

**Natural Resources Conservation Service** 



## **Washington Water Supply Outlook Report**

May 1, 2024



Freshly fallen snow from a late-month storm nearly covers a road leading up to the Deer Park snow course in Olympic National Park. Snowpack in the Olympic Peninsula is well-below normal as of May 1.

Photo taken by Bill Baccus, Olympic National Park (May 1, 2024)

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# **Conditions Overview**

### Summary

April was a fairly dry month for much of the state, except the Central Puget Sound Basin where month-todate precipitation was near normal. April precipitation was notably low east of the Cascade crest and in the Olympic Basin. The snowpack picture remains little changed since April 1, with snow drought pervasive for much of Washington except near Mt. St. Helens. Snowpack at some SNOTEL stations in the North Cascades has remained fairly stable, with a delay to the onset of snowmelt slightly increasing snowpack as a percent of normal at stations like Wells Creek, Harts Pass, and Easy Pass. In contrast, snowpack at some SNOTEL stations have melted out earlier than normal—Lost Horse in the Yakima Basin (10 days), Sentinel Butte in Kettle Basin (nearly 2 weeks), and Blewett Pass in Wenatchee Basin (nearly 1 week).

With a generally poor summer water supply outlook for large portions of the state, water resource managers should prepare for potential water shortages and drought development in several basins this summer.

\*Note that basin conditions outlined in this report include data from stations within the SNOTEL and SNOLITE network, and/or cooperator weather stations.



Dan Fries, NRCS Hydrologic Technician, scouts for a new SNOTEL location in the Upper Columbia basin. Snowpack in the Upper Columbia basin is 61% of median as of May 1st. Photo taken by Allen Buckman, NRCS Hydrologist (April 10, 2024)

### Snowpack

As of May 1, statewide snowpack is 71% of normal, with pervasive snowpack deficits persisting for most basins. The onset to snowmelt statewide began in earnest on April 10, with some late season snow accumulation at the end of April. Several SNOTEL stations in the North Cascades are experiencing a slower melt-out, which may help sustain relatively higher flows later into spring and early summer if that persists. However, less snowmelt-derived runoff should still be expected since the seasonal peak for snowpack was below to well-below normal. The only part of the state with consistently good snowpack this water year has been near Mt. St. Helens and a couple stations north of Mt. Adams. Otherwise, several stations recorded a peak snowpack that was in the <u>lowest top 5</u> in their period of record.



Basin snowpack (% of median) as of May 1

### Precipitation

Precipitation in April varied across the state. The western Cascades was generally wetter than east of the Cascade crest and Olympic Peninsula, with April precipitation ranging from mostly moderately below normal to slightly above normal. Most stations in the Central Puget Sound Basin recorded monthly precipitation that was near normal. Elsewhere on the Olympic Peninsula and east of the crest, monthly precipitation was mostly below to well-below normal. Water year-to-date (WYTD) precipitation varies along mostly a south-north gradient in the Cascades, with more near normal conditions south of Rainier and generally below normal conditions to the north. In northeastern Washington, Upper Columbia Basin, and Olympic Peninsula, WYTD precipitation varies from below to near normal. A few SNOTEL stations are recording their <u>lowest or second lowest</u> WYTD precipitation on record, including MF Nooksack near Mt. Baker, Park Creek Ridge northwest of Lake Chelan, and Lost Horse in the Lower Yakima Basin.



Basin monthly precipitation (% of median) as of May 1



Basin water-year precipitation (% of median) as of May 1

### Reservoirs

Volumetric storage at reservoirs varies across WA. Storage in Keechelus, Little Kachess and Cle Elum Lakes is below normal ranging from 55%-58% of normal. Elsewhere, volumetric storage ranges from below to near normal.

Reservoir storage values aren't necessarily reflective of water supply conditions. Reservoir operators control for a variety of factors when choosing to store or release water, including flooding, irrigation, fisheries, and other water needs. These management needs may impact storage values for a reservoir.



Reservoir storage (% of median) as of May 1

### **Streamflow and Forecasts**

Volumetric streamflow for April in Washington varies, with generally below normal flows in the western Cascades, Olympic Peninsula, and eastern Washington. Along the eastern Cascades, streamflows range from below to above normal.

Since April 1, water supply forecasts (WSF) have degraded slightly in the central Cascades and remain mostly below normal across the state as of May 1. Very few forecasts, all located in southern Washington call for near normal streamflows.

