

Teton River Water Supply Forecast

May 1, 2024

Snowpack Conditions

Click figures to link to plots

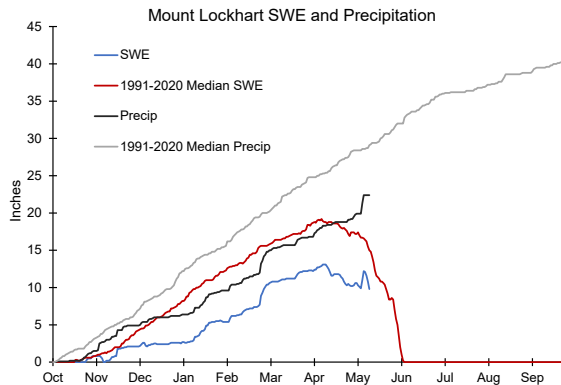


Figure 1: Mt. Lockhart (Elev. at 6400 ft) SWE and precipitation.

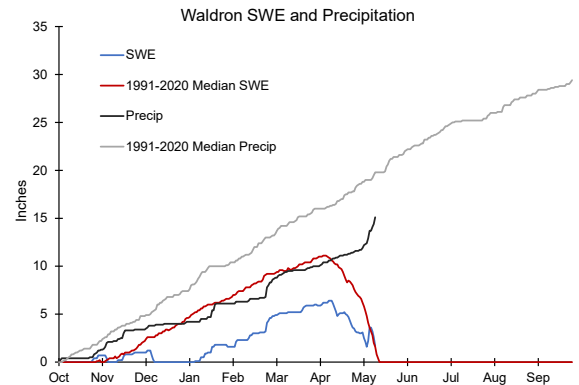


Figure 2: Waldron (Elev. at 5600 ft) SWE and precipitation.

– Snowpack conditions (Snow Water Equivalent or SWE) at the Natural Resource Conservation Service (NRCS) [Mt. Lockhart and Waldron SNOTEL](#) sites are **trending significantly below normal and normal** as of May 1. **Mt. Lockhart is at 65% of the median** (Figure 1) and **Waldron is at 106% of the median** after significant snowfall the first week of May (Figure 2). The recent storm has improved the low elevation conditions seen at Waldron but overall, water supply is likely to be quite low this year.

Streamflow Conditions

– The United States Geological Survey (USGS) gage [06102500 Teton River Below South Fork near Choteau \(TRSF\)](#) has increased very recently signaling the start of snowmelt runoff. As of the most recent reading, the flows are near normal for this time of year but were below average for approximately the last 30-days (Figure 3).

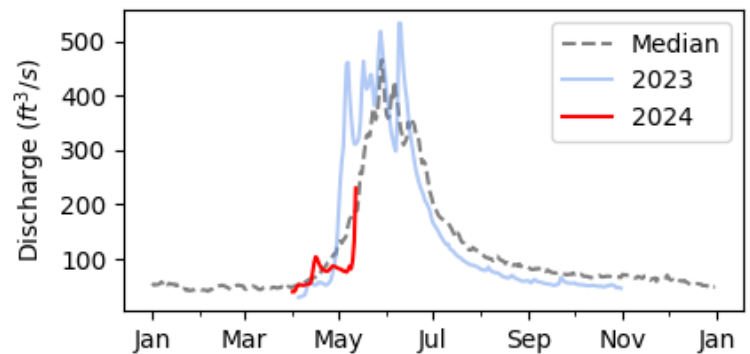


Figure 3. Graph comparing historical flow trends to this and last year.

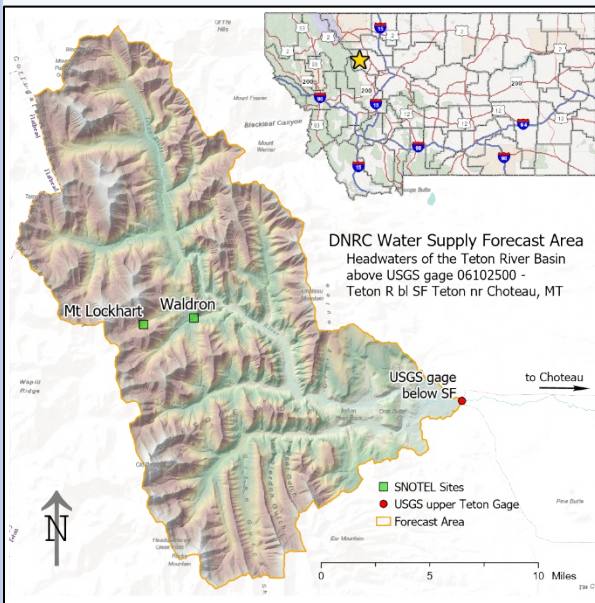
Weather Outlook

– The National Weather Service (NWS) **one-month outlook indicates normal precipitation and normal temperatures** for Central Montana. The long-range (3 month) outlook is showing hotter than normal temperatures and average precipitation. Current conditions in the area show a chance of thunderstorms, the 7 day forecast has temperatures climbing to the 70's before falling again near the end of the week.



