILLOW	4500	1/01/95	---	15.5S	7.5	9.8
WHITE RIVER						
CORRAL PASS PILLOW	6000	1/01/95	---	22.7S	7.6	13.5
MORSE LAKE PILLOW	5400	1/01/95	---	40.2S	18.3	19.1
GREEN RIVER						
COUGAR MTN. PILLOW	3200	1/01/95	---	13.8S	3.5	8.3
GRASS MOUNTAIN #2	2900	12/29/94	15	6.1	.0	4.8
LESTER CREEK	3100	12/29/94	46	14.6	6.6	8.0
LYNN LAKE	4000	12/29/94	41	15.8	.0	7.6
SAWMILL RIDGE	4700	12/29/94	64	22.5	8.7	13.3
STAMPEDE PASS PILLOW	3860	1/01/95	---	34.4S	10.5	16.7
TWIN CAMP	4100	12/29/94	51	16.7	7.8	10.0
CEDAR RIVER						
MT. GARDNER PILLOW	2860	1/01/95	---	11.9S	4.3	5.8
TINKHAM CREEK PILLOW	3000	1/01/95	---	19.0S	8.4	7.6
MEADOWS PASS PILLOW	3240	1/01/95	---	16.4S	6.2	9.5
SNOQUALMIE RIVER						
OLALLIE MDWS PILLOW	3960	1/01/95	---	29.2S	15.9	20.3
SKYKOMISH RIVER						
STAMPEDE PASS PILLOW	3860	1/01/95	---	34.4S	10.5	16.7
STEVENS PASS PILLOW	4070	1/01/95	---	32.5S	8.3	15.3
STEVENS PASS SAND SD	3700	12/30/94	80	23.6	10.4	14.6
SKAGIT RIVER						
HARTS PASS PILLOW	6500	1/01/95	---	27.6S	11.7	17.9
LYMAN LAKE	5900	1/01/95	---	38.9E	16.7	23.5
LYMAN LAKE PILLOW	5900	1/01/95	---	42.1S	18.0	25.4
RAINY PASS PILLOW	4780	1/01/95	---	32.2S	12.7	15.4
THUNDER BASIN PILLOW	4200	1/01/95	---	20.0S	11.9	15.3
BAKER RIVER						
DOCK BUTTE AM	3800	12/29/94	106	48.0	21.6	25.7
EASY PASS AM	5200	12/29/94	144	65.0	22.0	27.1
JASPER PASS AM	5400	12/29/94	156	64.0	30.1	37.9
MARTEN LAKE AM	3600	12/29/94	104	45.0	22.6	30.1
MT. BLUM AM	5800	12/29/94	108	42.0	14.4	24.4
ROCKY CREEK AM	2100	12/29/94	72	30.0	6.3	11.7
SCHREIBERS MDW AM	3400	12/29/94	77	33.0	16.9	21.9
SF THUNDER CK AM	2200	12/29/94	18	6.8	.0	4.5
WATSON LAKES AM	4500	12/29/94	84	35.0	18.4	24.2
ELWHA RIVER NO REPORT						
MORSE CREEK NO REPORT						
DUNGENESS RIVER NO REPORT						
QUILCENE RIVER						
MOUNT CRAG PILLOW	4050	1/01/95	---	16.7S	11.5	11.3
WYNOOCHEE RIVER NO REPORT						

(d) Denotes discontinued site.
(E) Denotes estimated water content
(S) Denotes SNOTEL site

Washington Snow Story

by Suzzane Pate, PAS

Where *was* that white Christmas? Not to worry, say snowpack trackers at Natural Resources Conservation Service -- the snow season is just barely underway. Because mountain snow provides more than 75% of the water in the West, NRCS monitors its accumulation from January through June at sampling sites in 11 western states. Data collected manually and by remote sensors provide the scientific basis for streamflow forecasts critical to water management and use throughout the year.

Water Supply Specialist Scott Pattee coordinates the snow survey program in Washington State and keeps a vigilant eye on the snowfall at 107 sampling locations statewide.

"I oversee the training of our volunteer and staff surveyors, make sure their equipment is up to speed, and see to it that all the automated sampling sites are in good working order," he explained. Pattee additionally samples snow at sites near Spokane and Dayton, and accompanies maintenance crews to snowpack telemetry (SNOTEL) stations.

"We use the buddy system, and we work in the mountains year round," Pattee said. "It may be below-zero weather and blowing snow, but if a site goes down we still have to go in and try to get it fixed."

"My travel to do snow surveys can vary from 20 minutes to 8 hours just to reach the area of a site. Then it can be a daylong snowshoe or snowmobile trip to reach the sampling site itself. Depending on the snow conditions, sometimes I cross-country ski, or drive a Snow-Cat."

Snow survey information occasionally is gathered by fixed-wing flyby to visually check snow depth markers, and by helicopter access to remote sites for manual measurements.

Despite the difficulties in getting to the sites, Pattee feels rewarded by what he observes on the way. "One of the largest attractions of my job is getting into the mountains and having the opportunity to see the wildlife, and how the land is being used. I'm reassured that current land use activities are becoming more environmentally kind, compared to yesteryear's scars, such as large scale clearcutting without reforestation or erosion control practices," Pattee continued. "From what I see I conclude that land management agencies and entities are learning to value and manage the land and natural resources better."

"Our surveys are geared to private landowners and irrigators for the predictability of water available to them in the coming season, so they won't go to the expense of putting in a crop and then losing it for lack of water," said Pattee. "In the Ellensburg area, for instance," he recalled, "they haven't planted as much sweet corn for the canneries because of low water years based on the data NRCS provided."

"Our snow survey program is sitting pretty sound," said Pattee, "and it's getting stronger because of current environmental issues. For example, we hope that our information is used by governing agencies that regulate reservoir drawdowns for fish passage. We also maintain one of the most complete one-stop-shopping data bases of climatic data available to the public."

"I absolutely love my work," concluded Pattee, "because it gives me the sense that I can make a positive difference on our environment and the living things that depend on our natural resources."

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

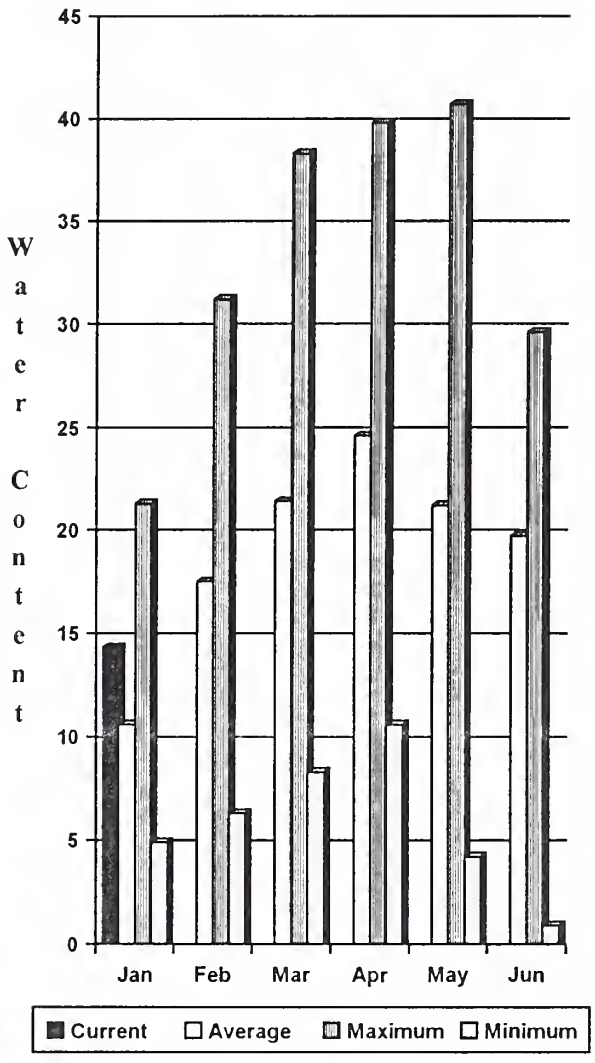
STREAMFLOW FORECASTS

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	121	59

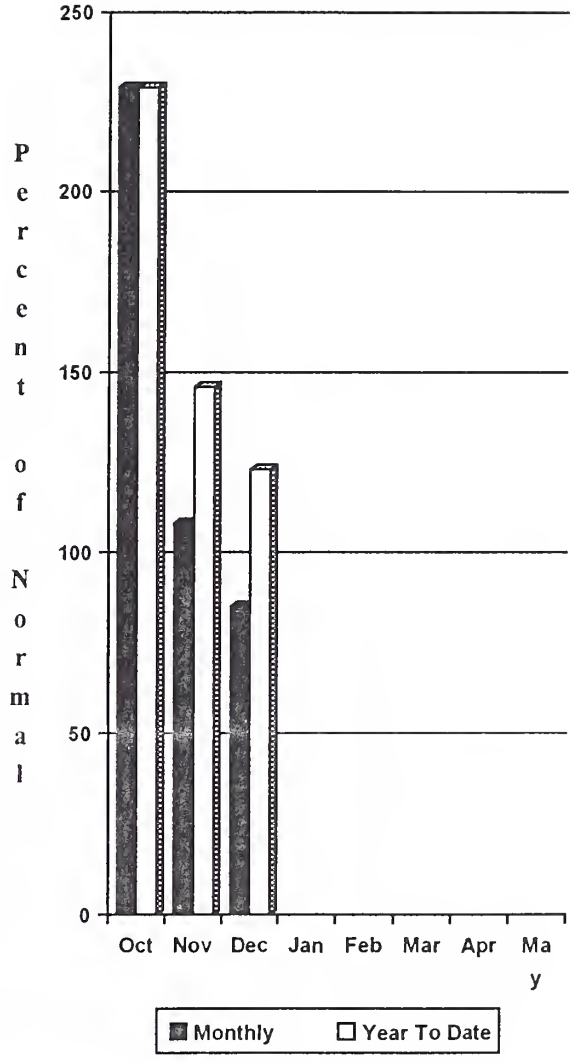
For more information concerning streamflow forecasting ask your local SCS field office for a copy of "A Field Office Guide for Interpreting Steamflow Forecasts".

