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

Summary: The latest forecasts of water supply for the summer were for a wide range of values - much below normal to above normal for western Washington rivers.

The snow melt season is virtually over with most SNOTEL sites reporting zero snow left.

#### PRECIPITATION SUMMARY

Although June brought below normal precipitation once again to much of Washington state, a few regions in Western Washington did see above normal precipitation for the month. As for the Water Year, not much change was observed. Most of Western Washington is still near normal while only the Olympics and Southwest Interior areas were below normal. For Eastern Washington, nearly all regions were still below normal except for the eastern slopes of the Cascades which was near normal.

For Western Washington, the monthly percentage of normal for precipitation ranged from 44 percent in the Northwest Interior to 128 percent in the Puget Sound Lowlands. The greatest amount of precipitation at the climate stations for the mountains, coast and interior lowlands was 4.21 inches at Paradise on the western slopes of the Cascades, 3.18 at Aberdeen, and 3.49 inches at Elma 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 2020 and ends 30 September 2021.

	June 2020	Water year to date	Past 3 months	Past 12 months
Western Washington				
Coast	113	98	52	100
Olympics	87	87	52	90
Northwest Interior	44	94	39	93
Puget Sound Lowlands	128	97	62	99
Southwest Interior	114	88	58	89
West Foothills Cascades	72	95	62	96
Cascades West	85	98	59	98

#### Snowpack Conditions

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The snowpack has virtually all melted out. An historical heat wave at the end of June resulted in a huge melt off that removed much of the snowpack. The only SNOTEL still reporting snow is Paradise with 16.3 in. of snow water left and at 177% of normal.

#### Streamflows Summary

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Streamflows on western Washington rivers for last month were mostly near normal for rivers flowing off of the Cascades and most rivers flowing off of the north and the Olympics. But many rivers without a snowpack feed were much below normal due to the dry spring months so far. The large melt off at the end of June push streams well above normal for a week or two.

#### Reservoir Storage Summary

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Specific data was not available but reservoirs are mostly full and near to above normal.

#### Weather Outlook

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The outlook for July and beyond for Washington state, for the next two weeks the outlook is for below normal precipitation. The monthly outlook for July, and the three month outlook for July through September both call for below normal precipitation for the state.

#### Water Supply Outlook

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Long range hydrologic models are forecasting sort of a bimodal set of river flows and water supply for western Washington rivers through summer, where they are mainly either much below normal or near to above normal. The change in forecasts from last month was mixed, with most changes minor, but there were a few large drops and a couple of rises. The Cedar and Dungeness Rivers dropped in percent of normal by 12%, the Nooksack by 9%, and Sultan River and Issaquah Creek by 8%. The South Fork Tolt and Wynoochee Rivers were up by 6%.

Water supply forecasts for Western Washington ranged from a low of 43 percent for the Newaukum River to 124 percent for the Tolt River. The lowest and much below normal forecast volumes were for those basins which are low elevation that don't benefit from a snowpack to draw from, and the worst of those are on the coast and the south and west part of the state. The dry spring and early summer has caused rain-dominated and low elevation river basins to have abnormally low water supply conditions for those areas. The basins with annual snowpack, and especially those with high elevation snowpack, were the basins with forecasts of normal to above normal water supply volumes and have not been as affected by the dry spring, though they have seen lower forecasts recently.

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 July 7. These values are not likely to change appreciably through the rest of the summer.

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

River and Gauging Site	Period	Forecast	Normal (1981-2010)	Percent
Nooksack River at North Cedarville	Apr-Sep	976	1159	84
Skagit River near Concrete (regulated)	Apr-Sep	6182	5934	104
Samish River near Burlington	Apr-Sep	22	43	51
Baker River Upper Baker Reservoir Inflow	Apr-Sep	812	806	101
Sultan River Spada Lake Inflow	Apr-Sep	196	189	104
Pilchuck River near Snohomish	Apr-Sep	69	96	72
Tolt River Tolt Reservoir	Apr-Sep	57	46	124
Issaquah Creek near Issaquah	Apr-Sep	17	25	68
Cedar River Chester Morse Lake Inflow	Apr-Sep	142	152	93
Green River Howard Hanson Dam Inflow	Apr-Sep	248	260	95
Nisqually River Alder Reservoir Inflow	Apr-Sep	346	378	92
Deschutes River near Rainier	Apr-Sep	20	41	50
Cowlitz River Mayfield Reservoir (regulated)	Apr-Sep	1609	1835	88
Chehalis River near Grand Mound	Apr-Sep	184	390	47
Newaukum River near Chehalis	Apr-Sep	34	80	43
Calawah River near Forks	Apr-Sep	71	158	45
Elwha River McDonald Bridge	Apr-Sep	498	472	106
Dungeness River near Sequim	Apr-Sep	139	145	96
Wynoochee River Wynoochee Dam Inflow	Apr-Sep	75	98	77
NF Skokomish River Cushman Dam Inflow	Apr-Sep	165	191	86

Spring and Summer Snow Melt and Flooding Climatology of Spring

## Floods:

After an epic, historic, heat wave at the end of June into July, the snowpack, even in the deepest areas, was largely melted out and streams reached their snowmelt peaks. While no main rivers came close to flooding, some did exceed the forecasted most likely range. In the headwaters up in the mountains, washouts of trails did occur. A number of rivers, mainly off of volcanoes, exceeded or were near daily record flows, including the Nooksack, Skagit, Sauk, Nisqually, Carbon, and Puyallup Rivers.

Below is a table of a few snowmelt peaks and the dates that they occurred.

## Observed Snowmelt Peaks:

RIVER AND SITE	FLOOD STAGE	SPRING CREST	DATE
SKAGIT RIVER NEAR MT. VERNON	28.0 FT	23.69 FT	6/29
STILLAGUAMISH RIVER AT ARLINGTON	14.0 FT	7.19 FT	5/28
SNOQUALMIE RIVER NEAR SNOQUALMIE	20000 CFS	8030 CFS	6/3
WHITE RIVER MUD MTN DAM INFLOW		4680 CFS	6/3
COWLITZ RIVER NEAR RANDLE	18.0 FT	12.35 FT	6/3

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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/>

Unless there is a significant change, this is the last water supply outlook until next year, 2022. Current forecasts are always available at the above links to NWRFC.

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