Predictive skill for WSFs remains similar to April-1 skill as the normal timing for peak snow accumulation has passed and the onset to snowmelt is underway. However, in basins that are rain-dominated (ex., much of the Green and Cedar Basins), skill may still be sufficiently low, meaning current conditions are a poor predictor of summer water supply. In this case, the 50%-exceedance value typically has a greater tendency toward the climatological normal, which may or may not be more reflective of May-1 conditions. Forecast product-users should bear this and any model uncertainty (quantitatively captured by exceedance intervals) in mind when interpreting WSFs for decision making.

#### View the map for April observed streamflow <u>here</u>.



Streamflow forecasts (% of normal) for the primary period as of May 1

### Drought

On April 16, 2024, the state of Washington declared a <u>statewide drought</u> emergency due to low snowpack and below normal water supply outlook for much of the state.

As of April 30, nearly 15% of Washington is in moderate drought (D1). Drought is primarily distributed along the northern Cascade crest and eastern Cascades down into parts of the Yakima and South Puget Sound basins. There are additional designations in Pend Oreille, Clallam, and Jefferson counties. Abnormally dry conditions (D0) span much of the Washington Cascades, Olympic Peninsula, and parts of eastern Washington.

At the beginning of the water year, 75% of the state was in some drought category (D1-D4), with 10% of the state in severe to extreme drought.



### Soils

The NASA SPoRT-LiS product for soil moisture (0-100 cm depth) indicates some drier soil moisture conditions predominantly in parts of the Walla Walla and Yakima basins.

Soil moisture conditions are useful in assessing current drought and future drought potential. In addition, soil moisture is generally a good indicator in some regions of the potential efficiency of snowmelt runoff into streamflow in the spring. Drier soils tend to absorb more water from snowmelt than wetter soils, thus less melt is translated into streamflow (i.e. low efficiency).



### 1-Month Outlook

The Climate Prediction Center 1-month climatic outlook calls for equal chances of above and below normal temperatures and precipitation.



https://www.cpc.ncep.noaa.gov/

## **North Puget Sound Basin Summary**

### SNOWPACK



View snowpack for individual sites by accessing the basin data report <u>here</u>.

As of May 1, the basin snowpack is 61% of median. This is slightly higher than April 1 when the basin snowpack was 56% of median.

### PRECIPITATION



View precipitation for individual sites by accessing the basin data report <u>here</u>.

April precipitation is below normal at 73% of median. Precipitation since the beginning of the water year (October 1 - May 1) is 80% of median.

As of May 1, volumetric storage at Ross Reservoir is above normal at 123% of median. Storage at Upper Baker Reservoir slightly above normal at 106% of median, and storage at Lake Shannon is below normal at 75% of median.

	North Bugot Sound	Current	Last Year	Median	Capacity	Current %	Last Year %	Median %	Current %	Last Year %
	North Puget Sound	(KAF)	(KAF)	(KAF)	(KAF)	Capacity	Capacity	Capacity	Median	Median
Upper Baker		153.1	131.4	144.6					106%	91%
Ross		875.5	511.7	711.5	1434.7	61%	36%	50%	123%	72%
Lake Shannon		62.3	42.5	83.2					75%	51%
	Basin I	ndex				61%	36%	50%	116%	73%
	# of reser	voirs				1	1	1	3	3

### STREAMFLOW FORECAST

The May through September streamflow forecasts in the basin are below normal and range from 60% to 89% of median.



## **Central Puget Sound Basin Summary**

### **SNOWPACK**



View snowpack for individual sites by accessing the basin data report <u>here</u>.

As of May 1, the basin snowpack is 64% of median. This is slightly higher than April 1 when the basin snowpack was 60% of median.

#### PRECIPITATION



► View precipitation for individual sites by accessing the basin data report <u>here</u>.

April precipitation is near normal at 98% of median. Precipitation since the beginning of the water year (October 1 - May 1) is 79% of median.

### **STREAMFLOW FORECAST**

The May through September streamflow forecasts in the basin are below normal and range from 80% to 88% of median.



## **South Puget Sound Basin Summary**

### **SNOWPACK**



► View snowpack for individual sites by accessing the basin data report <u>here</u>.

As of May 1, the basin snowpack is 63% of median. This is slightly lower than April 1 when the basin snowpack was 65% of median.



### PRECIPITATION

► View precipitation for individual sites by accessing the basin data report <u>here</u>.

April precipitation is below normal at 85% of median. Precipitation since the beginning of the water year (October 1 - May 1) is 80% of median.