Spokane River Basin

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

The January 1 forecasts for summer runoff within the Spokane River Basin are 103% of normal, compared to 77% last year at this time. The forecast is based on a snowpack that is 135% of average and precipitation that is 123% of normal for the water year. Precipitation for December was 85% of average. Streamflow on the Spokane River was 98% of average for December. January 1 storage in Coeur d'Alene Lake was 115,500 acre feet, 89% of normal, and 48% of capacity. Temperatures in the basin were 3 degrees above normal during December.

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

SPOKANE RIVER BASIN

Streamflow Forecasts - January 1, 1995

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	2020	2500	2820	103	3140	3620	2730
	APR-JUL	1930	2400	2717	103	3030	3500	2633
SPOKANE at Long Lake	APR-JUL	2200	2690	3016	103	3350	3830	2936
	APR-SEP	2400	2900	3245	103	3590	4090	3159

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
COEUR D'ALENE	238.5	115.5	60.5	130.5

SPOKANE RIVER BASIN
Watershed Snowpack Analysis - January 1, 1995

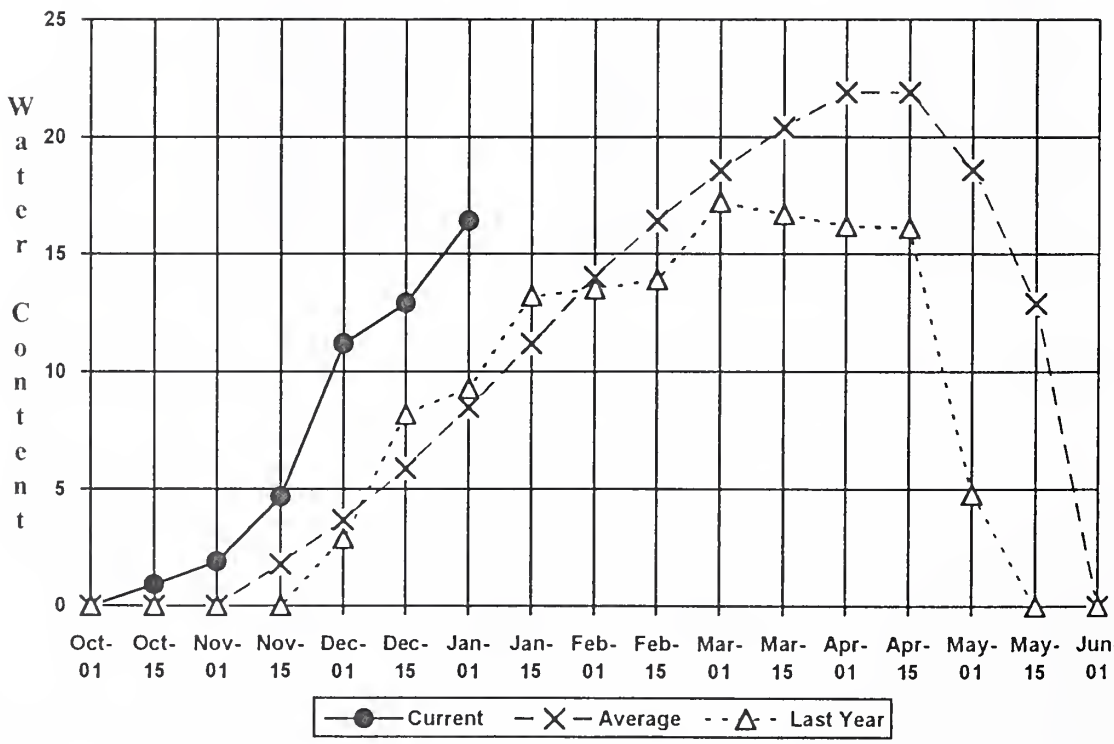
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Spokane River	11	180	135

* 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.

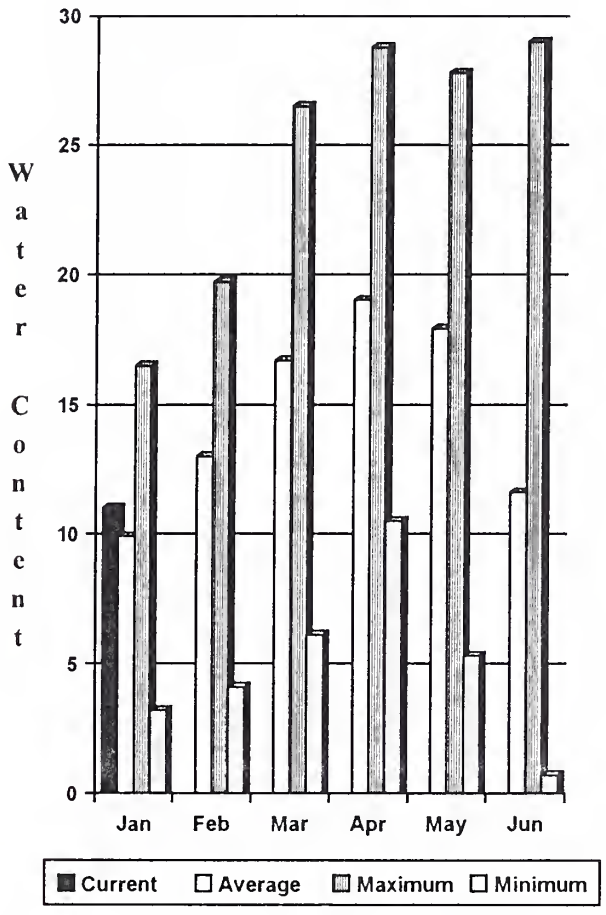
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Quartz Peak SNOTEL
Elevation 4700 ft.

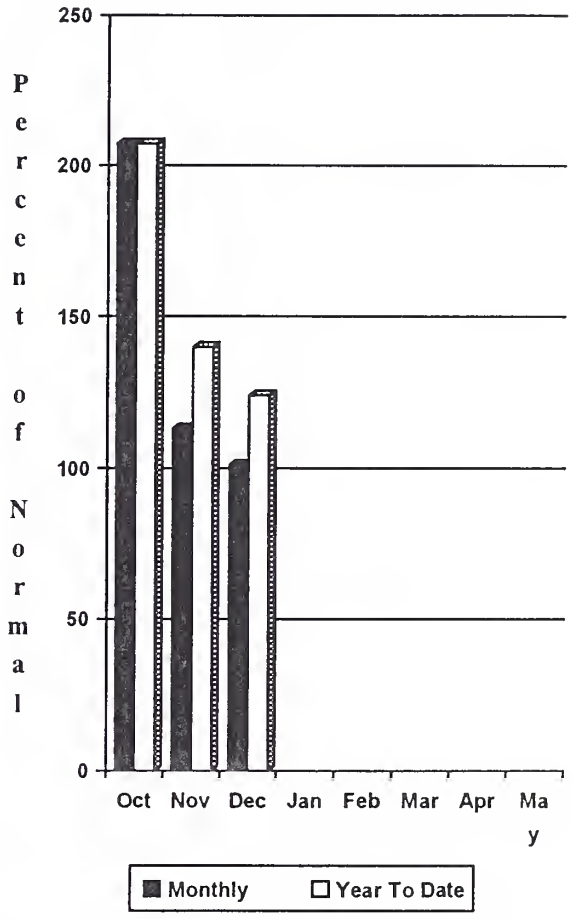


Colville - Pend Oreille River Basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

The forecast for the Kettle River streamflow is for 102% of normal, the Pend Oreille below Box Canyon, 87%, and the Priest River near Priest River, 92% of normal for the summer runoff period. Forecast for the Columbia River at Birchbank is for runoff to be 99% of average. December streamflow was 73% of normal on the Pend Oreille River, 79% on the Columbia at the International Boundary, and 70% on the Kettle River. January 1 snow cover was 124% of normal on the Pend Oreille. Snowpack at Bunchgrass Meadow SNOTEL site contained 17.8 inches of water, compared to the average January 1 reading of 10.9 inches. Precipitation during December was 101% of average, bringing the water year-to-date to 124% of normal. Temperatures were 3 degrees above normal for December.

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

COLVILLE - PEND OREILLE RIVER BASINS
Streamflow Forecasts - January 1, 1995

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	5920	9620	11300	86	13000	16700	13150
	APR-SEP	6510	10600	12400	86	14200	18300	14370
	APR-JUN	4720	8210	9800	86	11400	14900	11390
PRIEST nr Priest River (1,2)	APR-JUL	440	655	750	92	845	1060	814
	APR-SEP	470	695	800	92	905	1130	868
PEND OREILLE bl Box Canyon (1,2)	APR-JUL	6940	10100	11600	87	13100	16300	13380
	APR-SEP	7620	11100	12700	87	14300	17800	14590
	APR-JUN	6060	8820	10070	87	11300	14100	11570
CHAMOKANE CK nr Long Lake	MAY-AUG	1.6	5.7	8.5	90	11.3	15.4	9.4
COLVILLE at Kettle Falls	APR-SEP	71	110	136	104	162	200	131
	APR-JUL	66	102	126	105	151	187	120
	APR-JUN	62	95	117	105	139	172	111
KETTLE near Laurier	APR-SEP	1280	1730	1890	102	2050	2500	1854
	APR-JUL	1420	1650	1800	102	1950	2180	1761
	APR-JUN	1310	1510	1650	104	1790	1990	1585
COLUMBIA at Birchbank (1,2)	APR-JUL	26500	32200	34800	99	37400	43100	35140
	APR-SEP	33000	40200	43400	99	46600	53800	43810
	APR-JUN	19400	23500	25410	99	27300	31400	25670
COLUMBIA at Grand Coulee Dm (1,2)	APR-SEP	43900	56400	62100	96	67800	80300	64850
	APR-JUL	37100	47500	52300	96	57100	67500	54543
	APR-JUN	29200	37300	41050	96	44800	52900	42756

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
ROOSEVELT	5232.0	4837.7	4447.8	4547.9
BANKS	715.0	135.5	673.5	618.3

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

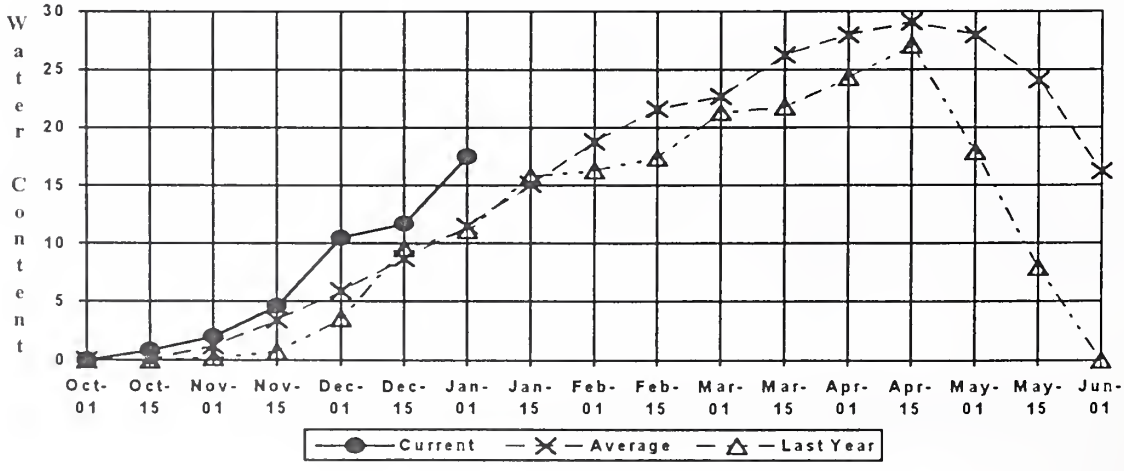
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Colville River	0	0	0
Pend Oreille River	63	162	111
Kettle River	2	134	145

* 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.

