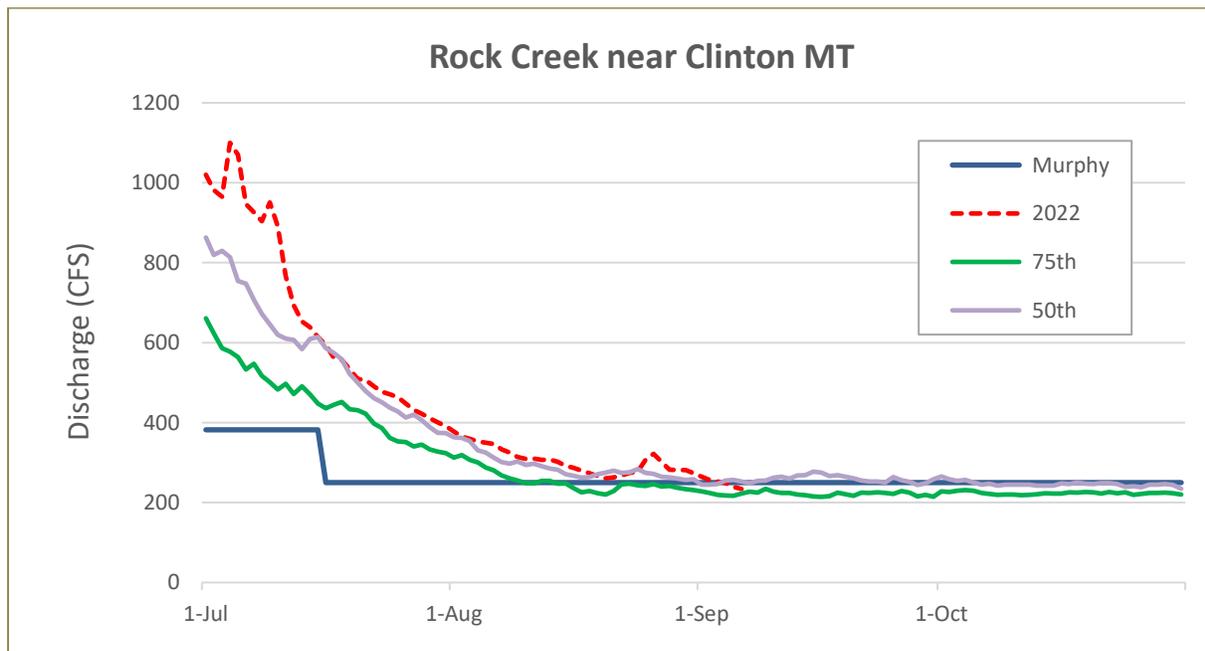




**MEMORANDUM**

To: Bill Schenk, Trevor Watson  
C: Eileen Ryce, Randy Arnold, Pat Saffel, Stephen Begley, Andy Brummond, Seth Makepeace  
From: Amy Groen, FWP Water Program  
Brad Liermann, Rock Creek Fisheries Management Biologist  
Date: September 7, 2022  
Subject: Rock Creek – Call on Junior Water Rights

Fisheries and Water Program staff have monitored flow and water temperature on Rock Creek and consulted on river conditions and potential merits of placing call on junior water uses. We jointly recommend that FWP make call on Rock Creek. Stream flow on Rock Creek has dropped below FWP’s Murphy Right. The hydrograph below shows that flow is near the 75<sup>th</sup> percentile exceedance flow (level met or exceeded 3 out of 4 years) and below the median for the USGS gage near Clinton, MT (50-year period of record).

