Post Creek Water Supply Forecast

March 1, 2024

Snowpack Conditions

Click figures to link to plots

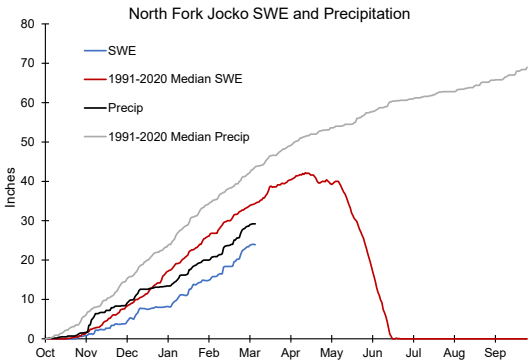


Figure 1: North Fork Jocko (Elev. at 6330 ft) SWE and precipitation.

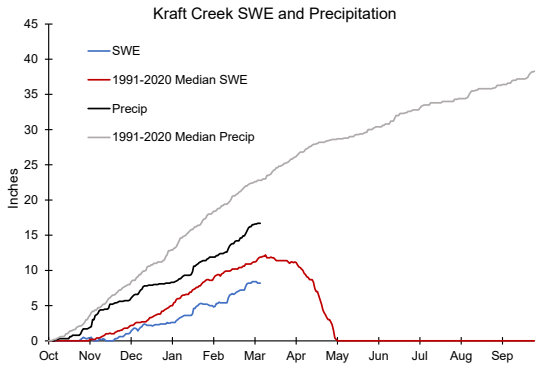


Figure 2: Kraft Creek (Elev. at 4750 ft) SWE and precipitation.

– Snowpack conditions (Snow Water Equivalent or SWE) at the Natural Resource Conservation Service (NRCS) North Fork Jocko and Kraft Creek SNOTEL sites are **trending below normal** as of March 1. **North Fork Jocko is 70% of the median** (Figure 1) and **Kraft Creek is at 77% of the median** (Figure 2). SWE was near normal following early Fall snowstorms this water year, but has continued below normal since the start of December. Precipitation in general has been below average, which is a pattern observed at nearly all SNOTEL's across Montana this winter. Based on snowpack and precipitation, March conditions are looking poor for water supply conditions and without a reversal of precipitation patterns, this year is likely to yield below average volumes. As of March 1, the mountains should have accumulated almost (80%) of the winters total snow at higher elevations and will peak likely this month at lower elevations.

Streamflow and Reservoir Conditions

– The Confederated Salish and Kootenai (CSKT) Water Resources Program operates a real-time stream gage on Post Creek, 4860 Post Creek abv McDonald Reservoir. The gage is operating but is not currently reading flow, likely due to ice/winter conditions.

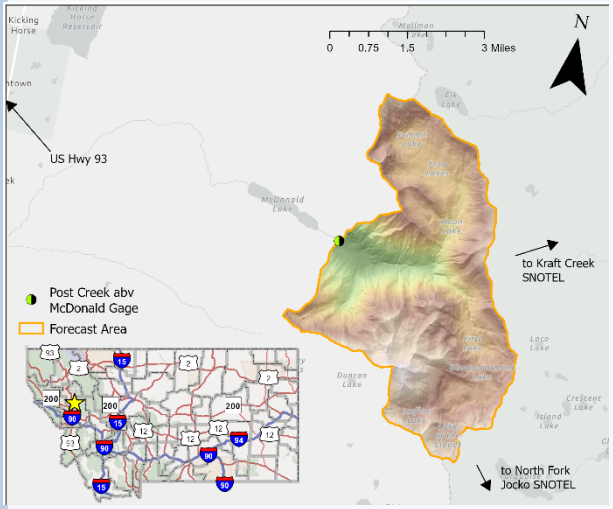
- **Active Storage in McDonald Lake is currently 1024 / 8258 acre-ft (12%)**

Weather Outlook

– The National Weather Service (NWS) **one-month outlook indicates approximately normal precipitation and normal temperatures** for Northwestern Montana. The El Niño Southern Oscillation (ENSO) index, is a measure of whether equatorial Pacific Ocean conditions known as El Niño (typically warmer and drier for Montana) or La Niña (typically colder and wetter) could develop and influence weather in Montana. Currently, El Niño conditions exist with warmer sea surface temperatures. El Niño has likely contributed to the warm/dry conditions so far this year. ENSO is projected (~70-80% chance) to transition to ENSO-neutral in the next 3 months, meaning **warm/dry conditions may persist for the near term but could also transition to normal conditions between now and June**.

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 April 1 – July 31

All predicted and displayed values are calculated for this period.