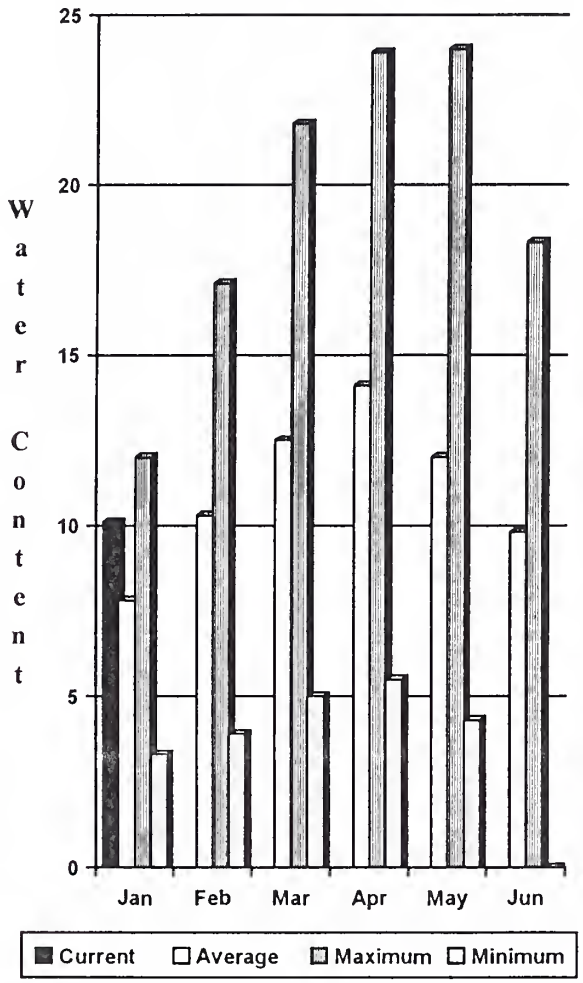
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Bunchgrass Meadow SNOTEL
Elevation 5000 ft.

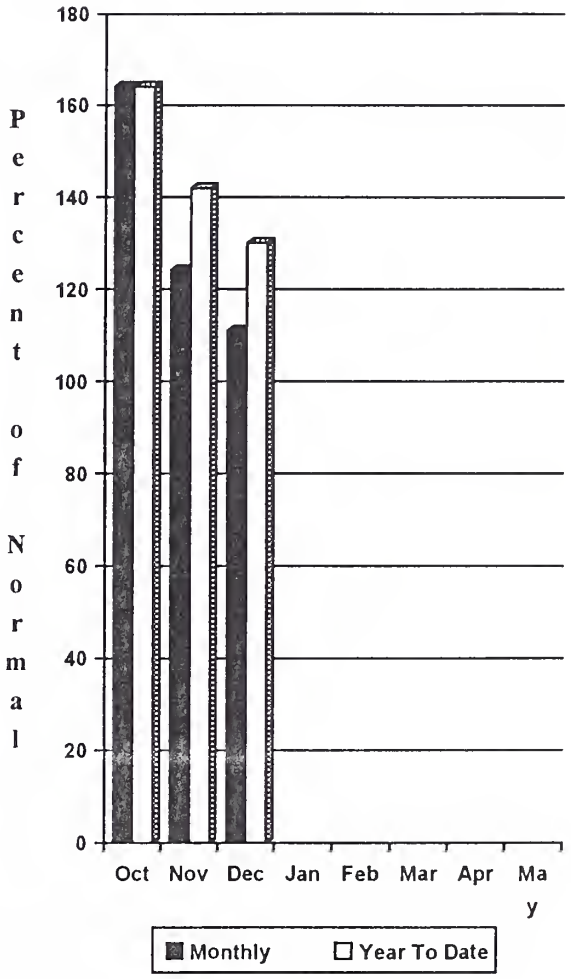


Okanogan - Methow River Basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

Summer runoff forecast for the Okanogan River is 110% of normal; the Similkameen River, 116%, the Methow River, 108%, and Salmon Creek, 98% of normal. January 1 snow cover on the Okanogan was 125% of normal, and the Methow, 163%. December precipitation in the Okanogan-Methow was 111% of normal, with water year-to-date at 130% of average. December streamflow on the Methow River was 103% of normal, 67% on the Okanogan River, and 73% on the Similkameen. Snow water content at the Harts Pass SNOTEL, elevation 6500 feet, was 27.6 inches; normal for this site is 17.9 inches. Temperatures were slightly above normal for December. Storage in the Conconully Reservoir was 5706 acre feet, which is 44% of capacity and 97% of the January 1 average.

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

OKANOGAN - METHOW RIVER BASINS

Streamflow Forecasts - January 1, 1995

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)
SIMILKAMEEN nr Nighthawk (1)	APR-SEP	840	1440	1620	116	1800	2390	1399
	APR-JUL	990	1350	1510	116	1670	2030	1304
	APR-JUN	900	1170	1290	116	1410	1680	1113
OKANOGAN RIVER nr Tonasket (1)	APR-SEP	830	1560	1790	110	2020	2740	1624
	APR-JUL	950	1400	1600	109	1800	2250	1467
	APR-JUN	865	1210	1360	110	1510	1860	1234
SALMON CREEK near Conconully	APR-JUL	6.8	15.9	22.0	115	28	37	19.1
	APR-SEP	7.1	16.5	22.8	114	29	39	20
METHOW RIVER near Pateros	APR-SEP	565	895	1020	108	1150	1460	942
	APR-JUL	660	825	940	108	1050	1220	873
	APR-JUN	565	705	805	108	905	1050	746

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
SALMON LAKE	10.5	7.4	9.0	7.5
CONCONULLY RESERVOIR	13.0	5.7	8.4	5.9

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

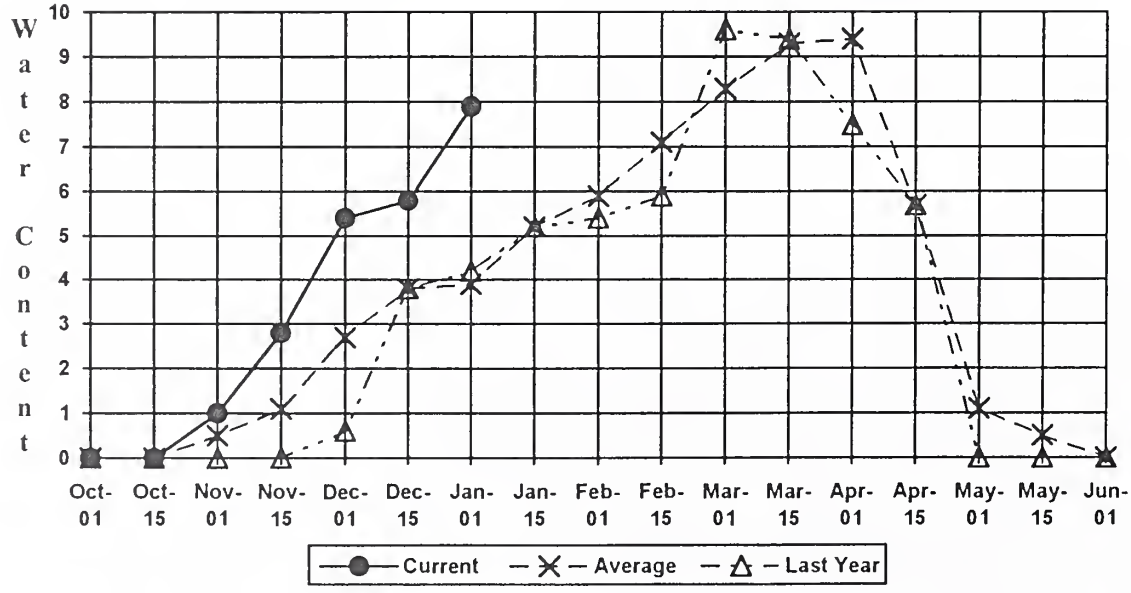
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Okanogan River	10	165	125
Methow River	2	223	163

* 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.

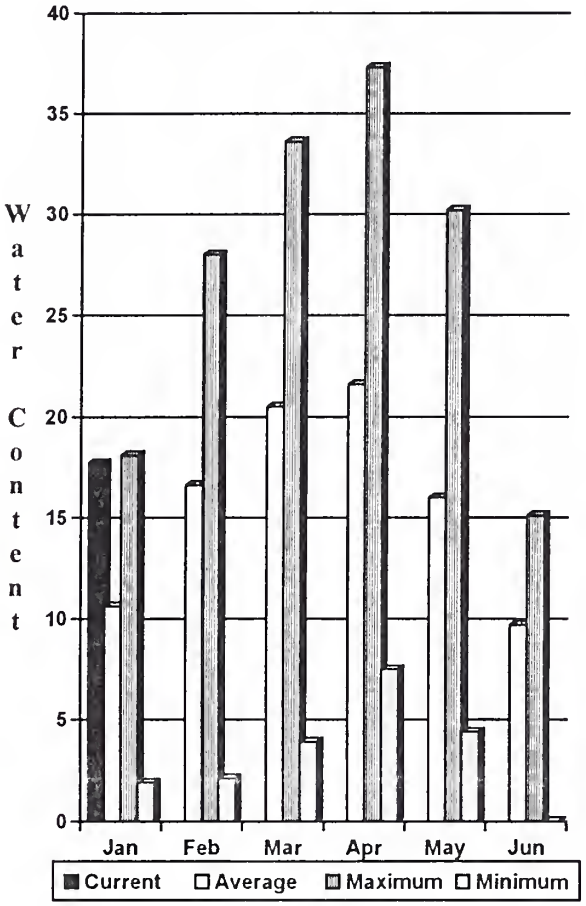
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Salmon Meadows SNOTEL
Elevation 4500 ft.