As of May 1, volumetric storage at Howard Hansen Reservoir is above normal at 125% of median.

South Puget Sound	Current (KAF)	Last Year (KAF)	Median (KAF)	Capacity (KAF)	Current % Capacity	Last Year % Capacity	Median % Capacity	Current % Median	Last Year % Median
Howard Hansen	39.0	35.5	31.1	106.0	37%	34%	29%	125%	114%
Basin I	ndex				37%	34%	29%	125%	114%
# of reser	voirs				1	1	1	1	1

### STREAMFLOW FORECAST

The May through September streamflow forecast for *Green River below Howard A Hanson Dam* is below normal at 73% of median. *White River below Clearwater River near Buckley*, a newly established forecast point for water-year 2024, has a 50% exceedance value of 355 kilo-acre-feet.

To view data in tabular format, other forecast periods, and the forecast for White R bl Clearwater R nr Buckley, please view the basin data reports <u>here</u>.



# **Olympic Basin Summary**

### SNOWPACK



► View snowpack for individual sites by accessing the basin data report <u>here</u>.

As of May 1, the basin snowpack is 53% of median. This is slightly lower than April 1 when the basin snowpack was 55% of median.

### PRECIPITATION



View precipitation for individual sites by accessing the basin data report <u>here</u>.

Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct

April precipitation is below normal at 42% of median. Precipitation since the beginning of the water year (October 1 - May 1) is 83% of median.

### STREAMFLOW FORECAST

The May through September streamflow forecast for Elwha at Mcdonald Bridge is below normal at 72% of median. The May through September streamflow forecast for Dungeness R nr Sequim is also below normal at 74% of median.



## **Upper Columbia Basin Summary**

### **SNOWPACK**



View snowpack for individual sites by accessing the basin data report <u>here</u>.

As of May 1, the basin snowpack is 64% of median. This is slightly lower than April 1 when the basin snowpack was 63% of median.

#### PRECIPITATION



View precipitation for individual sites by accessing the basin data report <u>here</u>.

April precipitation is below normal at 66% of median. Precipitation since the beginning of the water year (October 1 - May 1) is 82% of median.

As of May 1, storage at Conconully Reservoir is slightly above normal at 105% of median. Volumetric storage at Conconully Lake (Salmon Lake Dam) is below normal at 78% of median.

Urner Celumbie	Current	Last Year	Median	Capacity	Current %	Last Year %	Median %	Current %	Last Year %
Opper Columbia	(KAF)	(KAF)	(KAF)	(KAF)	Capacity	Capacity	Capacity	Median	Median
Conconully Lake (Salmon Lake Dam)	7.1	7.0	9.0	10.5	67%	66%	86%	78%	77%
Conconully Reservoir	11.3	6.0	10.8	13.0	87%	46%	83%	105%	56%
	Basin Index				78%	55%	84%	93%	66%
	# of reservoirs				2	2	2	2	2

### STREAMFLOW FORECAST

The May through September streamflow forecasts in the basin are below normal and range from 67% to 85% of median.



## **Central Columbia Basin Summary**

### **SNOWPACK**



► View snowpack for individual sites by accessing the basin data report <u>here</u>.

As of May 1, the basin snowpack is 53% of median. This is lower than April 1 when the basin snowpack was 66% of median.

### PRECIPITATION



► View precipitation for individual sites by accessing the basin data report <u>here</u>.

April precipitation is below normal at 58% of median. Precipitation since the beginning of the water year (October 1 - May 1) is 80% of median.

As of May 1, volumetric storage at Lake Chelan is above normal at 128% of median.

	Central Columbia	Current (KAF)	Last Year (KAF)	Median (KAF)	Capacity (KAF)	Current % Capacity	Last Year % Capacity	Median % Capacity	Current % Median	Last Year % Median
Lake Chelan		373.9	257.8	291.7	676.1	55%	38%	43%	128%	88%
	Basin Index	L .				55%	38%	43%	128%	88%
	# of reservoirs					1	1	1	1	1

### STREAMFLOW FORECAST

The May through September streamflow forecasts in the basin are below normal and range from 61% to 77% of median.

For data in tabular format and to view other forecasting periods, please view the basin data reports here.



**Snow Survey and Water Supply Forecasting Program** 

## **Lower Columbia Basin Summary**

### SNOWPACK



► View snowpack for individual sites by accessing the basin data report <u>here</u>.