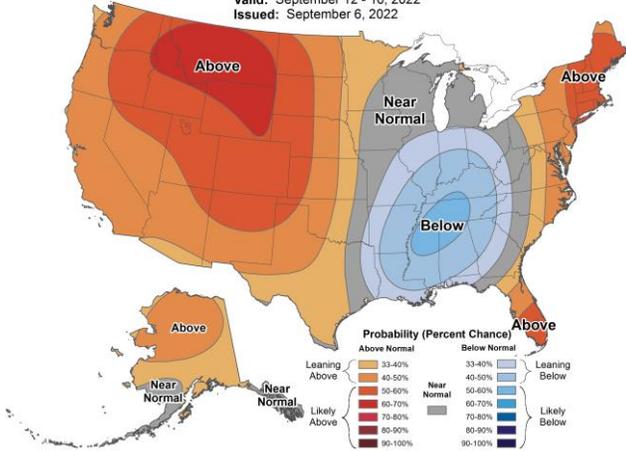


The 6-10, 8-14 and Monthly Temperature Outlooks lean towards above average temperature (graphics attached). Precipitation outlook for the month of September points towards below normal precipitation. Given expected weather conditions and high demand for irrigation water, streamflow would not be expected to again meet FWP’s instream flow rights into the fall without some assistance from precipitation events.