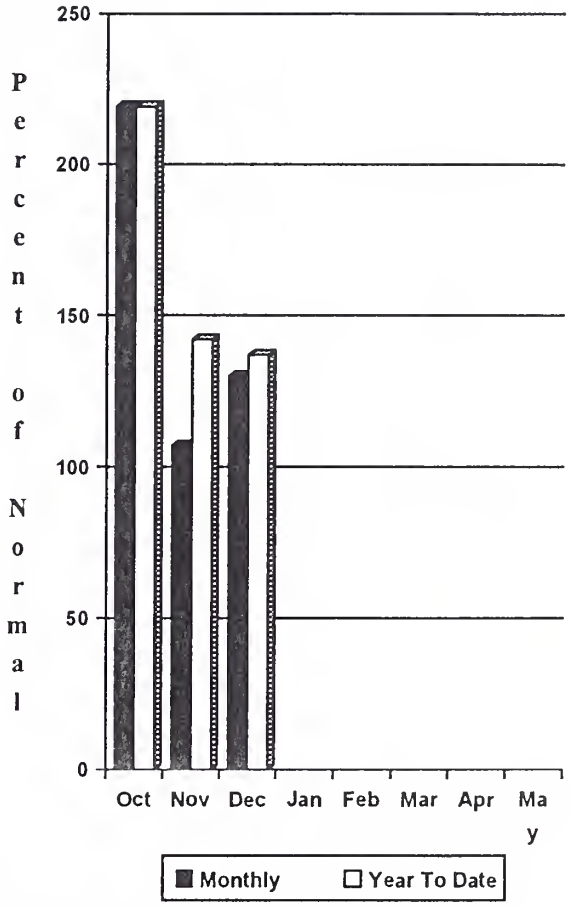


Wenatchee - Chelan River Basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

Precipitation during December was 130% of normal in the basin and 137% for the year to date. Runoff for the Entiat River is forecast to be normal for the summer. The April-September forecast for the Chelan River is for 111%, for the Wenatchee River it is 115%, and 106% on the Squilchuck-Stemilt. Icicle Creek is forecasted to be 111% of normal this summer. Streamflow for December on the Chelan River was 90% of average and on the Wenatchee River it was 73% of normal. January 1 snowpack in the Wenatchee Basin was 179% of average, which is 220% of last year. The Chelan Basin was 154% of average along with Colockum Ridge at 182% and Stemilt Creek at 127% of normal. Snowpack on the Entiat River was at 164% of average. Reservoir storage in Lake Chelan was 343,700 acre feet or 91% of January 1 average and 51% of capacity. Lyman Lake SNOTEL had the most snow water with 42.1 inches of water. This site would normally have 25.4 inches.

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

WENATCHEE - CHELAN RIVER BASINS

Streamflow Forecasts - January 1, 1995

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)
CHELAN RIVER near Chelan	APR-SEP	1020	1230	1287	111	1350	1550	1160
	APR-JUL	1010	1080	1127	110	1180	1250	1024
	APR-JUN	810	860	890	110	920	970	812
STEHEKIN near STEHEKIN	APR-SEP	760	825	870	105	915	980	827
	APR-JUL	665	705	736	105	765	810	701
	APR-JUN	535	550	565	105	580	595	538
ENTIAT RIVER near Ardenvoir	APR-SEP	155	198	227	100	255	300	227
	APR-JUL	141	180	207	100	235	275	206
	APR-JUN	119	149	170	101	191	220	169
WENATCHEE R. at Peshastin	APR-SEP	1260	1640	1880	115	2120	2500	1636
	APR-JUL	1160	1480	1700	114	1920	2240	1485
	APR-JUN	935	1190	1370	114	1550	1800	1204
STEMILT nr Wenatchee (miners in)	MAY-SEP	97	126	146	106	166	195	138
ICICLE CREEK nr Leavenworth	APR-SEP	280	355	410	111	465	540	370
	APR-JUL	255	330	377	111	425	500	340
	APR-JUN	205	260	300	111	340	395	270
COLUMBIA R. bl Rock Island Dam (2)	APR-SEP	49200	61200	69300	98	77400	89400	70485
	APR-JUL	41700	51800	58700	98	65600	75700	59736
	APR-JUN	32800	40700	46070	98	51400	59300	47007

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
CHELAN LAKE	676.1	343.7	344.7	378.7

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

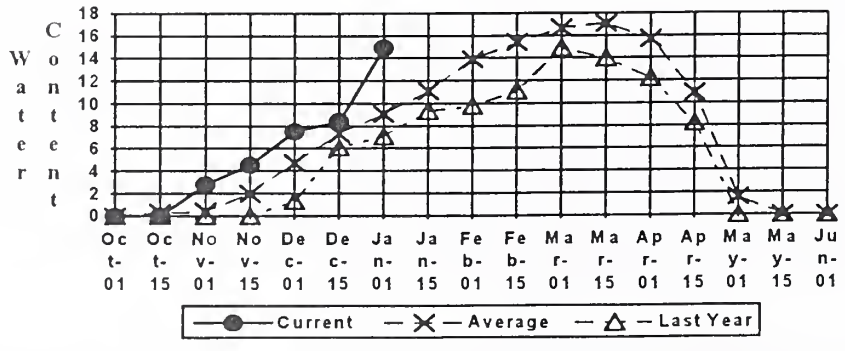
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Chelan Lake Basin	4	226	154
Entiat River	1	210	164
Wenatchee River	11	222	179
Squilchuck Creek	0	0	0
Stemilt Creek	1	150	127
Colockum Creek	1	146	182

* 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.

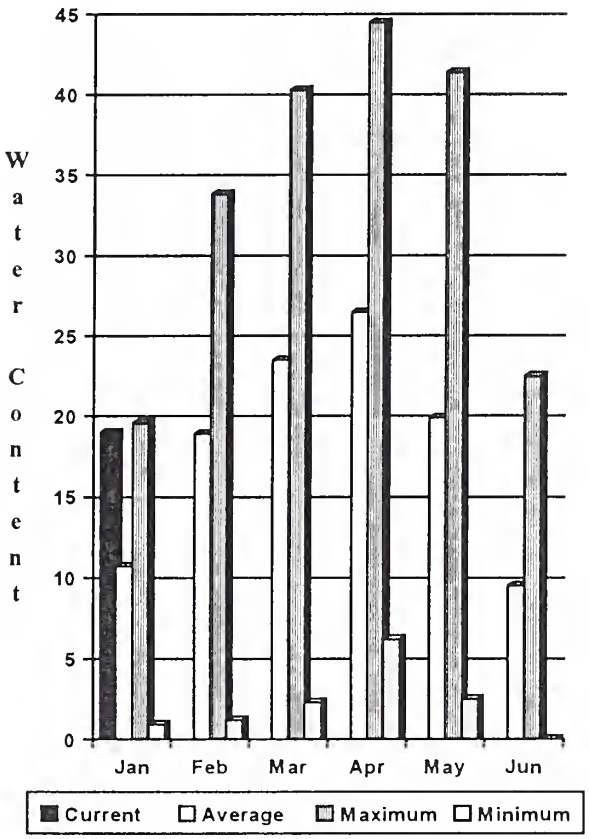
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Pope Ridge SNOTEL
Elevation 3540 ft.

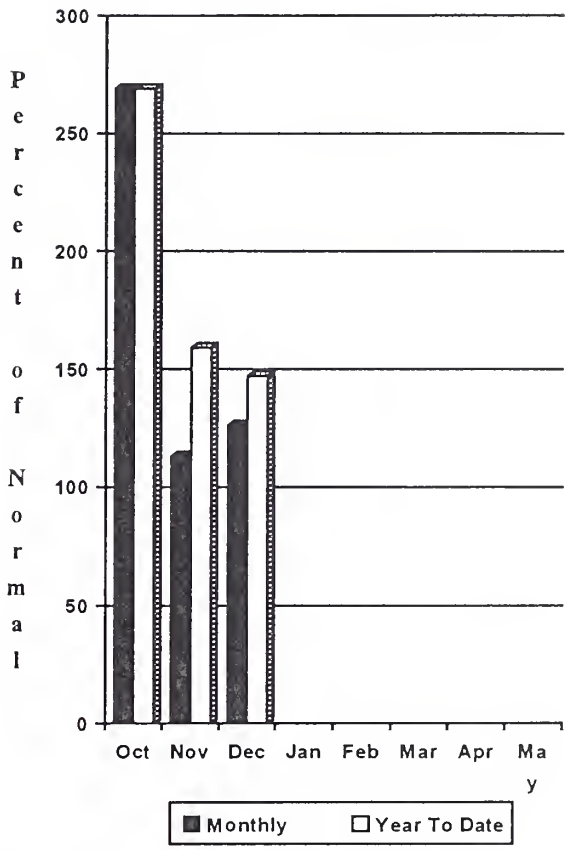


Yakima River Basin

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

January 1 reservoir storage for the five major reservoirs was 285,000 acre feet, 49% of average. January 1 summer streamflow forecasts are for above normal in the Yakima Basin. Forecasts for the Yakima River at Cle Elum are for 110% of normal. Naches River, 114%; the Yakima River at Parker, 116%, Ahtanum Creek, 104%, and the Tieton River, 115%. The Klickitat River near Glenwood should be at near normal flows this summer. December streamflows are looking good compared to last year , with the Yakima River at Parker 104% of normal, 104% for the Yakima near Cle Elum, and 128% for the Naches River. January 1 snowpack was 178% based upon 15 snow courses and SNOTEL readings within the Yakima basin. Green Lake SNOTEL also reported 150% of average snowpack for Ahtanum Creek. December precipitation was 126% of normal and 147% for the water year-to-date. Temperatures were 2.5 degrees above average for December. 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 - January 1, 1995