Disclaimer: The DNRC snowmelt runoff forecast follows NRCS methodology using statistical best practices and professional judgment. Like any forecast it contains uncertainty. Please consider the stated error and documentation associated with each model when using the predicted flow in your decision-making process.

Forecast Area



Forecast Period is May 1 – July 31

All predicted and displayed values are calculated for this period.

On a normal year, 42,255 acre-feet of water flows by the TRSF gage from May 1 – July 31 (based on the median of the total annual flow from 1999 to 2022). **Approximately 30,213 acre-feet (or 72%) of this flow is from snowmelt** built up at high elevations during the winter and spring. The remainder of flow is from rain events between May 1 and July 31. The normal rainfall in the forecast area during this period is 6.5 inches but can vary considerably. **The median rainfall (6.5 in) produces about 12,302 acre-feet of runoff based on DNRC rainfall runoff model estimates.**

Runoff Forecast

DNRC’s May 1 water supply forecast predicts a **far below normal volume of 9,306 acre-feet** (Figure 4) of water from snowmelt, or 31% of normal. ****This is the estimated flow only from snowmelt****. Current information indicates that the 2024 runoff from accumulated snowpack is predicted to be like conditions observed in 2016, which is the driest year on record. Based on the uncertainty of the prediction, there is a **90% chance snowmelt runoff will exceed 1,468 acre-feet (5% of normal)** and a **10% chance snowmelt runoff will exceed 17,211 acre-feet (57% of normal)**.

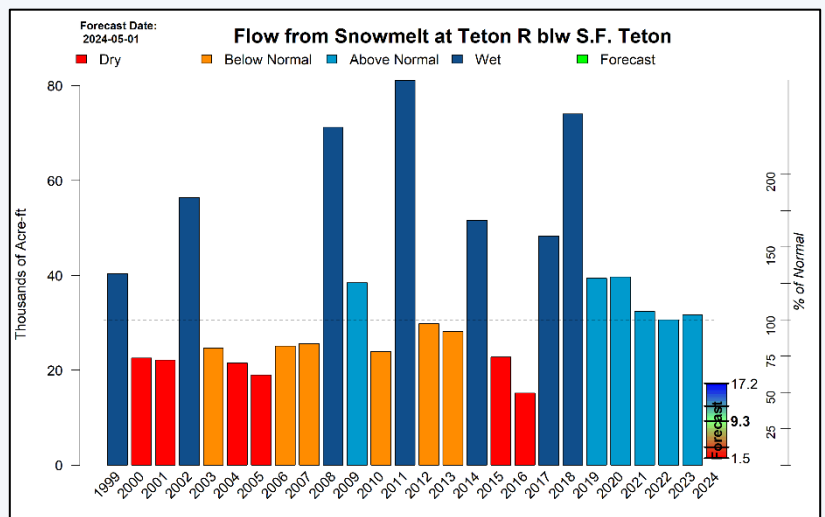


Figure 4: Historical snowmelt runoff and 2024 prediction.

If there is a normal amount (6.5 inches) of rain from May 1 – July 31, the total flow is predicted to be 21,608 acre-feet. This is 20,647 acre-feet less than normal. Any excess rain (more than 7.7 inches) could increase the volume substantially (Figure 5). If it rains 11.5 or more inches during the forecast period, 2024 could be like 2021 or 2010. For reference, 2019 had more than 12 inches of rain from April 1 – July 31. The effects of excess rain are visualized in Figure 5 as inches above normal.

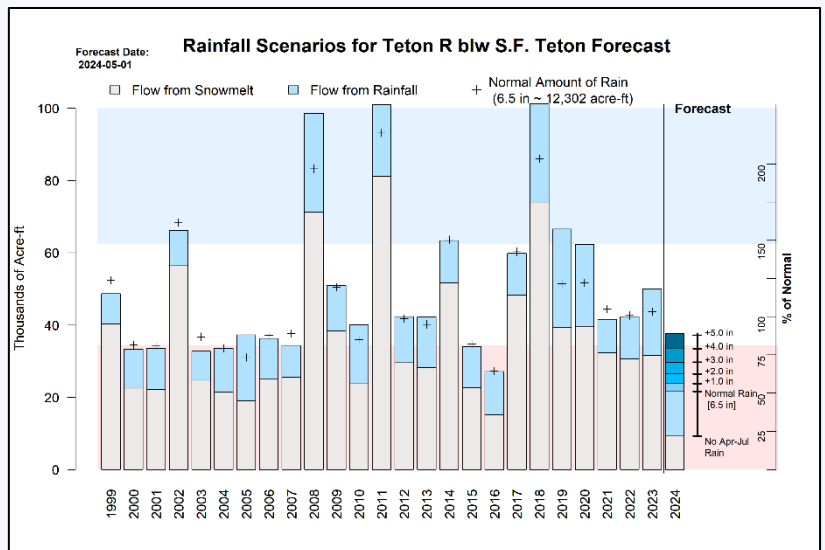


Figure 5: Proportion of flow from snowmelt vs. rain and the effects of May 1 – July 31 rain on predicted flow.



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Contact Info: Todd Blythe, Hydrologist DNRC
406-438-0717
todd.blythe@mt.gov