On a **normal year, 33,292 acre-feet of water** flows by the Post Cr abv McDonald gage from April 1 – July 31 (based on the median of the total annual flow from 1991 to 2021). **Approximately 23,199 acre-feet (or 70%) 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 April 1 and July 31. The normal rainfall in the forecast area during this period is 12.8 inches but can vary considerably. **The median rainfall (12.8 in) produces about 8,226 acre-feet of runoff based on DNRC rainfall runoff model estimates.**

Runoff Forecast

The March 1 water supply forecast predicts a **below normal volume of 19,344 acre-feet** (Figure 3) of water from snowmelt, or 83% of normal. ***This is the estimated flow only from snowmelt***. Current information indicates that the 2024 flow from accumulated snowpack is predicted to be like conditions observed in 1995 and 2000. The uncertainty in the March forecast is generally highest because the mountains can still accumulate snow for the next several months. Based on the uncertainty of the prediction, there is a **90% chance snowmelt runoff will exceed 13,632 acre-feet (59% of normal)** and a **10% chance snowmelt runoff will exceed 27,837 acre-feet (120% of normal).**

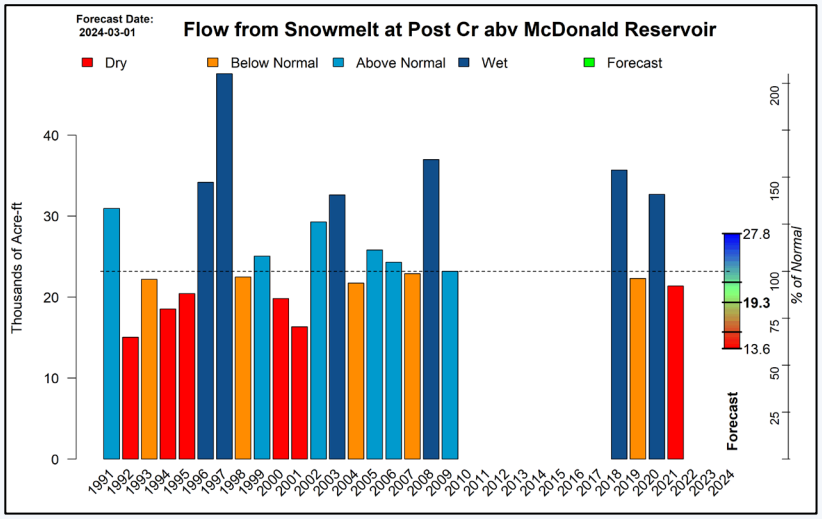


Figure 3: Historical snowmelt runoff and 2024 prediction.

If there is a normal amount (12.8 inches) of rain from April 1 – July 31, the total runoff is predicted to be 27,569 acre-feet. This is **5,723 acre-feet less than normal.** Any excess rain (more than 12.8 inches) could increase the volume substantially (Figure 4). If it rains 17.8 or more inches during the forecast period, 2024 could be more like 2006. The **effects of excess rain are visualized in Figure 4** as inches above normal.

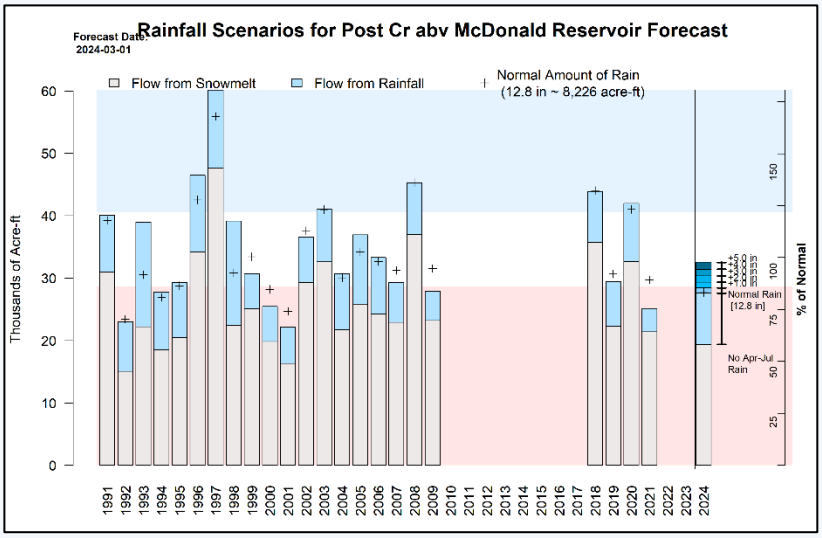


Figure 4: Proportion of flow from snowmelt vs. rain and the effects of April 1 – July 31 rain on predicted flow.

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