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)
KEECHELUS LAKE INFLOW	APR-JUL	106	128	143	115	158	180	124
	APR-SEP	115	135	151	112	167	182	135
	APR-JUN	96	113	125	115	137	155	109
KACHESS LAKE INFLOW	APR-JUL	94	115	129	116	144	165	111
	APR-SEP	98	119	134	114	150	171	118
	APR-JUN	84	101	112	113	123	140	99
CLE ELUM LAKE INFLOW	APR-JUL	375	440	480	117	520	585	409
	APR-SEP	400	470	515	115	560	630	448
	APR-JUN	325	375	404	117	435	480	345
YAKIMA at Cle Elum	APR-JUN	610	720	795	110	870	980	721
	APR-JUL	690	825	915	110	1010	1140	832
	APR-SEP	805	910	1009	110	1110	1210	915
BUMPING LAKE INFLOW	APR-SEP	112	139	155	114	171	199	136
	APR-JUL	106	128	142	114	156	177	124
	APR-JUN	89	105	116	112	127	144	104
AMERICAN RIVER near Nile	APR-SEP	104	122	135	114	147	166	118
	APR-JUL	95	112	123	113	135	152	109
	APR-JUN	78	92	102	111	112	126	92
RIMROCK LAKE INFLOW	APR-SEP	200	250	273	115	295	345	238
	APR-JUL	184	210	231	116	250	280	200
	APR-JUN	148	170	184	114	199	220	162
NACHES near Naches	APR-SEP	740	865	950	114	1030	1160	832
	APR-JUL	670	790	867	115	945	1060	755
	APR-JUN	570	670	737	113	805	900	651
AHTANUM CREEK nr Tampico (2)	APR-SEP	27	40	48	104	57	69	46
	APR-JUL	25	36	44	105	52	63	42
	APR-JUN	22	31	38	106	45	55	36
YAKIMA near Parker	APR-SEP	1820	2110	2310	116	2510	2800	1994
	APR-JUL	1670	1940	2130	118	2320	2590	1805
	APR-JUN	1480	1720	1880	118	2040	2280	1597
KLICKITAT near Glenwood	APR-JUN	78	99	113	103	128	149	110
	APR-SEP	99	126	145	103	163	190	140

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
KEECHELUS	157.8	60.1	22.2	83.0
KACHESS	239.0	62.0	27.5	159.1
CLE ELUM	436.9	85.8	20.1	230.2
BUMPING LAKE	33.7	16.7	3.1	6.3
RIMROCK	198.0	60.4	24.8	102.1

YAKIMA RIVER BASIN
Watershed Snowpack Analysis - January 1, 1995

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Yakima River	15	216	178
Ahtanum Creek	1	178	150

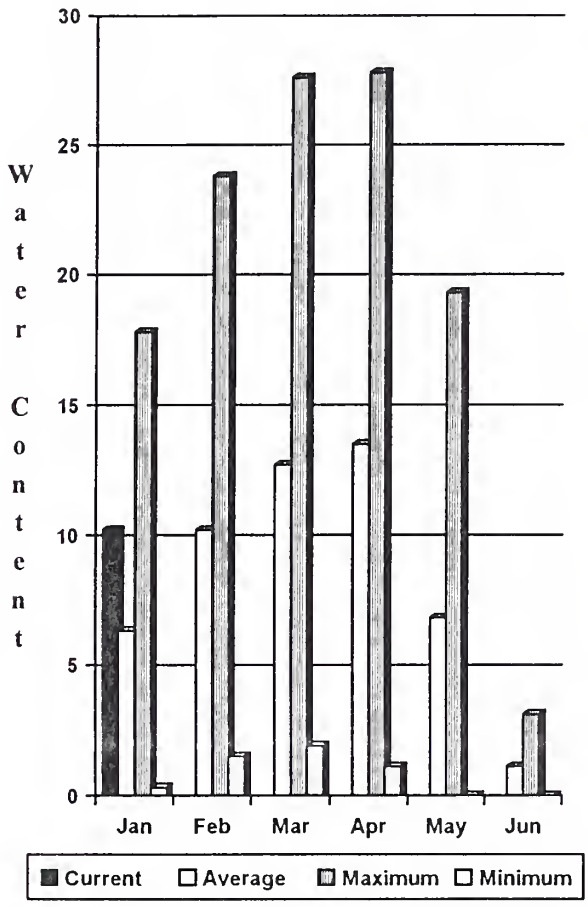
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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

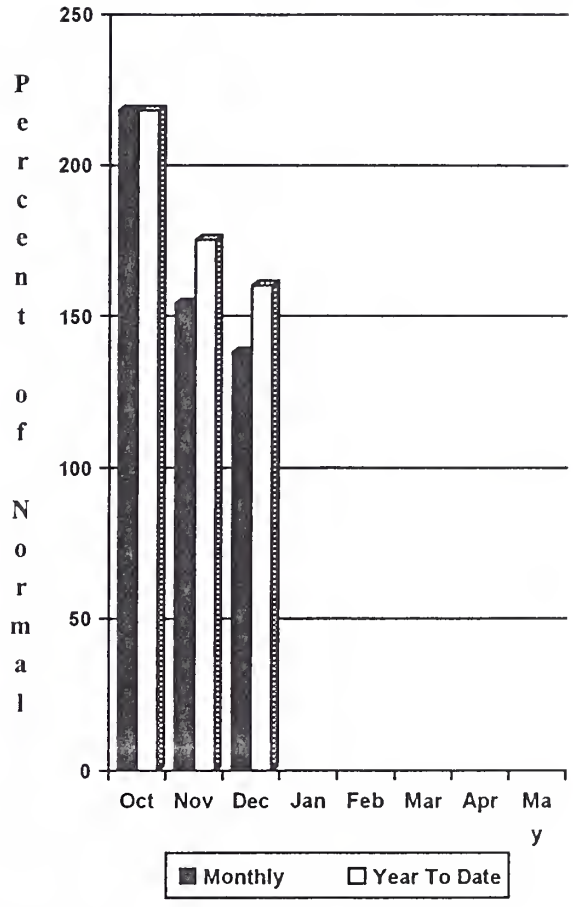
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Walla Walla River Basin

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

December precipitation was 138% of average, bringing the year-to-date precipitation to 160% of normal. January 1 snowpack was at 162% of normal. The forecast is for 109% of average streamflow in the Walla Walla River for the coming summer, for the Snake River, 92%, and 109% for Mill Creek. December streamflow was 157% of normal on the Walla Walla River, 63% for the Snake River, and 112% on the Grande Ronde River near Troy. The Touchet SNOTEL site had 20.0 inches of water equivalent, the normal January 1 reading for this site is 12.9 inches. Temperatures were 1 degree above average for December.

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

WALLA WALLA RIVER BASIN

Streamflow Forecasts - January 1, 1995

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)	MAR-JUL	705	1210	1440	98	1670	2190	1471
	APR-SEP	615	1080	1290	98	1500	1960	1312
SNAKE blw Lower Granite Dam (1,2)	APR-JUL	9090	16600	20000	92	23400	31000	21650
	APR-SEP	10300	18700	22500	92	26300	34700	24360
MILL CREEK at Walla Walla	APR-SEP	8.8	14.6	18.6	109	23	28	17.1
	APR-JUL	8.8	14.6	18.6	110	23	28	16.9
	APR-JUN	8.7	14.5	18.4	110	22	28	16.7
SF WALLA WALLA nr Milton Freewater	APR-JUL	46	53	58	109	62	69	53
COLUMBIA R. at The Dalles (2)	APR-SEP	65300	82200	93900	95	106000	124000	98982
	APR-JUL	55700	70700	80800	95	90900	106000	84760
	APR-JUN	45200	57300	65500	95	73700	85800	68925

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

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

WALLA WALLA RIVER BASIN
Watershed Snowpack Analysis - January 1, 1995

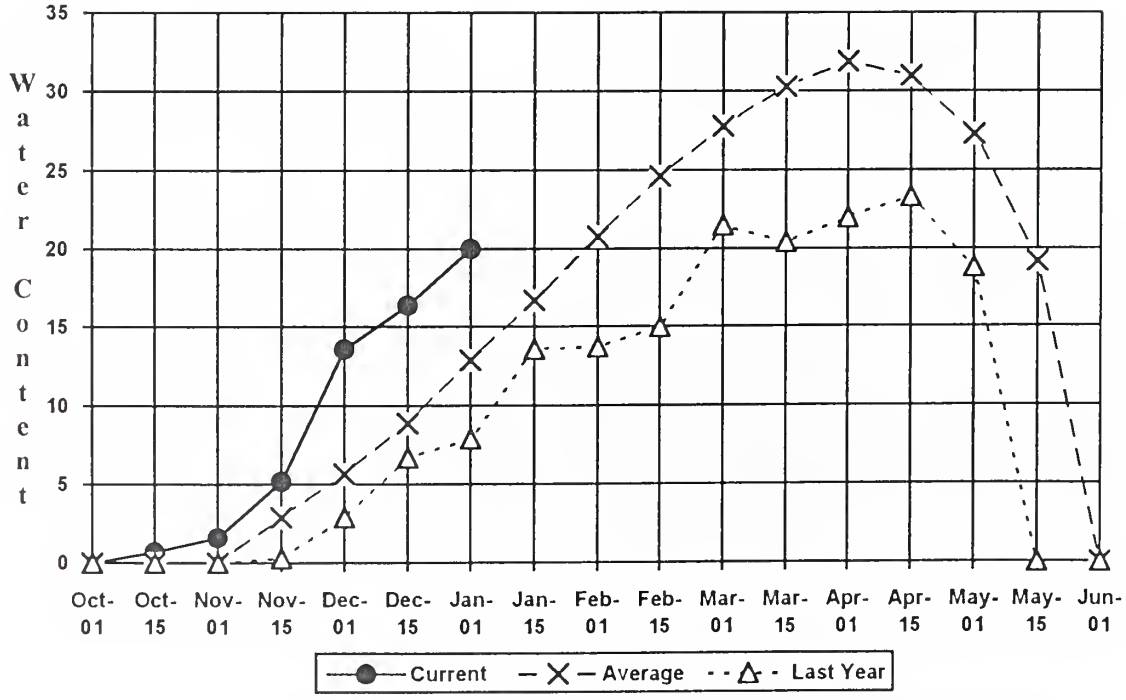
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Mill Creek	2	270	162

* 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.

