

Water Supply/Spring Flood Outlook
National Weather Service Seattle WA
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...Western Washington Water Supply and Spring Snowmelt Flood
Potential...

Summary: Late spring cool and wet weather has brought greater than normal precipitation over western Washington and snow to the mountains which has delayed the spring runoff of the snowpack. In response, the latest forecasts of water supply for the summer were much improved from last month with near to above normal expected for most western Washington rivers.

As the snowmelt season gets underway, there is little to no chance of snowmelt flooding in western Washington, as is typical. There remains a rare chance of river flooding during this time due to heavy rain.

PRECIPITATION SUMMARY

April saw near to above normal precipitation for nearly all regions in Washington state. The only region to see below normal precipitation for the month was the Northeast region in Eastern Washington. As for the Water Year, all of Western Washington and most of Eastern Washington are near to above normal. Only the Okanogan and Northeast regions in Eastern Washington are below normal.

For Western Washington, the monthly percentage of normal for precipitation ranged from 90 percent in the Northwest Interior to 152 percent in the Southwest Interior. The greatest amount of precipitation at the climate stations for the mountains, coast and interior lowlands was 14.04 inches at Forks in the Olympics, 10.52 at Quillayute, and 9.11 inches at Mayfield in the Southwest Interior.

The table below gives precipitation figures as a percent of normal for regions of Washington. The current water year began 1 October 2021 and ends 30 September 2022.

	April 2022	Water year to date	Past 3 months	Past 12 months
Western Washington				
Coast	132	119	93	116
Olympics	149	115	91	112
Northwest Interior	90	129	94	120
Puget Sound Lowlands	104	112	93	109
Southwest Interior	152	116	104	113
West Foothills Cascades	112	114	100	110
Cascades West	135	117	101	114

Snowpack Conditions

Late spring cool and wet weather has brought additional snow to the mountains and delayed spring runoff resulting in basin averaged snowpack above to well above normal for western Washington as of May 23rd. For basins west of the Cascades, the water content of the snowpack ranged from 132 to 239 percent of the median. Note that as it gets into late spring and summer, percent of median values can be

exaggerated as the median values get small and may not be representative. Individual basins and SNOTELs should be investigated for actual values.

As of May 1st, the snow depths at Northwest Avalanche Center were 97 percent to 145 percent of normal, up over last month that is the climatological peak of snowpack.

Streamflows Summary

Streamflows on western Washington rivers for last month were mostly near normal for rivers flowing off of the Cascades and Olympics. An area of exception was the central Washington Cascades that were below normal. Current 7-day average streamflows are near to above normal.

Reservoir Storage Summary

Storage for Reservoirs as of April 1 as a percentage of period of record median were below normal to near normal.
Ross Reservoir 94%
Upper Baker Reservoir 102%
Lake Shannon 79%
Howard Hanson Reservoir 106%

Weather Outlook

The outlook for May and beyond for Washington state has the monthly outlook for May as above normal precipitation, which looks to pan out. The three month outlook for June through August calls for greater chances for below normal precipitation for the state.

Water Supply Outlook

Long range hydrologic models were forecasting mostly near normal to above normal water supply for western Washington rivers for April through summer. Water supply forecasts for western Washington ranged from a low of 84% percent for the Samish River to 125 percent for the Calawah River. All forecast were higher than last month with some 10% to 30% higher in percent of normal. Note that much of the increased runoff will have taken place in April and May so that for some basins the dry summer months of June and especially July through September could be drier than normal. That being said, the situation is looking much better than it was last month.

Water supply forecasts that include regulation are used for locations where forecasts are listed below as regulated, for all other locations forecasts are for natural volumes. Here are the stream flow volume forecasts for specific rivers and sites as of May 22.

Note that the normal period has been updated from 1981-2010 to 1991-2020.