# Climate Outlook

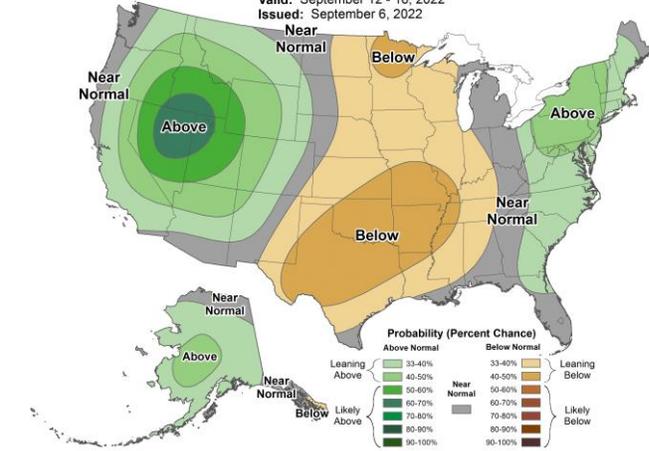
## 6-10 Day Temperature Outlook

Valid: September 12 - 16, 2022  
Issued: September 6, 2022



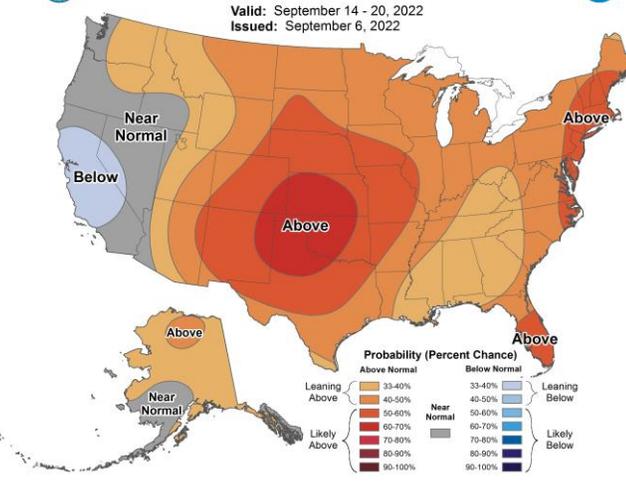
## 6-10 Day Precipitation Outlook

Valid: September 12 - 16, 2022  
Issued: September 6, 2022



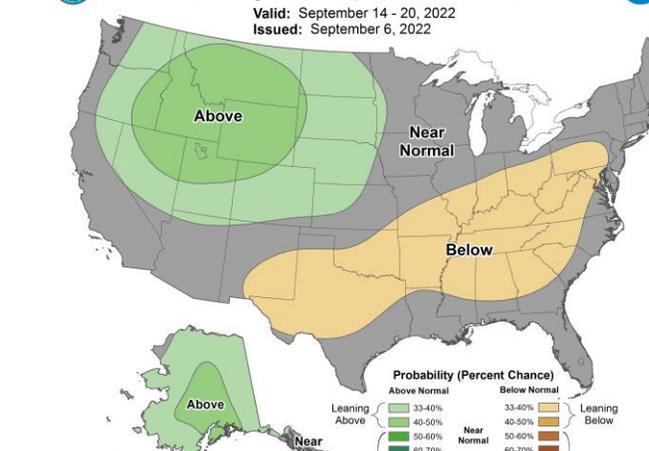
## 8-14 Day Temperature Outlook

Valid: September 14 - 20, 2022  
Issued: September 6, 2022



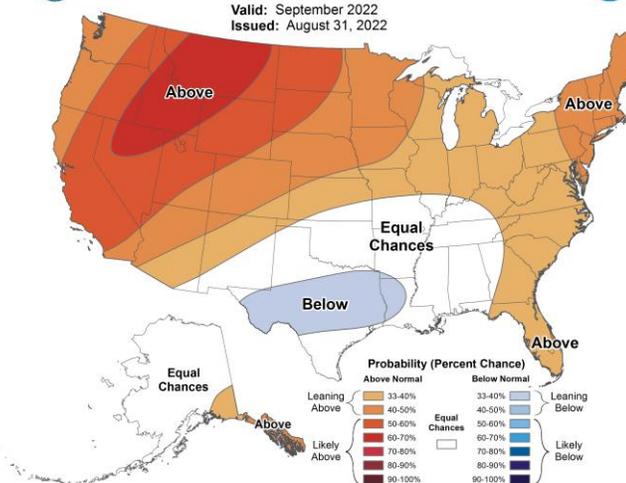
## 8-14 Day Precipitation Outlook

Valid: September 14 - 20, 2022  
Issued: September 6, 2022



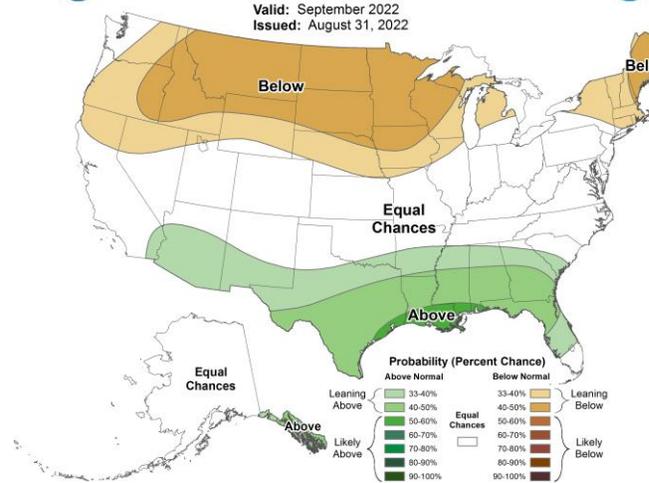
## Monthly Temperature Outlook

Valid: September 2022  
Issued: August 31, 2022



## Monthly Precipitation Outlook

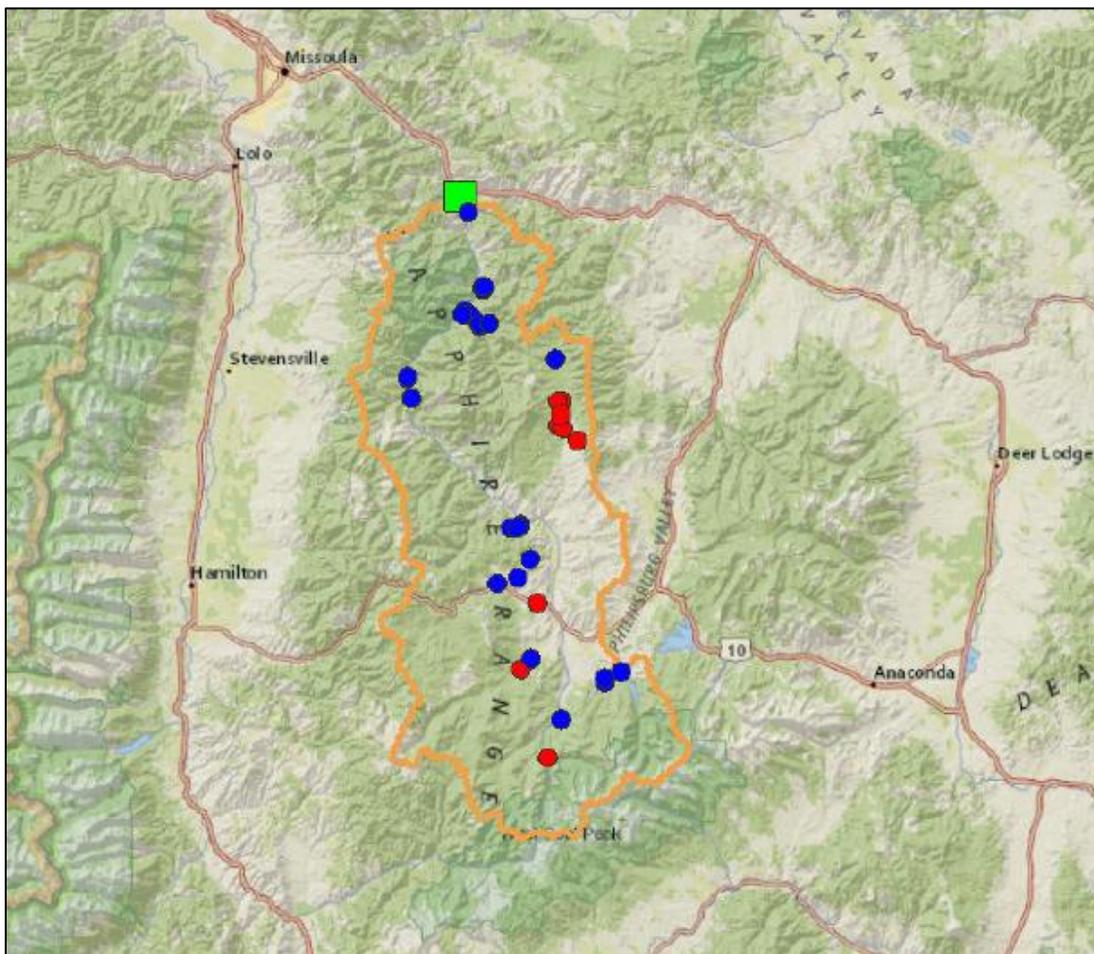
Valid: September 2022  
Issued: August 31, 2022



A review of DNRC’s water rights database includes a list of 23 junior water rights, excluding instream flow rights, stock directly from the source, and domestic rights without irrigation. Each of the water rights were reviewed to determine if cessation of water use would likely result in additional flow reaching Rock Creek.

Purpose	Call	No Call	Total Called Flow Rate
Irrigation	13	1	6.60 cfs
Commercial/Domestic	2	0	8.34 cfs
Fish & Wildlife	4	0	12.25 cfs
Mining	3	0	1.61 cfs
<b>Total</b>	<b>22</b>	<b>1</b>	<b>28.80 cfs</b>

The following map shows the location of all junior water rights. Those represented by blue dots would be called while those represented by red dots would not because of the low likelihood of improving flow in the river. The green square is the location of USGS Gage 12334510 on Rock Creek near Clinton, MT.



Rock Creek and its tributaries are important habitat for native bull trout and westslope cutthroat trout. Dewatering and associated warm water temperatures can negatively impact the fishery and particularly these species. High-water temperatures and fragmented habitat can also increase acute stress, disease development and induce mortality. During high temperature periods, higher streamflow can counteract the effects of high temperature and improve fish survival by moderating water temperature. The chart below shows maximum daily water temperatures at the Lower Rock Creek Gage. A commonly used threshold for native bull trout and westslope cutthroat trout is 15°C; conditions above these temperatures are considered unsuitable for these native salmonids. While temperatures have improved recently in Rock Creek, they still exceed 15°C, and higher than normal air temperatures are forecast for this area as seen in the figures above.