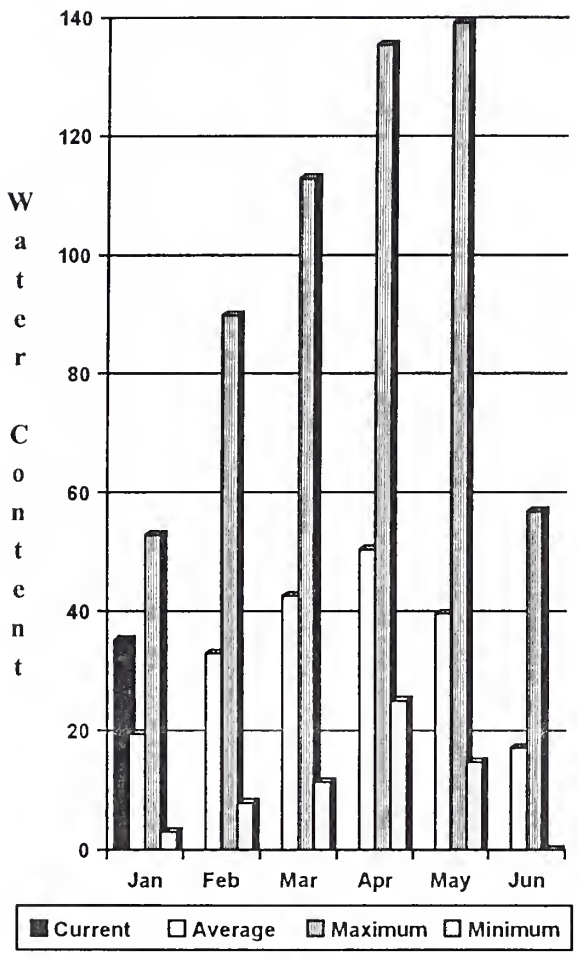
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Touchet #2 SNOTEL
Elevation 5530 ft.

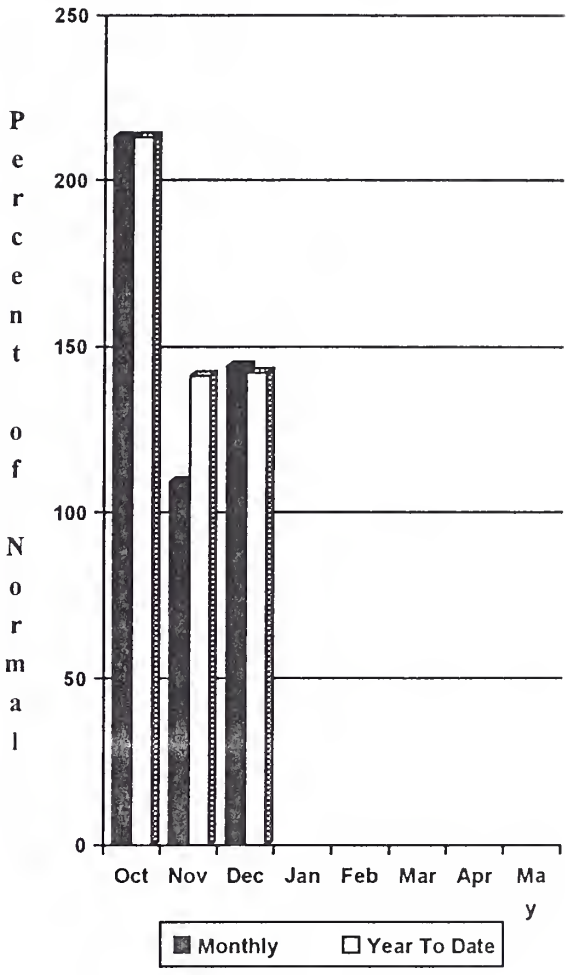


Cowlitz - Lewis River Basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

The forecast for summer runoff in the Lewis River is 111% of normal. The Cowlitz River is forecasted for 109% of normal runoff. December streamflow on the Cowlitz River was 145% of average, and 151% on the Lewis River. December precipitation was 144% of normal, bringing the precipitation to 142% of average for the water year. January 1 snow cover for the Cowlitz River was 170%, and for the Lewis River it was 198%, compared to 71% and 96% respectively, a year ago. The Paradise Park SNOTEL recorded the most water content for the basin with 47.1 inches of water. Normal January 1 water content is 23.6 inches. Temperatures were 2 degrees above normal for December.

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

COWLITZ - LEWIS RIVER BASINS

Streamflow Forecasts - January 1, 1995

Forecast Point	Forecast Period	<<------ Drier ------ Future Conditions ------ Wetter ------>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
LEWIS RIVER at Ariel (2)	APR-SEP	615	1130	1340	111	1550	2060	1204
	APR-JUL	715	985	1167	111	1350	1620	1051
	APR-JUN	635	875	1035	111	1200	1430	933
COWLITZ R. bl Mayfield Dam (2)	APR-SEP	1000	1780	2150	109	2520	3290	1970
	APR-JUL	1090	1570	1890	109	2210	2690	1731
	APR-JUN	930	1330	1610	109	1890	2290	1477
COWLITZ R. at Castle Rock (2)	APR-SEP	1600	2620	2890	108	3160	4030	2667
	APR-JUL	1940	2280	2520	108	2760	3100	2325
	APR-JUN	1650	1950	2155	108	2360	2660	1995
KLICKITAT near Glenwood	APR-JUN	78	99	113	103	128	149	110
	APR-SEP	99	126	145	103	163	190	140

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

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

COWLITZ - LEWIS RIVER BASINS
Watershed Snowpack Analysis - January 1, 1995

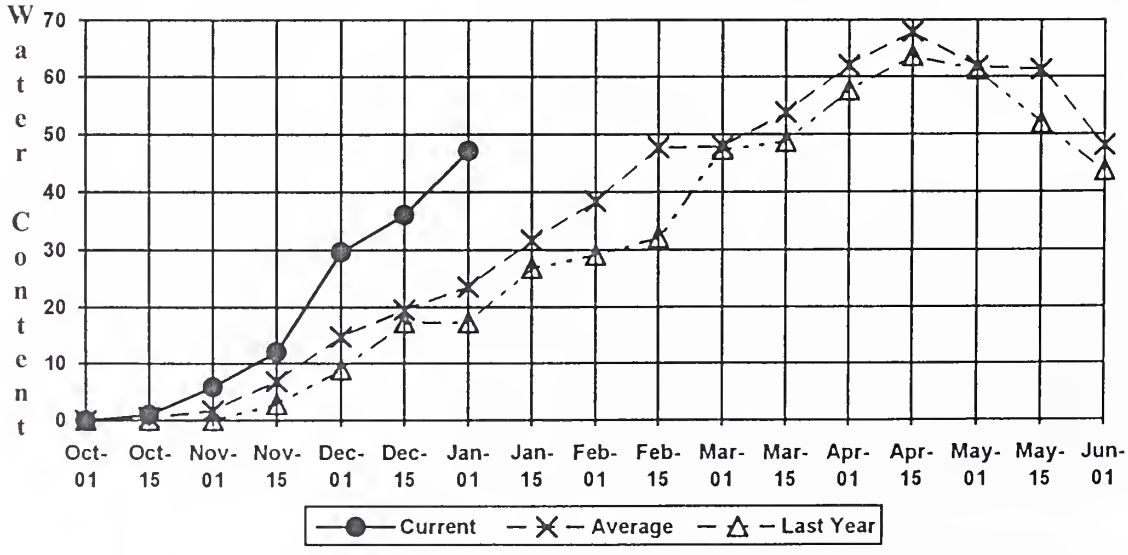
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Cowlitz River	6	239	170
Lewis River	4	207	198

* 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.

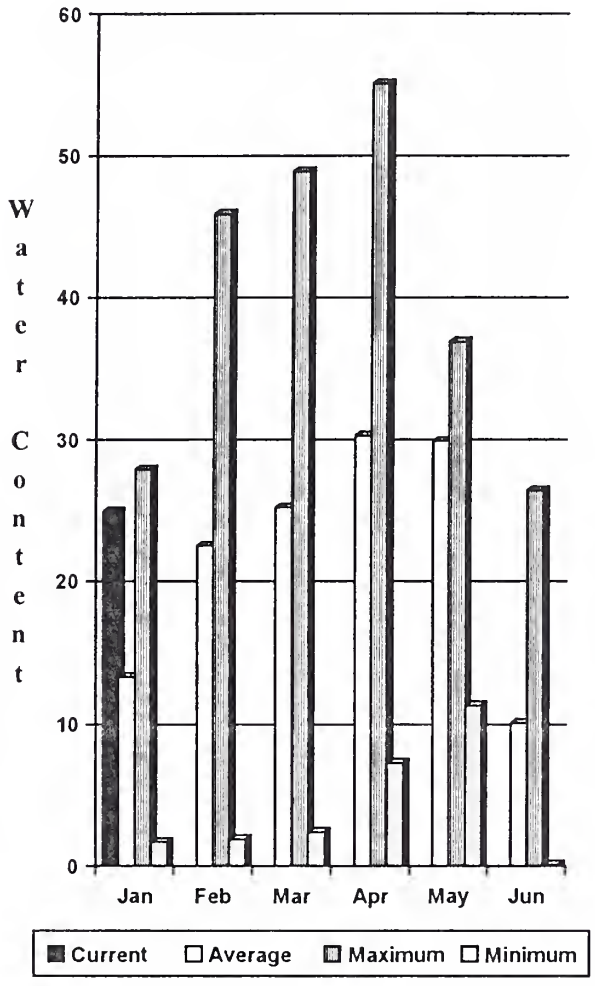
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Paridise SNOTEL
Elevation 5120 ft.