As of May 1, the basin snowpack is 87% of median. On April 1, the basin snowpack was also 87% of median.



### PRECIPITATION

View precipitation for individual sites by accessing the basin data report <u>here</u>.

April precipitation is below normal at 78% of median. Precipitation since the beginning of the water year (October 1 - May 1) is 106% of median.

As of May 1, storage at Mossyrock Dam (Riffe Lake) is below normal at 90% of median. Volumetric storage at Mayfield Lake is slightly above normal at 101% of median.

Lower Columbia	Current	Last Year	Median	Capacity	Current %	Last Year %	Median %	Current %	Last Year %
Lower Columbia	(KAF)	(KAF)	(KAF)	(KAF)	Capacity	Capacity	Capacity	Median	Median
Mossyrock Dam (Riffe Lk)	873.7	499.8	969.0	1298.0	67%	39%	75%	90%	52%
Mayfield	129.3	123.7	128.2	133.7	97%	93%	96%	101%	96%
Basin In	dex				70%	44%	77%	91%	57%
# of reserv	oirs				2	2	2	2	2

#### **STREAMFLOW FORECAST**

The May through September streamflow forecasts in the basin are below to slightly above normal and range from 85% to 105% of median.



## **Upper Yakima Basin Summary**



► View snowpack for individual sites by accessing the basin data report <u>here</u>.

As of May 1, the basin snowpack is 63% of median. This is slightly higher than April 1 when the basin snowpack was 74% of median.



 View precipitation for individual sites by accessing the basin data report <u>here</u>.

April precipitation is below normal at 72% of median. Precipitation since the beginning of the water year (October 1 - May 1) is 79% of median.

As of May 1, storage at Keechelus Reservoir is below normal at 55% of median. Volumetric storage at Cle Elum Reservoir is 68% of median, and 67% of median at Kachess Reservoir.

	Unner Vakime	Current	Last Year	Median	Capacity	Current %	Last Year %	Median %	Current %	Last Year %
		(KAF)	(KAF)	(KAF)	(KAF)	Capacity	Capacity	Capacity	Median	Median
Kachess		105.8	157.4	194.0	239.0	44%	66%	81%	55%	81%
Cle Elum		218.3	219.1	321.4	436.9	50%	50%	74%	68%	68%
Keechelus		83.3	73.0	123.7	157.8	53%	46%	78%	67%	59%
		Basin Index				49%	54%	77%	64%	70%
	#	# of reservoirs				3	3	3	3	3

#### **STREAMFLOW FORECAST**

The May through September streamflow forecasts in the basin are below normal and range from 56% to 73% of median.



## Lower Yakima Basin Summary

### **SNOWPACK**



► View snowpack for individual sites by accessing the basin data report <u>here</u>.

As of May 1, the basin snowpack is 45% of median. This is lower than April 1 when the basin snowpack was 60% of median.

#### PRECIPITATION



► View precipitation for individual sites by accessing the basin data report <u>here</u>.

April precipitation is below normal at 33% of median. Precipitation since the beginning of the water year (October 1 - May 1) is 76% of median.

### STREAMFLOW FORECAST

The May through September streamflow forecast for Ahtanum Ck at Union Gap is below normal at 80% of median. The May through September streamflow forecast for Yakima R nr Parker is also below normal at 72% of median.



## **Naches Basin Summary**

### SNOWPACK



As of May 1, the basin snowpack is 68% of median. This is higher than April 1 when the basin snowpack was 75% of median.

#### PRECIPITATION



View precipitation for individual sites by accessing the basin data report <u>here</u>.

April precipitation is below normal at 68% of median. Precipitation since the beginning of the water year (October 1 - May 1) is 81% of median.

As of May 1, storage at Bumping Lake is above normal at 127% of median. Volumetric storage at Rimrock Lake is below normal at 87% of median.

Nacha	c Currer	t Last Year	Median	Capacity	Current %	Last Year %	Median %	Current %	Last Year %
Nache	(KAF)	(KAF)	(KAF)	(KAF)	Capacity	Capacity	Capacity	Median	Median
Rimrock	144.	3 142.5	166.0	198.0	73%	72%	84%	87%	86%
Bumping Lake	28.	0 17.7	22.0	33.7	83%	52%	65%	127%	80%
	Basin Index				74%	69%	81%	92%	85%
	# of reservoirs				2	2	2	2	2

### **STREAMFLOW FORECAST**

The May through September streamflow forecasts in the basin are below normal and range from 80% to 84% of median.