Water Supply Forecasts

Natural Flow Unless Otherwise Specified
(in thousands of acre feet)

River and Gauging Site	Period	Forecast	Normal (1991-2020)	Percent
Nooksack River at Ferndale	Apr-Sep	1196	1207	99
Skagit River near Concrete (regulated)	Apr-Sep	6113	5955	103
Samish River near Burlington	Apr-Sep	39	46	84
Baker River Upper Baker Reservoir Inflow	Apr-Sep	805	821	98
Sultan River Spada Lake Inflow	Apr-Sep	207	186	111
Pilchuck River near Snohomish	Apr-Sep	102	101	101
Tolt River South Fork Tolt Reservoir	Apr-Sep	44	46	96
Issaquah Creek near Issaquah	Apr-Sep	25	26	95
Cedar River Chester Morse Lake Inflow	Apr-Sep	159	135	118
Green River Howard Hanson Dam Inflow	Apr-Sep	281	265	106
Nisqually River Alder Reservoir Inflow	Apr-Sep	408	391	104
Deschutes River near Rainier	Apr-Sep	47	41	114
Cowlitz River Mayfield Reservoir (regulated)	Apr-Sep	2057	1864	110
Chehalis River near Grand Mound	Apr-Sep	499	408	122
Newaukum River near Chehalis	Apr-Sep	96	85	113
Calawah River near Forks	Apr-Sep	191	153	125
Elwha River McDonald Bridge	Apr-Sep	483	469	103
Dungeness River near Sequim	Apr-Sep	172	145	119
Wynoochee River Wynoochee Dam Inflow	Apr-Sep	92	99	93

NF Skokomish River
 Cushman Dam Inflow Apr-Sep 195 175 111

Spring and Summer Snowmelt and Flooding Climatology of Spring Floods:

Flooding in western Washington is unlikely during the period of mountain snowpack runoff, which peaks from April through June. This year is no exception with no snowmelt flooding expected.

Rivers west of the Cascades crest usually reach their highest peak flows during the winter season from the heavy rain from winter storms. The vast majority of river flooding in western Washington, and almost all major floods, occur between November and March. Heavy rainfall, rather than snowmelt, is the primary cause of these events.

The historical record does not show major flooding in western Washington during the period when the mountain snowpack runs off. The runoff from snowmelt, even during unusually hot weather, is small compared to the runoff during heavy winter rains. This is true regardless of the size of the mountain snowpack.

While flood-producing rainfall is not common after March, heavy, or even moderate rain in spring, while rivers are swollen with snowmelt runoff, occasionally will drive the most flood prone rivers above minor flood stage. Typically these are rivers such as the Skokomish and Snoqualmie Rivers. Heavy rain in summer, when Ross Lake is full, can also cause the Skagit River to flood. While these floods are minor compared to the winter events, they sometimes cause substantial damage to farm crops since the flood plains are often in use during the spring and summer.

Forecasts:

Here are the peak flow forecasts for May 22 through September 1 for some Washington rivers. Statistically, there is a 70 percent chance that the actual spring crest will exceed the lower value and a 30 percent chance of exceeding the higher value.

RIVER AND SITE	FLOOD STAGE	MOST LIKELY RANGE OF THE SPRING CREST
SKAGIT RIVER NEAR MT. VERNON	28.0 FT	20.4 FT TO 22.6 FT
STILLAGUAMISH RIVER AT ARLINGTON	14.0 FT	5.0 FT TO 6.1 FT
SNOQUALMIE RIVER NEAR SNOQUALMIE	20000 CFS	8880 CFS TO 12700 CFS
WHITE RIVER MUD MTN DAM INFLOW		3320 CFS TO 4290 CFS
COWLITZ RIVER NEAR RANDLE	18.0 FT	10.8 FT TO 12.7 FT
S.F. SKOKOMISH RIVER NEAR UNION		552 CFS TO 863 CFS
DUNGENESS RIVER NEAR SEQUIM	7.0 FT	5.0 FT TO 5.2 FT
ELWHA RIVER		

AT MCDONALD BRIDGE

20.0 FT

11.8 FT TO 12.2 FT

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Forecasts are selected from those prepared by the NWRFC.
For further details, graphics, and statistics regarding the water
supply forecasts visit:

<https://www.nwrfc.noaa.gov/ws>

<https://www.nwrfc.noaa.gov/natural>

For further details, graphics, and statistics regarding the peak
flow forecasts visit:

<https://www.nwrfc.noaa.gov/peak/>

The next water supply for western Washington will be issued the week
of June 13.

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