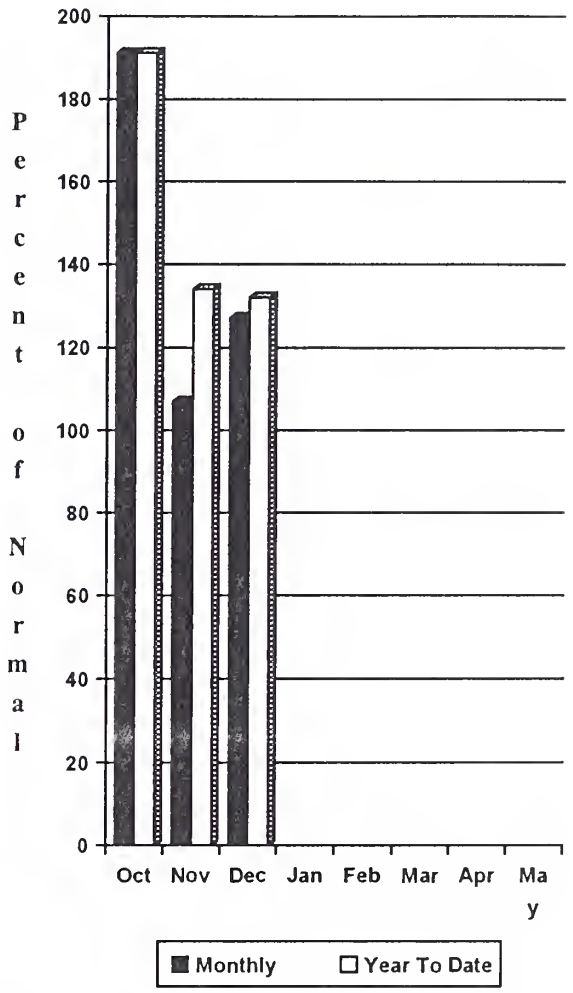


White - Green - Cedar River Basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

Summer runoff is forecasted to be 109% of normal for the Green River and 103% for the Cedar River near Cedar Falls, for the Rex River 114%, the South Fork of the Tolt River at 103% and for the Cedar River at Cedar Falls, 106%. January 1 snowpack was 193% of normal in the White River Basin and 180% in the Green River Basin. Water content on January 1 at the Stampede Pass SNOTEL, at an elevation of 3860 feet, was 34.4 inches. This site has a January 1 average of 16.7 inches. December precipitation was 127% of normal, bringing the water year-to-date to 132% of average. Temperatures were 1 degree above average for December.

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

WHITE - GREEN - CEDAR RIVER BASINS

Streamflow Forecasts - January 1, 1995

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	215	255	283	110	310	355	257
	APR-SEP	225	275	310	109	345	395	285
	APR-JUN	181	225	257	110	290	335	234
CEDAR RIVER near Cedar Falls	APR-JUL	51	68	80	103	91	108	77
	APR-SEP	56	75	88	103	100	119	85
	APR-JUN	48	61	70	102	79	92	68
REX RIVER near Cedar Falls	APR-JUL	20	27	31	115	36	42	27
	APR-SEP	22	29	34	114	39	47	30
	APR-JUN	20	25	29	115	33	38	25
CEDAR RIVER at Cedar Falls	APR-JUL	43	70	88	107	106	132	82
	APR-SEP	40	69	88	106	107	136	83
	APR-JUN	48	71	86	107	101	123	80
SOUTH FORK TOLT near Index	APR-JUL	12.1	14.3	15.8	104	17.3	19.5	15.2
	APR-SEP	14.0	16.6	18.3	103	20	23	17.8
	APR-JUN	9.9	11.8	13.1	100	14.4	16.3	13.1

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

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

WHITE - GREEN - CEDAR RIVER BASINS
Watershed Snowpack Analysis - January 1, 1995

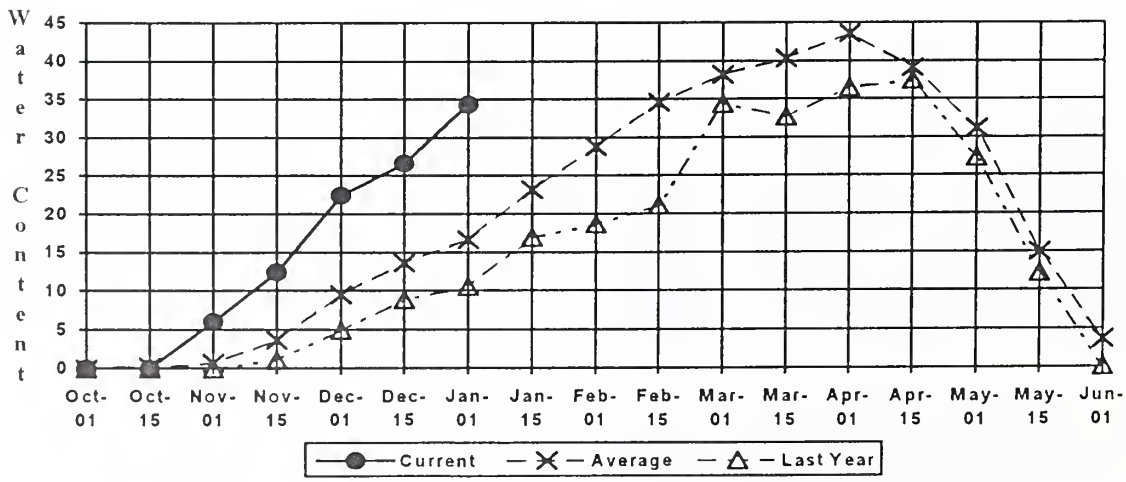
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
White River	2	243	193
Green River	7	334	180
Cedar River	0	0	0

* 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.

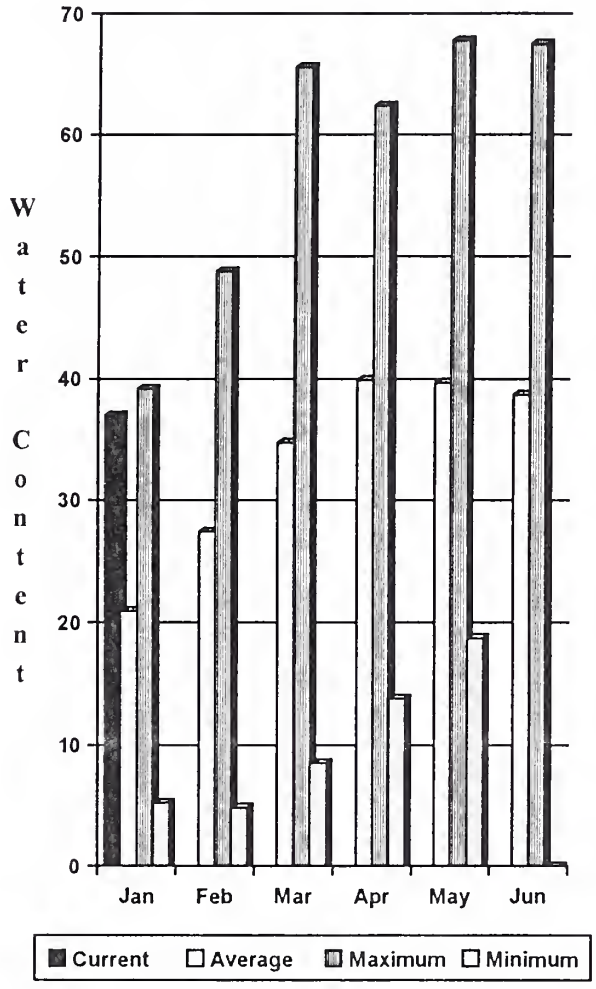
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Stampede Pass SNOTEL
Elevation 3860 ft.

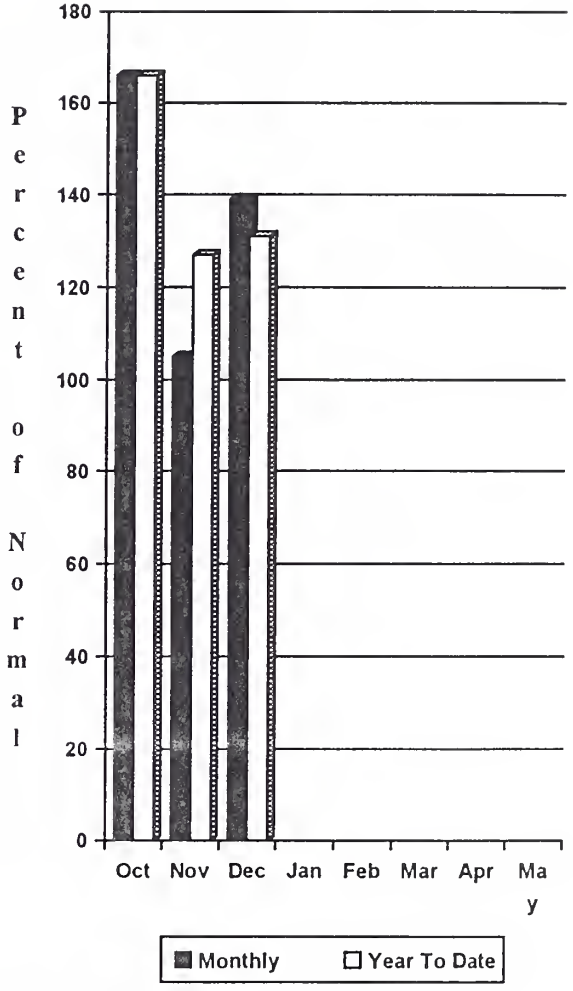


North Puget Sound River Basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

Forecast for the Skagit River streamflow is for 114% of normal for the spring and summer period. December streamflow in the Skagit River was 126% of average. Other forecast points include the Baker River at 107% and Thunder Creek at 110%. Precipitation for December was 139% of average with a water year to date at 131% of normal. January 1 snow cover in the Skagit River was 174%, the Baker River, 78% and the Snohomish River had 179% of average. Rainy Pass SNOTEL, at 4780 feet, had 32.2 inches of water content. Normal January 1 water content is 15.4 inches. January 1 reservoir storage showed Ross Lake at 132% normal and 74% of capacity. December temperatures were near normal.