# **Klickitat Basin Summary**

### SNOWPACK



View snowpack for individual sites by accessing the basin data report <u>here</u>.

As of May 1, the basin snowpack is 67% of median. This is slightly higher than April 1 when the basin snowpack was 76% of median.

#### PRECIPITATION



View precipitation for individual sites by accessing the basin data report <u>here</u>.

April precipitation is below normal at 42% of median. Precipitation since the beginning of the water year (October 1 - May 1) is 83% of median.

### STREAMFLOW FORECAST

The April through September streamflow forecast for Klickitat R nr Glenwood is slightly below normal at 93% of median. The April through September streamflow forecast for Klickitat R nr Pitt is also slightly below normal at 95% of median.



## **Lower Pend Oreille Basin Summary**

### **SNOWPACK**



View snowpack for individual sites by accessing the basin data report <u>here</u>.

As of May 1, the basin snowpack is 69% of median. This is slightly lower than April 1 when the basin snowpack was 71% of median.



► View precipitation for individual sites by accessing the basin data report <u>here</u>.

April precipitation is below normal at 59% of median. Precipitation since the beginning of the water year (October 1 - May 1) is 89% of median.

As of May 1, storage at Priest Lake is below normal at 92% of median. Volumetric storage at Lake Pend Oreille is slightly below normal at 96% of median.

Lower Pend Oreille	Current	Last Year	Median	Capacity	Current %	Last Year %	Median %	Current %	Last Year %
	(KAF)	(KAF)	(KAF)	(KAF)	Capacity	Capacity	Capacity	Median	Median
Priest Lake	91.4	88.6	99.2	119.3	77%	74%	83%	92%	89%
Lake Pend Oreille	892.3	878.8	925.0	1561.3	57%	56%	59%	96%	95%
Basin Ir	ndex				59%	58%	61%	96%	94%
# of reserv	voirs				2	2	2	2	2

### **STREAMFLOW FORECAST**

The May through September streamflow forecasts in the basin are below normal and range from 66% to 84% of median.



## **Spokane Basin Summary**



► View snowpack for individual sites by accessing the basin data report <u>here</u>.

As of May 1, the basin snowpack is 64% of median. This is slightly lower than April 1 when the basin snowpack was 69% of median.





View precipitation for individual sites by accessing the basin data report <u>here</u>.

April precipitation is below normal at 69% of median. Precipitation since the beginning of the water year (October 1 - May 1) is 81% of median.

As of May 1, volumetric storage at Lake Coeur d' Alene is below normal at 83% of median.

	Spokane	Current (KAF)	Last Year (KAF)	Median (KAF)	Capacity (KAF)	Current % Capacity	Last Year % Capacity	Median % Capacity	Current % Median	Last Year % Median
Lake Coeur d' Alene		173.6	176.2	210.3	238.5	73%	74%	88%	83%	84%
	Basin Index					73%	74%	88%	83%	84%
	# of reservoirs					1	1	1	1	1

### STREAMFLOW FORECAST

The streamflow forecasts for the primary period in the basin are below normal and range from 58% to 88% of median.



## Lower Snake-Walla Walla Basin Summary

#### **SNOWPACK**



View snowpack for individual sites by accessing the basin data report <u>here</u>.

As of May 1, the basin snowpack is 76% of median. This is lower than April 1 when the basin snowpack was 85% of median.

#### PRECIPITATION



View precipitation for individual sites by accessing the basin data report <u>here</u>.

April precipitation is below normal at 74% of median. Precipitation since the beginning of the water year (October 1 - May 1) is 91% of median.

As of May 1, volumetric storage at Wallowa Lake is below normal at 82% of median.

Lower Snake-Walla Walla	Current (KAF)	Last Year (KAF)	Median (KAF)	Capacity (KAF)	Current % Capacity	Last Year % Capacity	Median % Capacity	Current % Median	Last Year % Median
Wallowa Lake	17.3	17.1	21.0	37.5	46%	46%	56%	82%	82%
Basin Index					46%	46%	56%	82%	82%
# of reservoirs					1	1	1	1	1

### STREAMFLOW FORECAST

The streamflow forecasts for the primary period in the basin are below normal and range from 62% to 91% of median.

To view data in tabular format, other forecast periods, and the forecast for Asotin Ck at Asotin, please view the basin data reports <u>here</u>.



#### **Additional Links**

Development and Interpretation of Water Supply Forecasts User Guide to Forecast Charts

For more water supply and resource management information, contact:

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