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

NORTH PUGET SOUND RIVER BASINS

Streamflow Forecasts - January 1, 1995

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)
THUNDER CREEK near Newhalem	APR-JUL	230	245	259	113	270	290	230
	APR-SEP	320	345	361	110	380	400	328
	APR-JUN	148	166	178	119	190	210	149
SKAGIT RIVER at Newhalem (2)	APR-SEP	1910	2250	2490	114	2730	3070	2185
	APR-JUL	1640	1930	2125	116	2320	2610	1830
	APR-JUN	1260	1480	1635	116	1790	2010	1410
BAKER RIVER near Concrete	APR-JUL	720	820	888	106	955	1050	836
	APR-SEP	950	1060	1138	107	1210	1320	1064
	APR-JUN	505	585	636	104	690	765	611

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
ROSS	1404.1	1034.9	1052.2	783.9
DIABLO RESERVOIR	90.6	88.3	87.3	---
GORGE RESERVOIR	9.8	7.9	8.0	---

NORTH PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - January 1, 1995

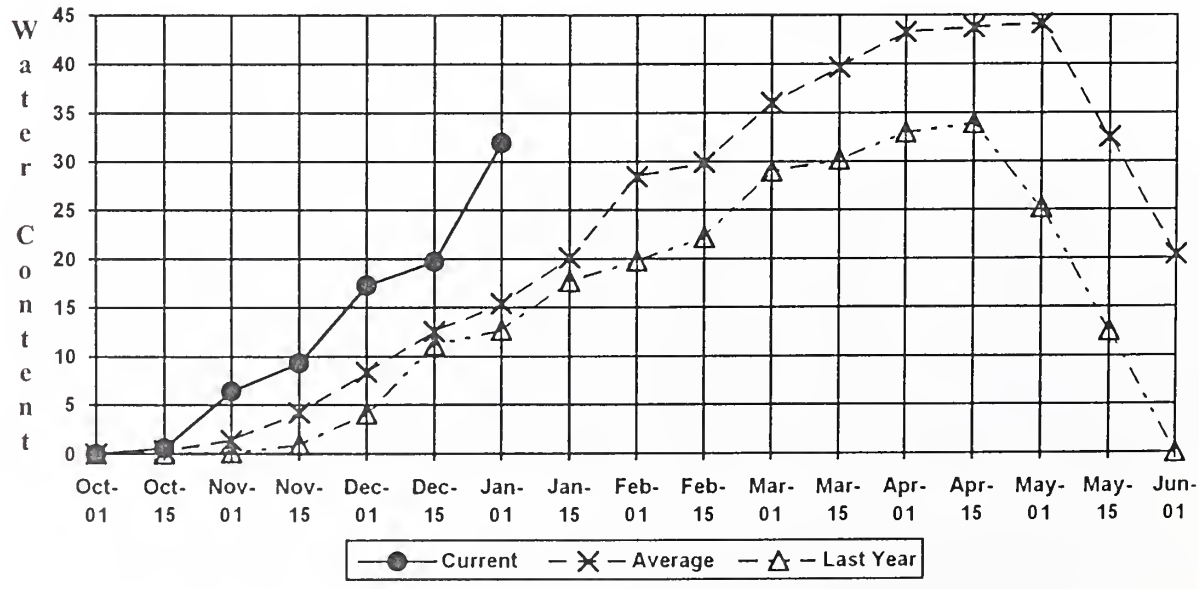
Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
Snohomish River	4	265	179
Skagit River	3	240	174
Baker River	9	242	178

* 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.

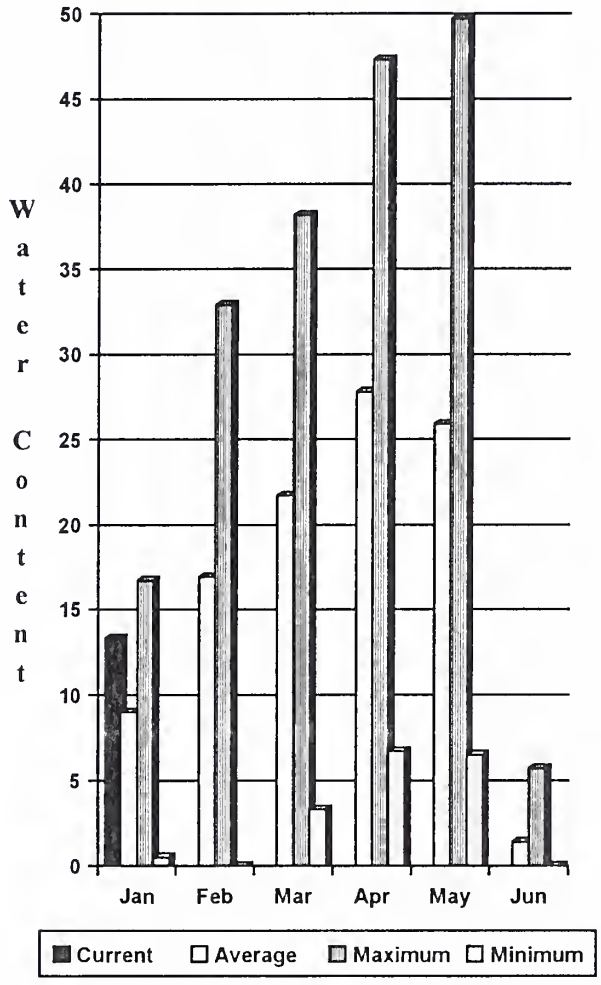
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Rainy Pass SNOTEL
Elevation 4780 ft.

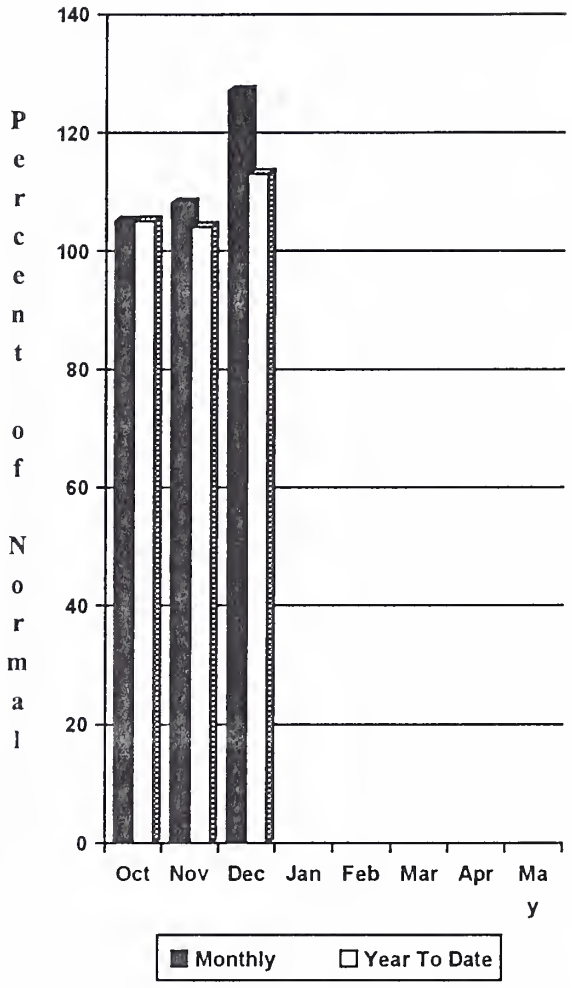


Olympic Peninsula River Basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

January forecasts of runoff for streamflow in the basin are for 94% of average for the Dungeness River and the Elwha River, 98%. The Big Quilcene can expect near normal runoff this summer. December precipitation was 127% of average. Precipitation has accumulated at 113% of normal for the water year. December precipitation at Quillayute was 20.0 inches. January 1 snow cover in the Olympic Basin was well above normal at 145%. The Mount Crag SNOTEL near Quilcene had 16.7 inches of snow water equivalent on January 1. Normal for this site is 11.3 inches. Temperatures were 1 degree above normal for December.

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

OLYMPIC PENINSULA RIVER BASINS
Streamflow Forecasts - January 1, 1995

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)
DUNGENESS RIVER nr Sequim	APR-SEP	118	137	150	94	163	182	160
	APR-JUL	97	113	123	94	133	149	131
	APR-JUN	73	84	92	94	100	111	98
ELWHA RIVER nr Port Angeles	APR-SEP	385	450	494	98	540	605	502
	APR-JUL	315	370	404	97	440	495	417

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

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

OLYMPIC PENINSULA RIVER BASINS
Watershed Snowpack Analysis - January 1, 1995

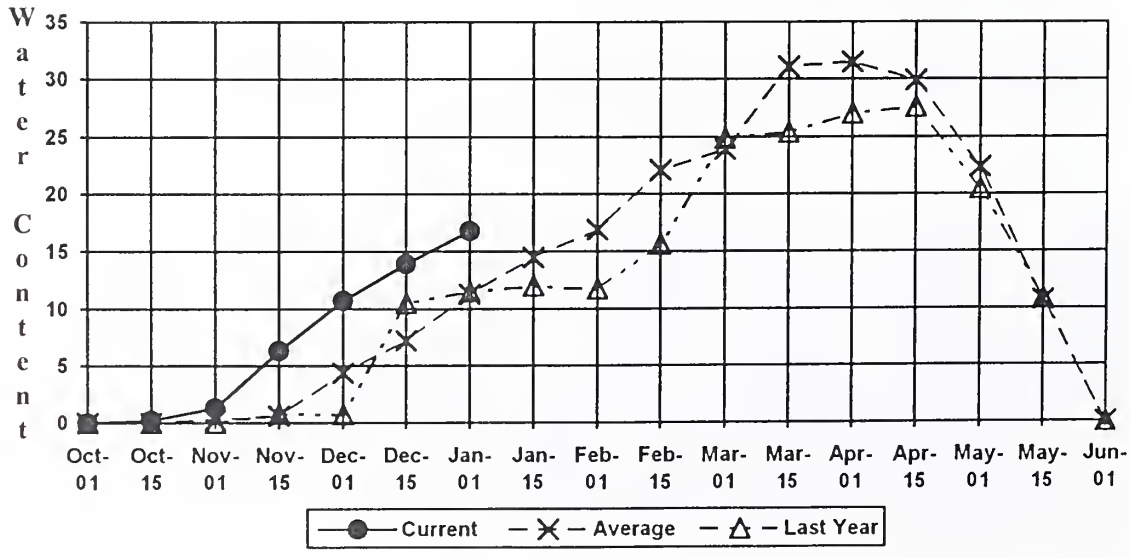
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Elwha River	0	0	0
Morse Creek	0	0	0
Dungeness River	0	0	0
Quilcene River	1	145	148
Wynoochee River	0	0	0

* 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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Washington Basin Outlook Report

Natural Resources Conservation Service
Spokane, WA